

## TEST REPORT

REPORT NO.: 2019EA0022

PAGE : 1 OF 70

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Applicant : DF ELECTRONIC SDN. BHD.  
NO. 15, 17 & 19, JALAN SEKSYEN 1/20,  
KAJANG UTAMA, 43000 KAJANG, SELANGOR, MALAYSIA.

Manufacturer : DF ELECTRONIC SDN. BHD.  
NO. 15, 17 & 19, JALAN SEKSYEN 1/20,  
KAJANG UTAMA, 43000 KAJANG, SELANGOR, MALAYSIA.

Product : Switches For Household And Similar Fixed Installation  
(Electronic Wall Switches)

Reference Standard / Method of Test : MS IEC 60669-2-1: 2012 in conjunction with MS IEC 60669-1: 2012;  
IEC 60669-2-1: 2009 in conjunction with IEC 60669-1: 2007.

Description of Sample : Brand : HOMEREVON  
Model : eSWITCH-R-3G  
Rating : Voltage : 220 – 240 V ~  
Frequency : 50/60 Hz  
Rated load : 450 W  
Classification : Touch switch, fixed, flush type & with  
Indicator lamp.


Date Received of Complete Application : 05 JUNE 2018

Job No. : J20181420661

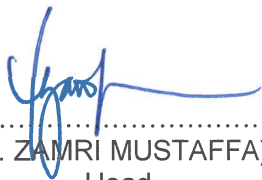
Overall Test Result : **COMPLIED** (see page 3 for details)

Issued Date : 20 FEBRUARY 2019

Approved Signatories

  
.....  
(KHAIRUL AZMI MOHD HASSAN)  
Testing Executive



  
.....  
(M. ZAMRI MUSTAFFA)  
Head  
Electrical & Electronic 1 Section  
Testing Services Department

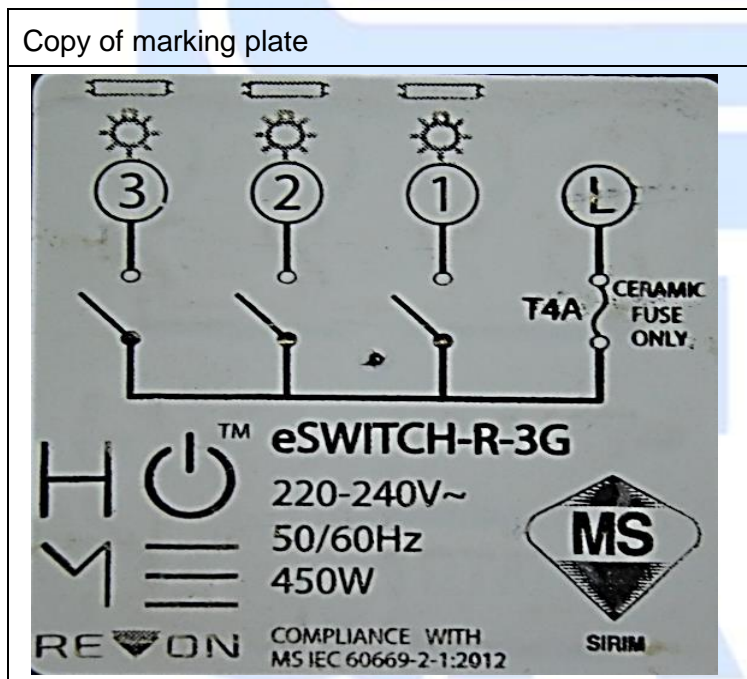
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### **SUMMARY OF TEST(S):**

1. This is type test report as requested by the applicant.
2. The tests were conducted on submitted samples as listed in table below:

Clause(s)/sub-clause(s)	Test(s)
All clauses except 18.2, 19.101, 19.102, 24, 26, 101 and 102	General tests
18.2	Making and breaking
19.101	Normal operation for incandescent lamps
19.102	Normal operation for fluorescent lamps
24	Resistance to abnormal heat, to fire and to tracking
26	EMC requirements
101 and 102	Abnormal conditions and Components

3. The product were described as follows:



4. These is no different in construction and designation of this product except for the cover come with white, silver and gold color.
5. All the tests were carried out at ambient temperature of  $25 \pm 5$  °C and at rated voltage of 220 – 240 V~, unless otherwise specified.

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6. The abbreviation used in this test report denotes as follows:

- Pass : Complied with the requirement
- Fail : Not complied with the requirement
- NA : Not applicable with the requirement
- NC : Not conducted

#### **SUMMARY OF RESULT(S):**

The test results for the submitted test samples as described in this test report complied with the requirements of the reference standard, MS IEC 60669-2-1: 2012 in conjunction with MS IEC 60669-1: 2012 and IEC 60669-2-1: 2009 in conjunction with IEC 60669-1: 2007.

#### **ADDITIONAL INFORMATION(S):**

1. Tested by : Khairul Azmi Mohd Hassan
2. Checked by : Nurul Akmal Mohamed Izhar
3. Date of test item(s) received:
  - a) 1<sup>st</sup> submission: 05 JUNE 2018
  - b) 2<sup>nd</sup> submission: 09 AUGUST 2018 (Submission of additional samples with completed marking)
  - c) 3<sup>rd</sup> submission: 14 FEBRUARY 2019 (submission of component list)
4. Date of test performed: 22 JUNE 2018 – 03 JANUARY 2019
5. This test report consists of:
  - i) Main Test Report: 70 pages (page 1 – 70)



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Clause	Requirement + Test	Result – Remark	Verdict
<b>6</b>	<b>RATINGS</b>		
6.1	Preferred rated a.c. voltage (V)	220 – 240 V	—
6.2	Preferred rated load (not less than 160 VA)	450W	—
6.3	Preferred rated supply frequencies	50/60 Hz	—
6	For electronic RCS, preferred IEC 60669-2-2	-	—
6	For electronic TDS, preferred IEC 60669-2-3	-	—

<b>7</b>	<b>CLASSIFICATION</b>		
7.1	Switches are classified according to:		Pass
7.1.1	Possible connections	Three-circuit switches with a common incoming line	—
	For electronic TDS, preferred IEC 60669-2-3	-	—
7.1.2	Contact openings	Normal	—
7.1.3	Void		—
7.1.4	Protection against harmful ingress of water;	IP X0	—
7.1.5	Method of actuating the switch	Touch switch	—
	For electronic RCS, preferred IEC 60669-2-2	-	—
	For electronic TDS, preferred IEC 60669-2-3	-	—
7.1.6	Method of mounting the switch	Flush type	—
7.1.7	Method of installation, as a sequence of the design	Design A	—
7.1.8	Type of terminal	Screw-type	—
7.1.9	Protection against harmful effects due to ingress of solid foreign objects	IP 2X	—
7.1.101	Kind of load	Fluorescent lamp Incandescent lamp	—
7.101	For electronic RCS, preferred IEC 60669-2-2	-	—
7.102	For electronic RCS, preferred IEC 60669-2-2	-	—
7.103	Electronic RCS or TDS having a SELV or PELV-circuit	-	—

<b>8</b>	<b>MARKING</b>		
8.1	Switches marked with:		
	- rated voltage (V) .....	220 – 240 V	Pass

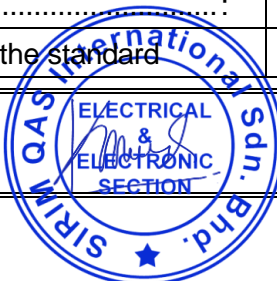
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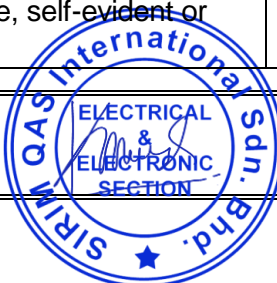
Clause	Requirement + Test	Result – Remark	Verdict
	- rated control voltage, if different from rated voltage (V) .....		NA
	- rated current (A) or rated load (VA or W) .....	See page 2	Pass
	- symbol for nature of supply .....	~	Pass
	- manufacturer's or responsible vendor's name, trade mark or identification mark .....	HOMEREVON	Pass
	- type reference .....	eSWITCH-R-3G	Pass
	- symbol for mini-gap construction (m) .....	-	NA
	- symbol for micro-gap construction ( $\mu$ ) .....	-	NA
	- symbol for semiconductor switching device ( $\epsilon$ ):	-	NA
	- first IP characteristic numeral, if declared higher than 2, in which case the second characteristic numeral is also marked .....	IP	NA
	- second IP characteristic numeral, if declared higher than 0, in which case the first characteristic numeral is also marked .....	IP	NA
	- rated frequency (Hz) .....	50/60 Hz	Pass
	- rating and type of any fuse incorporated .....	4A	NA
	- symbol for kind of load (see 8.2)	See page 2	Pass
	- the term "extension unit", if applicable, followed by the identifying reference .....		NA
	- the minimum height for mounting the switch indicated in the installation instruction if there is a restriction (see 10.1) .....		NA
	Switches with screwless terminals: marked with an indication of the suitability to accept rigid conductors only (if any) .....		NA
	General purpose electronic switches with included automatic function, number of operations shall be stated in the accompanying instruction sheet when number of operation is higher than the indicated in sub clause 19.101, 19.102 and 19.104.		NA
	- symbol for the adjustment of the delay time, if applicable .....		NA
	- symbol for the positions "Permanent on" and "Permanent off", if applicable .....		NA
	- symbol for "Delay time" .....		NA
8.2	Symbols used: as required in the standard		



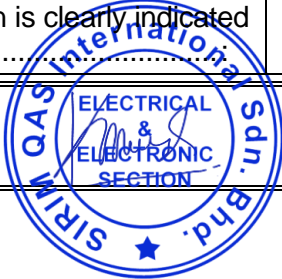
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Clause	Requirement + Test	Result – Remark	Verdict
	Marking for the nature of supply placed next to the marking for rated current and rated voltage		Pass
	Other particular symbols used are explained in the installation instructions		Pass
8.3	Marking of electronic switch placed on the main part:		
	- rated current or rated load, rated voltage, symbol for nature of supply, rated frequency (if any), type of load, rating and type of any incorporated fuse (marked on the fuse-holder or in proximity of the fuse)	See page 2	Pass
	- either the name, trade mark, or identification mark of the manufacturer or of the responsible vendor	HOMEREVON	Pass
	- length of insulation to be removed, if any		NA
	- symbol for mini-gap construction, micro-gap construction or semiconductor switching device, if applicable		Pass
	- type reference	eSWITCH-R-3G	Pass
	Information concerning more than one type of load not already marked on the electronic switch are stated in the accompanying instruction sheet		NA
	Minimum and maximum current/load are stated for each type of load		NA
	Information of the iron core transformer intended to be used with the electronic switch are given in the instruction sheet		NA
	Cover plates necessary for safety purposes and intended to be sold separately: marked with the manufacturer's or responsible vendor's name, trade mark or identification mark and type reference		NA
	IP code, when applicable, marked so as to be easily discernible when the switch is mounted and wired as in normal use		NA
	Marking clearly visible and easily legible		Pass
	Markings are placed on parts which cannot be removed without the use of a tool		Pass
8.4	Terminals for phase conductors (supply conductors): identified unless method of connection is of no importance, self-evident or indicated on a wiring diagram	Wiring diagram	Pass

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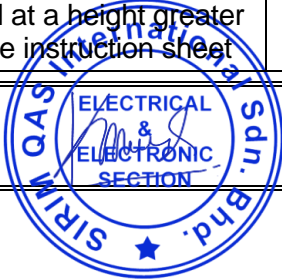


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Clause	Requirement + Test	Result – Remark	Verdict
	Indications not placed on screws or other easily removable part		Pass
	Terminals associated with any one pole for switches of pattern number 2, 3, 03 and 6/2: similar identification differing from that of terminals associated with other poles		NA
	Switches with more than two terminals: load terminal marked with an arrow pointing away from the terminal or with one of the symbol mentioned in 8.2		Pass
	Other terminals marked corresponding to the installation instructions		Pass
	Installation not made clear by the markings: a wiring diagram is provided with each electronic switch		Pass
	Terminals for the control circuit of a priority RCS with a current sensitive coil or voltage sensitive coil are marked with the appropriate symbol indicated in 8.2		NA
	Terminals for the control circuit: marked according to IEC 60445 and/or with the symbols according to 8.2		NA
8.5	Neutral terminals: N .....		NA
	Earthing terminals: [earth symbol] .....		NA
	Markings not placed on screws or other easily removable parts		NA
	Terminals for conductors not forming part of the main function of the switch:		
	- clearly identified unless their purpose is self-evident, or		NA
	- indicated in a wiring diagram fixed to the accessory		NA
	Identification of equipment terminals may be achieved by:		
	- their marking with graphical symbols according to IEC 60417 or colours and/or alphanumeric system, or		NA
	- their physical dimension or relative location		NA
8.6	Switches marked to indicate the switch position: they are so marked that the direction of movement of the actuating member to its different positions or the actual position is clearly indicated .....		NA
			



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Clause	Requirement + Test	Result – Remark	Verdict
	Switches having more than one actuating member: marking indicates the effect achieved by the operation		NA
	Marking clearly visible on the front of the switch		NA
	Not possible to fix cover, cover plate, or removable actuating members in an incorrect position		NA
	Symbols for “on” and “off” not used for indication of switch positions unless clearly indicate the direction of movement of the actuating members		NA
	Off-state not marked with an “O” if the circuit on the load side is considered as live		NA
8.6.101	Actual state of electronic switches intended to control the brightness of lamps is indicated		
	- marking on the on-/off-state position		NA
	- indicator lamp		NA
	- adjusting the lamp dimmer in the lowest control state and at rated voltage minus 10%: light still visible		NA
	When the indication of the electronic switch state is given only by the lamp, adjustment of the lamp at the lowest control state is made as specified in the following:		NA
	- for incandescent lamps:		NA
	the adjustment of lamp dimmers is made by the manufacturer		NA
	not possible to reduce the lowest setting without a tool		NA
	- for fluorescent lamps:		
	the adjustment of lamp dimmers is made by the manufacturer		NA
	it is possible for the installer to alter the lowest setting if indicated in an installation instruction		NA
8.7	Red colour only for push-button to open the circuit		NA
8.8	Special precautions necessary to take when installing the switch: details of these and clear information given in an instruction sheet which accompanies the switch		Pass
	Electronic switch containing a viewing window (lens) intended to be mounted at a height greater 1.7 m: information stated in the instruction sheet		NA
			



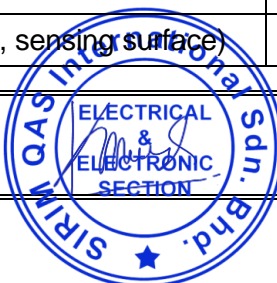
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Clause	Requirement + Test	Result – Remark	Verdict
8.9	Marking durable and easily legible. Test: 15 s with water and 15 s with petroleum spirit		Pass

<b>9</b>	<b>CHECKING OF DIMENSIONS</b>		
	Switches and boxes comply with the appropriate standard sheets, if any		Pass
	Electronic switches with dimensions other than those specified in the standard sheets (if any) if they are supplied with suitable boxes		NA

<b>10</b>	<b>PROTECTION AGAINST ELECTRIC SHOCK</b>		
10.1	Switches: live parts not accessible		Pass
	Switches designed to be fitted with pilot lights supplied at voltages other than ELV have means to prevent direct contact with the lamp		NA
	Test with standard test finger shown in figure 1 of IEC 60529		Pass
	Switches with thermoplastic or elastomeric material: additional test carried out at $35^{\circ}\text{C} \pm 2^{\circ}\text{C}$ with the test probe 11 of IEC 61032 (75 N for 1 min)		NA
	Test probe applied to:		
	- thin-walled knock-outs with a force of 10 N		NA
	- viewing windows or the like on electronic switches intended to be mounted at a height $> 1,7$ m with a force of 30 N		NA
	During the test: switches not deform and no live parts accessible		Pass
10.2	Knobs, operating levers, push buttons, rockers and the like: of insulating material, unless:		Pass
	- accessible metal parts separated from metal parts of mechanism by double or reinforced insulation, or		NA
	- reliably connected to earth		NA
	For touch sensitive electronic switches the associated protective impedance does not have to comply with the requirements of clauses 16 and 23		NA
	Accessible parts (for example, sensing surface)		NA

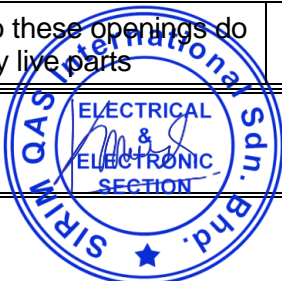
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Clause	Requirement + Test	Result – Remark	Verdict
	of electronic switches with IPX0 are connected to live parts by means of a protective impedance that:		
	- consists of at least two independent resistors or independent capacitors in series of the same nominal value, or a combination of both		NA
	- resistors comply with 102.3		NA
	- capacitors comply with 102.2		NA
	The removal of protective impedance is only possible by destruction of the electronic switch or by rendering it unusable		NA
	Test carried out between accessible metal parts and earth, through a non-inductive resistor of 2 kΩ:		
	current measured: $\leq 0,7$ mA (peak value), for a.c. up to 1 kHz .....		NA
	current measured: $\leq 0,7$ mA multiplied by the value of frequency in kHz, but not exceed 70 mA, for a.c. above 1 kHz .....		NA
	current measured: $\leq 2$ mA, for d.c. ....		NA
10.3	Accessible parts of switches with $I_n \leq 16$ A: made of insulating material	Insulating materials	Pass
10.3.1	Metal covers or cover plates protected by supplementary insulation made by insulating linings or insulating barriers		NA
	Insulating linings or insulating barriers:		
	- cannot be removed without being permanently damaged, or designed that		NA
	- cannot be replaced in an incorrect position; if they are omitted, accessories are rendered inoperable or manifestly incomplete; there is no risk of accidental contact between live parts and metal covers or cover plates; precautions are taken to prevent creepage distances or clearances becoming less than the values specified in clause 23		NA
10.3.2	Earthing of metal covers or cover plates: connection of low resistance		NA
10.4	Metal parts of mechanism not insulated from live parts: not protrude from enclosure		NA

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Clause	Requirement + Test	Result – Remark	Verdict
	Switches operated by means of a removable key or similar device: metal parts of mechanism insulated from live parts		NA
10.5	Metal parts of mechanism not accessible and insulated from accessible metal parts, unless		NA
	- separated from live parts (creepage distances and clearances have at least twice the value specified in clause 23), or		NA
	- reliably connected to earth		NA
10.6	Switches operated by means of a removable key or an intermediate part: key or an intermediate part can only touch parts insulated from live parts		NA
	key or intermediate part: insulated from metal parts of mechanism, unless		NA
	creepage distances and clearances between live parts and metal parts of mechanism have at least twice the values specified in clause 23		NA
10.7	Cord-operated switches: impossible to touch live parts when fitting or replacing the pull cord		NA
10.101	If a cover or cover-plate or a fuse can be removed without a tool or if the installation instructions for the user indicate that, for the purpose of maintenance, when replacing the fuse, covers and cover plates fastened by means of a tool have to be removed, the protection against contact with live parts is assured even after removal of cover or cover-plate (this requirement does not apply when the electronic switch must be dismantled from its supporting means for the replacement of the fuse-link)		NA
	Compliance is checked with the test probe B of IEC 61032 (10 N); test probe does not touch live parts		NA
10.102	Hole in electronic switches for adjusting the setting:		
	The adjustment does not involve the risk of an electric shock		NA
	Compliance is checked by applying a test pin according to figure 101 through the hole; test pin does not touch live parts		NA
10.103	Ventilation openings over live parts:		
	A foreign body introduced into these openings do not come into contact with any live parts		Pass
			

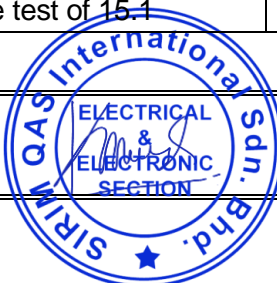
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Clause	Requirement + Test	Result – Remark	Verdict
	Compliance is checked by applying the test probe 13 of IEC 61032 through the openings; pin of test probe does not touch live parts		Pass

<b>11</b>	<b>PROVISION FOR EARTHING</b>		
	Clause not applicable to SELV electronic switches		NA
11.1	Accessible metal parts: provided with, or permanently and reliably connected to, an earthing terminal		NA
11.2	Earthing terminals: with screw clamping or screwless terminals and comply with clause 12		NA
	Capacity of earthing terminals of the same size as the corresponding terminals for the supply conductors		NA
	Any additional external earthing terminal has a size suitable for conductors of at least 6 mm <sup>2</sup> (mm <sup>2</sup> ) .....		NA
11.3	Surface-type switches with an enclosure of insulating material, with IP > X0 and more than one cable inlet, are provided for the continuity of the earthing circuit with:		
	- an internal fixed earthing terminal, or		NA
	- adequate space for a floating terminal allowing the connection of an incoming and outgoing conductor		NA
11.4	Connection between earthing terminal and accessible metal parts: of low resistance		NA
	Test current equal to 1,5 I <sub>n</sub> or 25 A (A) .....		—
	Resistance ≤ 0,05 Ω (Ω) .....		NA

<b>12</b>	<b>TERMINALS</b>		
12.1	General		
	Switches provided with screw-type terminals or with screwless terminals .....	screw-type terminals	Pass
	Clamping means of terminals: not serve to fix any other components		Pass
	All the test on terminals, with the exception of the test of 12.3 11, made after the test of 15.1		Pass

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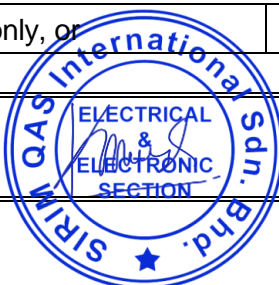
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Clause	Requirement + Test	Result – Remark	Verdict
	Terminals having screw clamping complying with IEC 60998-2-1 are considered to be in compliance with the requirements and the tests of Subclause 12.2, except those of 12.2.6 and 12.2.7 and 12.2.8, provided they are chosen according Table 2.		NA
12.2	Terminals with screw clamping for external copper conductors		
12.2.1	Switches provided with terminals which allows the proper connection of copper conductors as shows in table 2		Pass
	Rated current (A) .....	1.9A (450W)	—
	Type of conductor (rigid / flexible) .....	Rigid	—
	Smallest / largest cross-sectional area (mm <sup>2</sup> ) ..	0.5 mm <sup>2</sup> / 1.0 mm <sup>2</sup>	—
	Diameter of largest conductor (mm) .....	-	—
	Figure of terminal .....	1	—
	Minimum diameter D (minimum dimensions) of conductor space: required (mm); measured (mm) .....	2.5 mm; 2.9 mm	Pass
12.2.2	Terminals allow the conductor to be connected without special preparation		Pass
12.2.3	Terminals have adequate mechanical strength		Pass
	Screws and nut for clamping the conductors have metric ISO thread or a comparable thread		Pass
	Screws not of soft metal such as zinc or aluminium		Pass
12.2.4	Terminals resistant to corrosion		Pass
12.2.5	Screw-type terminals clamp the conductor(s) without undue damage	See appended table 12.2.5	Pass
	During the test: conductor not slip out, no break near clamping unit and no damage		Pass
12.2.6	Terminals clamp the conductor reliably between metal surfaces	See appended table 12.2.6	Pass
	During the test: conductor not move noticeably		Pass
12.2.7	Terminals designed or placed that the conductor cannot slip out while the clamping screws or nuts are tightened	See appended table 12.2.7	Pass



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Clause	Requirement + Test	Result – Remark	Verdict
	After the test: no wire of the conductor escaped outside the clamping unit thus reducing creepage distances and clearances to values lower than those indicated in clause 23		Pass
12.2.8	Terminals not work loose from their fixing to the switch		Pass
	Torque test:		
	- rated current (A) .....	1.9A (450W)	—
	- solid rigid copper conductor of the largest cross-sectional area (mm <sup>2</sup> ) (table 2) .....	1.0 mm <sup>2</sup>	—
	- torque (Nm) (table 3 or appropriate figures 1, 2, 3, 4) .....	0.4 Nm	—
	Screws and nuts tightened and loosened 5 times. During the test: terminals not work loose and show no damage		Pass
12.2.9	Clamping screws or nuts of earthing terminals: adequately locked against accidental loosening, not possible to loosen them without the aid of a tool		NA
12.2.10	Earthing terminals: no risk of corrosion		NA
	Body of brass or other metal no less resistant to corrosion		NA
	If the body is a part of a frame or enclosure of aluminium alloy, precautions are taken to avoid the risk of corrosion		NA
12.2.11	Pillar terminals: distance g no less than the value specified in figure 1: required (mm); measured (mm) .....	1.5 mm; 2.8 mm	Pass
	Mantle terminals: distance g no less than the value specified in figure 5: required (mm); measured (mm) .....		NA
12.2.12	Lug terminals:		
	- used only for switches having rated current $\geq$ 40 A		NA
	- fitted with spring washers or equally effective locking means		NA
12.3	Screwless terminals for external copper conductors		NA
12.3.1	Screwless terminals of the type suitable for:		
	- for rigid copper conductors only, or		NA



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Clause	Requirement + Test	Result – Remark	Verdict
	- for both rigid and flexible copper conductors (tests carried out with rigid and then repeated with flexible conductors)		NA
12.3.2	Screwless terminals provided with clamping units which allow the proper connection of rigid or of rigid and flexible conductors having nominal cross-sectional areas as shown in table 7		NA
	Rated current (A) .....		—
	Type of conductor (rigid / flexible) .....		—
	Smallest / largest cross-sectional area (mm <sup>2</sup> ) ..		—
	Diameter of largest rigid conductor (mm) .....		—
	Diameter of largest flexible conductor (mm) .....		—
12.3.3	Screwless terminals allow the conductor to be connected without special preparation		NA
12.3.4	Parts of screwless terminals intended for carrying current of materials as specified in 22.5		NA
12.3.5	Screwless terminals clamp specified conductors with sufficient contact pressure without undue damage to the conductor		NA
	Conductor clamped between metal surfaces		NA
12.3.6	It is clear how the connection and disconnection of the conductors is to be made		NA
	Disconnection of a conductor require an operation, other than a pull, so that can be made manually with or without a general-purpose tool		NA
	It is not possible to confuse the opening for the use of a tool with the opening intended for the conductor		NA
12.3.7	Screwless terminals intended for the interconnection of two or more conductors:		
	- during insertion, operation of clamping means of one of the conductors is independent of operation of that for the other conductor(s);		NA
	- during disconnection, conductors can be disconnected either at the same time or separately;		NA
	- each conductor introduced in a separate clamping unit.		NA





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Clause	Requirement + Test	Result – Remark	Verdict
	It is possible clamp securely any number of conductors up to the maximum as designed. Number of conductors; Nominal cross-sectional area (mm <sup>2</sup> ) ..... :		NA
12.3.8	Screwless terminals: adequate insertion obvious and over-insertion prevented		NA
	Screwless terminals of switches: undue insertion of the conductor prevented by a stop if further insertion is liable to reduce creepage distances and/or clearances required in table 20 or to influence the mechanism		NA
12.3.9	Screwless terminals properly fixed to the switch		NA
	Not work loose when conductors are connected or disconnected		NA
	Self-hardening resins used to fix terminals not subject to mechanical stress		NA
12.3.10	Screwless terminals withstand mechanical stresses occurring in normal use	See appended table 12.3.10	NA
	During application of the pull conductor not come out of the terminal		NA
	Test with apparatus shown in figure 10	See appended table 12.3.10	NA
	During the test conductors not move noticeably in the clamping unit		NA
	After these tests: neither terminals nor clamping means have worked loose and conductors show no deterioration		NA
12.3.11	Screwless terminals withstand electrical and thermal stresses occurring in normal use	See appended table 12.3.11	NA
	After the test: inspection show no changes		NA
	Repetition of test according to 12.3.10: screwless terminals withstand mechanical stresses occurring in normal use	See appended table 12.3.11	NA
	During application of the pull conductor not come out of the terminal		NA
	Test with apparatus shown in figure 10	See appended table 12.3.11	NA
	During the test conductors not move noticeably in the clamping unit		NA
	After these tests: neither terminals nor clamping means have worked loose and conductors show no deterioration		NA





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Clause	Requirement + Test	Result – Remark	Verdict
12.3.12	Screwless terminals: connected rigid solid conductor remains clamped, even when deflected during normal installation	See appended table 12.3.12	NA

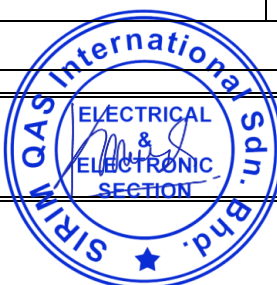
<b>13</b>	<b>CONSTRUCTIONAL REQUIREMENTS</b>		
13.1	Insulating lining, barriers and like: adequate mechanical strength and secured in a reliable manner		Pass
13.2	Switches constructed so as to permit:		
	- easy introduction and connection of the conductors in the terminals;		Pass
	- correct positioning of the conductors		Pass
	- easy fixing of the switch to a wall or in a box		Pass
	- adequate space between underside of the base and the surface on which the base is mounted or between the sides of the base and the enclosure (cover or box)		Pass
	Surface-type switches: fixing means do not damage insulation of the cable		NA
	Switches classified as design A: permit easy positioning and removal of the cover or cover plate, without displacing the conductors		Pass
13.3	Covers, cover-plates and actuating members or parts of them intended to ensure protection against electric shock:		
	- held in place at two or more points by effective fixings		Pass
	- fixed by means of a single fixing, for example by a screw, provided that they are located by another means (for example by a shoulder)		NA
	Fixings of covers, cover-plates or actuating members of switches of design A serves to fix the base: there is means to maintain the base in position, even after removal of the covers, cover-plates or actuating members		Pass
13.3.1	Covers, cover plates or actuating members whose fixing is of the screw-type:		
	Compliance checked by inspection only		Pass
13.3.2	Covers, cover plates or actuating members whose fixing is not dependent on screws and whose removal is obtained by applying a force in a direction approximately perpendicular to the mounting/supporting surface:		NA

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Clause	Requirement + Test	Result – Remark	Verdict
	Compliance checked, when their removal may give access, with the standard test finger:		NA
	to live parts: by the test of 20.4 (verification of the non-removal and the removal)		NA
	to non-earthed metal parts separated from live parts by creepage distances and clearances according to table 20: by the test of 20.5 (verification of the non-removal and the removal)		NA
	only to insulating parts, or earthed metal parts, or metal parts separated from live parts by creepage distances and clearances twice those according to table 20, or live parts of SELV circuits not greater than 25 V a.c.: by the test of 20.6 (verification of the non-removal and the removal)		NA
13.3.3	Covers, cover-plates or actuating members whose fixing is not dependent on screws and whose removal is obtained by using a tool, in accordance with the manufacturer's information given in an instruction sheet or in a catalogue:		NA
	Compliance checked, when their removal may give access, with the standard test finger:		NA
	to live parts: by the test of 20.4 (verification of the non-removal only)		NA
	to non-earthed metal parts separated from live parts by creepage distances and clearances according to table 20: by the test of 20.5 (verification of the non-removal only)		NA
	only to insulating parts, or earthed metal parts, or metal parts separated from live parts by creepage distances and clearances twice those according to table 20, or live parts of SELV circuits not greater than 25 V a.c.: by the test of 20.6 (verification of the non-removal only)		NA
13.4	Switches: no free openings in their enclosures according to their IP classification		Pass
	Free openings according to 10.102 and 10.103 are accepted		Pass
13.5	Knobs of electronic switches are securely fixed in a reliable manner		NA
	knobs used to indicate the position of switches: not possible to fix them in a wrong position, if this may result in a hazard		NA
	Pull and push tests:		



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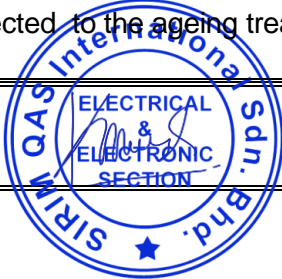
Clause	Requirement + Test	Result – Remark	Verdict
	- axial pull is likely to be applied: 30 N for 1 min		NA
	- axial pull is unlikely to be applied: 15 N for 1 min		NA
	- axial push: 30 N for 1 min		NA
	During and after these tests:		
	- the electronic switch shows no damage		NA
	- an knob have not moved so as to impair compliance with this standard		NA
13.6	Screws or other means for mounting the switch on a surface or in a box or enclosure: easily accessible from the front.		Pass
	Fixing means not serve any other fixing purpose		Pass
13.7	Combinations of switches, or of switches and socket-outlets, comprising separate bases: correct position of each base ensured		NA
	Fixing of each base independent of the fixing of the combination to the mounting surface		NA
13.8	Accessories combined with switches: comply with their standard		NA
13.9	Surface-type switches with IP > 20 are in according to their classification when fitted with conduits or with sheathed cables		NA
	Surface-type switches with IPX4 or IPX5 have provisions for opening a drain hole		NA
	Switches provided with a drain hole: it is not less than 5 mm in diameter, or 20 mm <sup>2</sup> in area with a width and a length not less than 3 mm ..... : Ø mm / mm <sup>2</sup>		NA
	Drain hole: effective		NA
	Lid springs (if any): of corrosion resistant material (bronze or stainless steel)		NA
13.10	Switches to be installed in a box: conductor ends can be prepared after the box is mounted in position, but before the switch is fitted in the box		Pass
	Base have adequate stability when mounted in the box		Pass
13.11	Surface-type switches with IP > X0, pattern numbers 1, 5 and 6, with more than one inlet opening, provided with:		
	- fixed additional terminal complying with the requirements of clause 12, or		NA

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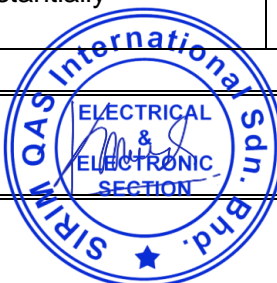
Clause	Requirement + Test	Result – Remark	Verdict
	- adequate space for a floating terminal		NA
13.12	Inlet openings: allow the introduction of the conduit or the sheath of the cable		NA
	Surface-type switches: intended conduit or protective covering can enter at least 1 mm into the enclosure		NA
	Inlet openings for conduit entries of surface-type switches: capable of accepting conduit sizes of 16, 20, 25 or 32 or a combination of at least two of these sizes not excluding two of the same size .....		NA
	Inlet openings for cable entries of surface-type switches: capable of accepting cables having the dimensions specified in table 12 or be as specified by the manufacturer: rated current (A); limits of external diameter of cables min/max (mm) .....		NA
13.13	Surface-type switches: provision for back entry (if are intended)		NA
13.14	Membranes or the like (if provided): replaceable		NA
13.15	Requirements for membranes in inlet openings		NA
13.15.1	Membranes, lenses and the like reliably fixed and not displaced by the mechanical and thermal stresses occurring in normal use		NA
	Test on electronic switches fitted with membranes, lenses and the like subjected to the ageing treatment specified in 15.1:		NA
	Electronic switches placed at 40 °C ± 2 °C for 2 h; force of 30 N applied for 5 s by means of the tip of test probe 11 of IEC 61032. During these tests: membranes, lenses and the like are not deformed, live parts not accessible		NA
	Membranes, lenses and the like likely to be subjected to an axial pull: axial pull of 30 N applied for 5 s. During this test: membranes, lenses and the like not come out		NA
	Test repeated on membranes, lenses and the like not subjected to any treatment		NA
13.15.2	Membranes in inlet openings: introduction of the cables into the accessory permitted when the ambient temperature is low		NA
	Test on membranes not subjected to the ageing treatment specified in 15.1 and fitted with the switches		NA
			



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Clause	Requirement + Test	Result – Remark	Verdict
	Switches kept at -5 °C for 2 h: possibility to introduce cables of the heaviest type through the membranes		NA
	After the test: no harmful deformation, cracks or similar damage		NA
13.101	Automatic protective devices incorporated in electronic switches for lamp circuits have at least micro-disconnection		NA
	Cut-outs in electronic switches for motor speed control circuits: non-self-resetting		NA
13.102	Electronic switches for the control of the voltage of iron core transformers for extra low-voltage incandescent lamps (for example, halogen): maximum tolerance of the phase-control angle between the positive and negative half-wave of $\pm 2^\circ$ .....		NA
13.103	TDS shall be of the resetting type		NA

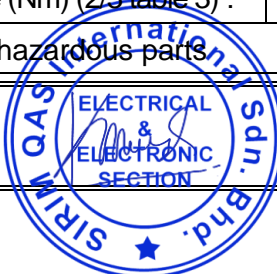
<b>14</b>	<b>MECHANISM</b>		
	Clause only applicable to electronic switches provided with mechanical switching devices		NA
14.1	Actuating member of a switch, when released, automatically take up the position corresponding to that of moving contacts		NA
14.2	Moving contact of switches can come to rest only in “on” and “off” positions		NA
	Intermediate position permissible if:		
	- it corresponds to the intermediate position of the actuating member, and		NA
	- the insulation between fixed and moving contacts is adequate. Electric strength test as specified in 16.2: test voltage a.c. for 1 min (V) :	500 V / 750 V / 1250 V / 2000 V	NA
14.3	No undue arcing in slowly operation		NA
	Test carried out at the end of the test of clause 19.1: breaking of the circuit 10 times, actuating member moved over a period of 2 s. During the test: no sustained arcing		NA
14.4	Switches of pattern numbers 2, 3, 03 and 6/2 make and break all poles substantially simultaneously		NA



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Clause	Requirement + Test	Result – Remark	Verdict
	Neutral pole of switches of pattern numbers 03 not make after or break before the other poles		NA
14.5	Action of the mechanism: independent of the presence of cover or cover plate. Test: no flicker		NA
14.6	Cord-operated switches: effecting a change by application and removal a pull not exceeding:		
	- 45 N applied vertically, and		NA
	- 65 N applied at $45^\circ \pm 5^\circ$		NA
14.101	Position indicator used in RCS equipped with an incorporated hand-operated device indicates the position of the switching circuit clearly and without ambiguity		NA
	TDS equipped with an incorporated hand-operated device and a position indicator is used indicates the position of the switching circuit clearly and without ambiguity		NA

<b>15</b>	<b>RESISTANCE TO AGEING, PROTECTION PROVIDED BY ENCLOSURES OF SWITCHES, AND RESISTANCE TO HUMIDITY</b>		
<b>15.1</b>	<b>Resistance to ageing</b>		
	Switches and boxes placed for 7 days (168 h) in a heating cabinet at $70^\circ\text{C} \pm 2^\circ\text{C}$		Pass
	- no crack visible after test with normal or corrected vision without additional magnification		Pass
	- no sticky or greasy material as a result of heat		Pass
	- no trace of cloth (forefinger pressed with 5 N)		Pass
	- no other damage as a result of heat		Pass
<b>15.2</b>	Protection provided by enclosures of switches		
<b>15.2.1</b>	Protection against access to hazardous parts and against harmful effects due to ingress of solid foreign objects		Pass
	Enclosure of the switch provides a degree of protection against access to hazardous parts and against harmful effects due to ingress of solid foreign objects in accordance with the IP classification of the switch		Pass
	Glands: torque (Nm) (2/3 of torque applied in 20.3) .....		—
	Screws of the enclosure: torque (Nm) (2/3 table 3) :		—
<b>15.2.1.1</b>	Protection against access to hazardous parts		



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Clause	Requirement + Test	Result – Remark	Verdict
	Appropriate test according to IEC 60529 .....:	IP 2X	Pass
15.2.1.2	Protection against harmful effects due to ingress of solid foreign objects		
	Appropriate test according to IEC 60529 .....:		NA
	Dust not penetrate in quantity to interfere with satisfactory operation or to impair safety		NA
15.2.2	Protection against harmful effects due to ingress of water		
	Enclosure of switches provide a degree of protection against harmful effects due to ingress of water in accordance with their IP classification		NA
	Appropriate test according to IEC 60529 .....:	IP	NA
	Flush-type and semi-flush-type switches fixed:		
	- in a test wall using an appropriate box in accordance with the manufacturer's instructions		NA
	- in a test wall according to figure 27		NA
	Screws of the enclosure: torque (Nm) (2/3 table 3) :		—
	Glands: torque (Nm) (2/3 of torque applied in table 19) .....:		—
	Specimens withstand an electric strength test specified in 16.2 which is started within 5 min of completion of the test		NA
15.3	Resistance to humidity		
	Switches proof against humidity which may occur in normal use		Pass
	Compliance checked by a humidity treatment carried out in a humidity cabinet containing air with relative humidity maintained between 91 % and 95 %. Specimens kept in the cabinet for:		Pass
	- 2 days (48 h) for switches with IPX0		Pass
	- 7 days (168 h) for switches with IP>X0		NA
	After this treatment: specimens show no damage		Pass
<b>16</b>	<b>INSULATION RESISTANCE AND ELECTRIC STRENGTH</b>		
16.1	The insulation resistance measured 1 min after application of 500 V d.c.	See appended table 16.1	Pass
16.2	Electric strength: a.c. test voltage applied for 1 min	See appended table 16.2	Pass

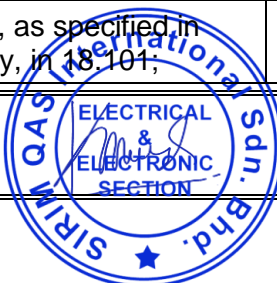




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Clause	Requirement + Test	Result – Remark	Verdict
<b>17</b>	<b>TEMPERATURE RISE</b>		
17.1	Switches so constructed that the temperature rise in normal use is not excessive		Pass
	No oxidation or any other deterioration of contacts, if any		NA
	Material and components of electronic switch are not adversely effected by the temperature rise in normal use		Pass
	During the test:		
	- electronic switch state not change		Pass
	- fuses and other protective devices not operate		Pass
	- permissible temperature rises determined in table 102, column concerning clause 17, not exceeded	See appended table 17	Pass
	After the test, electronic switch is in operating condition		Pass
	Sealing compounds, if any, have not flowed		NA

<b>18</b>	<b>MAKING AND BREAKING CAPACITY</b>		
	Electronic switches have adequate making and breaking capacity		Pass
	Test carried out only on electronic switches provided with mechanically or electromechanically operated contact mechanisms	electromechanically operated contact mechanisms: relay	Pass
	Contact mechanisms have adequate making and breaking capacity		Pass
	Test made on three new specimens of the complete contact mechanism		Pass
	Model/type reference .....	eSWITCH-R-3G	—
	Pattern number .....	-	—
	Rated current (A) / Rated load (W or VA) .....	1.9A (450W)	—
	Rated voltage (V) .....	220 – 240 V	—
	Test for electronics switches for the control of:		
	- fluorescent lamp loads, as specified in 18.1 of part 1;		Pass
	- motor speed control circuits, as specified in 18.1 of part 1 and, additionally, in 18.101;		NA





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Clause	Requirement + Test	Result – Remark	Verdict
	- voltage of iron core transformers for extra low-voltage incandescent lamps, as specified in 18.1, 18.2 of part 1 and, additionally, in 18.102;		NA
	- voltage of electronic step-down converters for extra low-voltage incandescent lamps, as specified in 18.2 of part 1;		NA
	- other types of load, as specified in 18.1 and 18.2 of part 1.	Incandescent lamp load	Pass
	Rate of operation (operation per minute) .....	30	—
	Electronic switches whose cycle of operation limited by their application: rate of operation specified by the manufacturer (operation per minute) .....	-	—
	Electronic switches fitted with conductors having nominal cross-sectional area as for the test of clause 17 (mm <sup>2</sup> ) .....	1.5 mm <sup>2</sup>	—
18.1	Test with cos $\phi$ 0,3 alternating current		Pass
	- test voltage (1,1 V <sub>n</sub> ) (V) .....	264 V	—
	- test current (1,25 I <sub>n</sub> ) (cos $\phi$ 0,3) (A) .....	2.4 A	—
	- 200 operations; rate (operations per minute) :	30	—
	- electronic switches whose rate of operation is limited by their application (for example, heat and light sensors): electronic switch is set to the shortest cycle time possible and re-activated at the end of each cycle within a time of (2 ± 0,5) s .....	-	—
	- samples number .....	1,2,3	—
	During the test: no sustained arcing		Pass
	After the test: specimens show no damage		Pass
	Test with cos $\phi$ 0,3 alternating current for electronics TDS		NA
	- test voltage (1,1 V <sub>n</sub> ) (V) .....		—
	- test current (1,25 I <sub>n</sub> ) (cos $\phi$ 0,3) (A) .....		—
	- 200 operations; rate (operations per minute) :		—
	- electronic TDS whose rate of operation is limited by their application (for example, heat and light sensors): electronic TDS is set to the shortest cycle time possible and re-activated at the end of each cycle within a time of (2 ± 0,5) s .....		—

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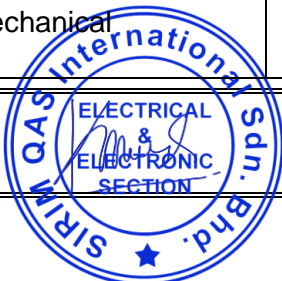
Clause	Requirement + Test	Result – Remark	Verdict
	- samples number .....		—
	During the test: no sustained arcing		NA
	After the test: specimens show no damage		NA
18.2	Test with tungsten filament lamps load (switches with $I_n \leq 16$ A / $V_n \leq 250$ V and switches of pattern numbers 3 and 03 with $V_n > 250$ V)		Pass
	- test voltage ( $V_n$ ) (V) .....	240 V	—
	- test current ( $\geq 1,2 I_n$ ) (A) .....	2.28 A	—
	- number of 200 W tungsten filament lamps .....	4	—
	- 200 operations; rate (operations per minute) ..	30	—
	- samples number .....	4, 5, 6	—
	During the test: no sustained arcing nor welding of the contacts		Pass
	After the test: specimens show no damage		Pass
18.101	Additional test for electronic switches for the control of motor speed control circuits:		NA
	Rated current $I_n$ (A) of electronic switch ( $\cos\phi$ 0.6) .....		—
	Making: 50 cycles with: test current: $9 I_n$ (A); test voltage: $V_n$ (V); $\cos\phi$ $0.8 \pm 0.05$ .....		NA
	Breaking: 50 cycles with: test current: $6 I_n$ (A); test voltage: $V_n$ (V); $\cos\phi$ $0.6 \pm 0.05$		NA
	During the test: no sustained arcing		NA
	After the test: specimens show no damage		NA
18.102	Additional test for electronic switches for the control of the voltage of iron core transformers for extra low-voltage incandescent lamps (for example, halogen):		NA
	- test voltage ( $V_n$ ) (V) .....		—
	- 50 making operations in a test circuit adjusted to a test current 10 times $I_n$ (A) for one half-cycle of the power supply frequency .....		—
	During the test: no sustained arcing		NA
	After the test: specimens show no damage		NA

<b>19</b>	<b>NORMAL OPERATION</b>		
	Electronic switches withstand the mechanical, electrical and thermal stresses occurring in normal use		Pass

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Clause	Requirement + Test	Result – Remark	Verdict
	Electronic switches whose cycle of operation is limited by their application: rate of operation specified by the manufacturer (operation per minute) .....		—
	For general purpose electronic switches with included automatic function the number of operations for tests of subclauses 19.101, 19.102 and 19.104 is that specified in the relevant subclause.	See clause 19.101 and 19.102	—
	If a manufacturer declares a number of operation higher than those indicated in the relevant subclause, the tests shall be made according to declared value.		—
	Electronic RCS withstand without excessive wear or other harmful effect, the mechanical, electrical and thermal stresses occurring in normal use		NA
	- model/type reference .....		—
	- pattern number .....		—
	- nominal cross-sectional area per clause 18 (mm <sup>2</sup> ) .....		—
	- test voltage (Vn) (V) .....		—
	- test current (In) (cos φ 0,6) (A) .....		—
	- number of operations per table 17 .....		—
	- rate (operations per minute) .....		—
	- samples number .....		—
	Reduced electric strength per clause 16	See appended table 19.1	NA
	Temperature rise test per clause 17 after normal operation	See appended table 19.1	NA
	After the tests the specimens not show:		
	- wear impairing their further use;		NA
	- discrepancy between the position of the actuating member (if indicated) and that of the moving contacts		NA
	- deterioration of enclosures, insulating lining or barriers;		NA
	- seepage of sealing compound		NA
	- loosening of electrical or mechanical connections;		NA
			

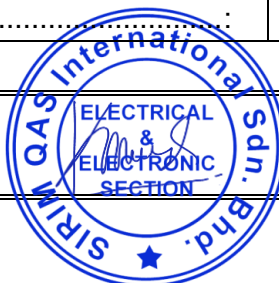


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Clause	Requirement + Test	Result – Remark	Verdict
	- displacement of moving contacts of switches pattern number 2, 3, 03 or 6/2		NA
	No sustained arcing in slowly operation (sub-clause 14.3)		NA
	RCS equipped with an incorporated hand-operated device acting directly on the switching circuit:		
	- 10 % of operations indicated in table 17 made by hand or in an equivalent manner .....		NA
	- no sustained arcing in slowly operation (sub-clause 14.3 for a.c. only) .....		NA
	- control circuit supplied as specified in clause 18 for the remaining 90 % of the operations .....		NA
	During normal operation test: failures allowed within 1 %; no more than three consecutive failures allowed		NA
	Electronics TDS withstand without excessive wear or other harmful effect, the mechanical, electrical and thermal stresses occurring in normal use		NA
	- model/type reference .....		—
	- pattern number .....		—
	- nominal cross-sectional area per clause 18 (mm <sup>2</sup> ) .....		—
	- test voltage (Vn) (V) .....		—
	- test voltage applied to control circuit (rated control voltage) (V) .....		—
	- test current (In) (cos φ 0,6) (A) .....		—
	- adjustable TDS: adjusted delay time (s) .....		—
	- adjusted switching time interval between off and on (s) .....		—
	- number of operations indicated in table 17 (maximum test duration for adjustable and non-adjustable TDS: 1000 h) .....	40000 / 20000 / 10000 / 5000	—
	TDS equipped with an incorporated hand-operated device acting directly on the switching circuit:		
	- 10 % of operations indicated in table 17 made by hand or in an equivalent manner .....		NA

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Clause	Requirement + Test	Result – Remark	Verdict
	- no sustained arcing in slowly operation (sub-clause 14.3 for a.c. only) .....		NA
	During normal operation test: failures allowed within 1 %; no more than three consecutive failures allowed		NA
	- samples number .....		—
	Reduced electric strength per clause 16	See appended table 19.1	NA
	Temperature rise test per clause 17 after normal operation	See appended table 19.1	NA
	After the tests the specimens not show:		
	- wear impairing their further use;		NA
	- discrepancy between the position of the actuating member (if indicated) and that of the moving contacts		NA
	- deterioration of enclosures, insulating lining or barriers;		NA
	- seepage of sealing compound		NA
	- loosening of electrical or mechanical connections;		NA
	- displacement of moving contacts of switches pattern number 2, 3, 03 or 6/2		NA
	No sustained arcing in slowly operation (sub-clause 14.3)		NA
19.101	Contact mechanisms intended for incandescent lamp circuits and dimmers for step-down converter; number of operations 40.000:		Pass
	Rate of operation (operation per minute) .....	30	—
	Rated current (A) / Rated load (W or VA) .....	1.9A (450W)	—
	Rated voltage (V) .....	240V	—
	During the test: specimens function correctly		Pass
	No sustained arcing in slowly operation (sub-clause 14.3)		Pass
	Contact mechanism intended for motor speed control circuits; number of operations 40000:		NA
	Making: test current: 6 In (A); test voltage: Vn (V); $\cos\phi$ $0.65 \pm 0.05$ .....		NA
	Breaking: test current In (A); test voltage Vn (V); $\cos\phi$ $0.65 \pm 0.05$ .....		NA



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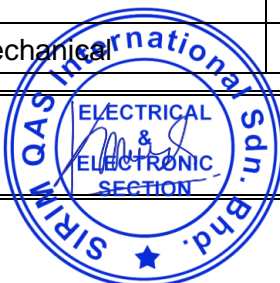
Clause	Requirement + Test	Result – Remark	Verdict
	During the test: specimens function correctly		Pass
19.102	Contact mechanisms incorporated in electronic switches, intended for fluorescent lamp circuits or other capacitive loads (for example, electronic ballast) tested according to modified sub-clause 19.2 of part 1, not applicable to dimmers for step-down converter tested according 19.101:		Pass
	- rate of operation (operation per minute) .....	30	—
	- test voltage (Vn); test current (In) (cos $\phi$ 0,9); number of operations with load A .....	240V; 1.9A; 10000	Pass
	- test voltage (Vn); 100 operations with load B	240V	Pass
	During the test: copper wire F not melt, specimens function correctly, no sustained arcing or welding of contacts		Pass
19.103	Semiconductor switching devices and/or electronic regulating units incorporated in electronic switches:		NA
	Rated current (A) / Rated load (W or VA) .....		—
	Rated voltage (V) .....		—
	Test voltage: 1.1 Vn (V) .....		—
	Switch state changed 10 times by means of the sensing surface or unit, or/and		NA
	Setting value altered 10 times from min to max and back to min by means of the sensing surface or unit		NA
	Additional test, where appropriate:		
	Switch state changed 10 times by means of an electronic extension unit, and/or		NA
	Setting value altered 10 times from min to max and back to min by means of an electronic extension unit		NA
	During the test: specimens operate correctly		NA
19.104	Mechanical control units incorporate in electronic switches:		NA
	Type of mechanical control unit .....		—
	Rated current (A) / Rated load (W or VA) .....		—
	Rated current (A) / Rated load (W or VA) .....		—
	Rated voltage (V) .....		—
	Test voltage: 1.1 Vn (V) .....		—
	Setting altered 10000 times from min to max and back to min by means of its control unit; rate of operation between 10 and 15 operations per		—





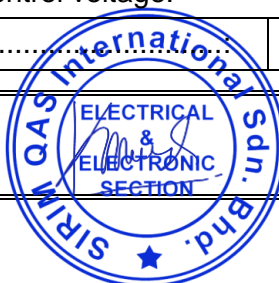
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Clause	Requirement + Test	Result – Remark	Verdict
	minute.....:		
	During the test: specimens function correctly		NA
19.105	Electronic switches for which a minimum load or current is specified by the manufacturer:		NA
	Test current: rated minimum current (A) / rated minimum load (W or VA) .....		—
	Test voltage: 0,9 V <sub>n</sub> (V) .....		—
	Switch state changed 10 times over the whole range from min to max and back to min, and/or		NA
	Setting value altered 10 times over the whole range from min to max and back to min		NA
	Additional test, where appropriate:		
	Switch state changed 10 times over the whole range from min to max and back to min by means of an electronic extension unit, and/or		NA
	Setting value altered 10 times over the whole range from min to max and back to min by means of an electronic extension unit		NA
	During the test: electronic switch functions correctly		NA
	Reduced electric strength per clause 16	See appended table 19	NA
	Temperature rise test after normal operation per clause 17:		
	- electronic switch state not change		NA
	- fuses and other protective devices not operate		NA
	- permissible temperature rises determined in table 102, column concerning clause 17, not exceeded	See appended table 19	NA
	After the test, electronic switch is in operating condition		NA
	Sealing compounds, if any, have not flowed		NA
	Evaluation of compliance after the normal operation: after the tests the specimens shall not show:		
	- wear impairing their further use;		NA
	- discrepancy between the position of the actuating member (if indicated) and that of the moving contacts;		NA
	- deterioration of enclosures, insulating lining or barriers;		NA
	- loosening of electrical or mechanical		NA



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Clause	Requirement + Test	Result – Remark	Verdict
	connections;		
	- seepage of sealing compound;		NA
	- displacement of the moving contacts of electronic switches of pattern number 2		NA
19.106	Test for electronic RCS energized by impulses (under no-load conditions):		NA
	RCS operate as intended at a control voltage between 0,9 and 1,1 times the rated value	See appended table 19.106	NA
	Electronic TDS operate as intended at the control voltage between 0,9 and 1,1 times the rated value		NA
	Test (under no-load conditions):		NA
	- rated control voltage (V) .....		—
	- 20 operations with a control voltage of 0,9 times the rated value (V) .....		—
	- 20 operations with a control voltage of 1,1 times the rated value (V) .....		—
	TDS operated as intended (differences in delay time permitted according to 19.102)		NA
19.107	Electronic TDS have an adequate repetitive accuracy of delay time		NA
	Test (under no-load conditions):		
	- rated control voltage (applied ten times) (V) .:		—
	- adjustable TDS: delay time set 2,5 min approximately if possible, otherwise, test made with the delay time specified by the manufacturer (s) .....		—
	Mean value of delay times measured (s) .....	- s	—
	Maximum / minimum values of delay time measured (s) .....	- s / - s	—
	Maximum / minimum values of delay time do not deviate by more than 15 % from the mean value .....	- % / - %	—
19.108	Electronic TDS revert to the full delay time when the operating means is actuated during the delay time period		NA
	Adjustable TDS: three specimens initiated at rated control voltage and after 1 min initiated again at rated control voltage:		NA
	- rated control voltage (V) .....		—

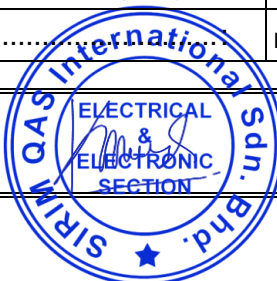


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Clause	Requirement + Test	Result – Remark	Verdict
	- delay time adjusted between 2 min and 3 min (s) (V) .....		—
	Total delay time resulting for each specimens is between 3 min and 4 min (min) .....		NA
	Non-adjustable TDS: three specimens initiated at rated control voltage and after 1 min initiated again at rated control voltage:		NA
	- rated control voltage (V) .....		—
	- delay time (declared by the manufacturer) (min) .....		—
	Total delay time is the delay time (declared by the manufacturer) $\pm 5\%$ plus 1 min (min) .....		NA
	Non-adjustable TDS when the delay time is less than 1 min: three specimens initiated at rated control voltage and after half the delay time declared by the manufacturer initiated again at rated control voltage:		NA
	- rated control voltage (V) .....		—
	- delay time (declared by the manufacturer) (min) .....		—
	Total delay time is 1,5 times the delay time (declared by the manufacturer) $\pm 5\%$ (min) .....		NA

<b>20</b>	<b>MECHANICAL STRENGTH</b>		
	Switches, boxes and screwed glands have adequate mechanical strength		Pass
20.1	For all types of switches and for boxes: impact test (9 blows)	See appended table 20.1	Pass
	After the test: no damage, live parts no become accessible		Pass
20.2	Bases of surface-type switches first fixed to a cylinder of rigid steel sheet of radius equal to 4,5 times the distance between fixing holes (mm) :		NA
	Bases then fixed to a flat steel sheet		NA
	Torque applied to fixing screws (Nm) .....		—
	During and after the test: bases show no damage		NA
20.3	Screwed glands of switches other than ordinary: torque test		
	- diameter of cylindrical metal test rod (mm) ....		—
	- type of material .....	metal / moulded material	—

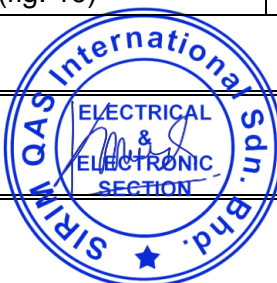
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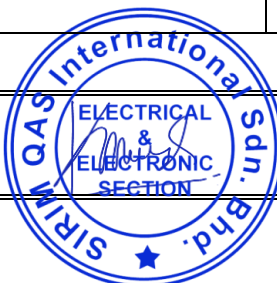
Clause	Requirement + Test	Result – Remark	Verdict
	- torque for 1 min (table 19) (Nm) .....:		—
	After the test: no damage of glands and enclosure of the specimens		NA
20.4	Force necessary for covers, cover-plates or actuating members to come off or not to come off (accessibility with the test finger to live parts)		NA
20.4.1	Verification of the non-removal of covers, cover-plates or actuating member		
	Force applied for 1 min in direction perpendicular to the mounting surface .....:	40 N / 80 N	—
	Covers, cover-plates or actuating members not come off		NA
	Test repeated on new specimens with a sheet of hard material, 1 mm $\pm$ 0,1 mm thick, fitted around the supporting frame (fig. 19)		NA
	Covers, cover-plates or actuating members not come off		NA
	After the test: no damage		NA
20.4.2	Verification of the removal of covers, cover-plates or actuating members		
	Force not exceeding 120 N applied 10 times in direction perpendicular to the mounting / supporting surface: covers, cover-plates or actuating members come off		NA
	Test repeated on new specimens with a sheet of hard material, 1 mm $\pm$ 0,1 mm thick, fitted around the supporting frame (fig. 19)		NA
	Covers, cover-plates or actuating members come off		NA
	After the test: no damage		NA
20.5	Force necessary for covers, cover-plates or actuating members to come off or not to come off (accessibility with the test finger to non-earthed metal parts separated from live parts by creepage distances and clearances according to table 20)		NA
20.4.1	Verification of the non-removal of covers, cover-plates or actuating members		
	Force applied for 1 min in direction perpendicular to the mounting surface .....:	10 N / 20 N	—
	Covers or cover-plates not come off		NA
	Test repeated on new specimens with a sheet of hard material, 1 mm $\pm$ 0,1 mm thick, fitted around the supporting frame (fig. 19)		NA



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Clause	Requirement + Test	Result – Remark	Verdict
	Covers, cover-plates or actuating members not come off		NA
	After the test: no damage		NA
20.4.2	Verification of the removal of covers, cover-plates or actuating members		
	Force not exceeding 120 N applied 10 times in direction perpendicular to the mounting / supporting surface: covers, cover-plates or actuating members come off		NA
	Test repeated on new specimens with a sheet of hard material, 1 mm ± 0,1 mm thick, fitted around the supporting frame (fig. 19)		NA
	Covers, cover-plates or actuating members come off		NA
	After the test: no damage		NA
20.6	Force necessary for covers, cover-plates or actuating members to come off or not to come off (accessibility to insulating parts, earthed metal parts, live parts of SELV ≤ 25 V a.c. or metal parts separated from live parts by creepage distances twice those according to table 20)		NA
20.4.1	Verification of the non-removal of covers, cover-plates or actuating members		
	Force 10 N applied for 1 min in direction perpendicular to the mounting surface: covers, cover-plates or actuating members not come off		NA
	Test repeated on new specimens with a sheet of hard material, 1 mm ± 0,1 mm thick, fitted around the supporting frame (fig. 19)		NA
	Covers, cover-plates or actuating members not come off		NA
	After the test: no damage		NA
20.4.2	Verification of the removal of covers, cover-plates or actuating members		
	Force not exceeding 120 N applied 10 times in direction perpendicular to the mounting / supporting surface: covers, cover-plates or actuating members come off		NA
	Test repeated on new specimens with a sheet of hard material, 1 mm ± 0,1 mm thick, fitted around the supporting frame (fig. 19)		NA
	Covers, cover-plates or actuating members come off		NA
	After the test: no damage		NA

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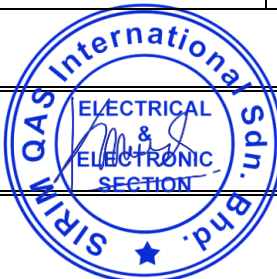
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Clause	Requirement + Test	Result – Remark	Verdict
20.7	Test with gauge of figure 20 applied according to figure 21 for verification of the outline of covers, cover-plates or actuating members: distances between face C of gauge and outline of side under test, not decrease .....	complying	—
20.8	Test with gauge according to figure 23 applied as shown in figure 24 (1 N): gauge not enter more than 1mm .....	complying	—
20.9	Operating members of cord-operated switch have adequate strength		NA
	Pull test: pull 100 N for 1 min (normal use); pull of 50 N for 1 min (unfavourable direction). After the test:		NA
	- switch show no damage		NA
	- operating member not broken and cord-operated switch still operate		NA

<b>21</b>	<b>RESISTANCE TO HEAT</b>		
21.1	Switches kept for 1 h in a heating cabinet at a temperature of 100 °C ± 2 °C		Pass
	During the test: no change impairing their further use and sealing compound, if any, not flow		Pass
	After the test: no access to live parts, markings still legible		Pass
21.2	Parts of insulating material necessary to retain current-carrying parts and parts of the earthing circuit in position: ball-pressure test (1 h, 125 °C)	See appended table 21.2	Pass
21.3	Parts of insulating material not necessary to retain current-carrying parts and parts of the earthing circuit in position, even though in contact with them: ball-pressure test (1 h)	See appended table 21.3	Pass

<b>22</b>	<b>SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS</b>		
22.1	Connections withstand mechanical stresses		Pass
	Thread-forming or thread-cutting screws used only if supplied together with the piece in which they are intended to be inserted		NA
	Screws and nuts which transmit contact pressure: in engagement with a metal thread		Pass
	Threaded part torque test	See appended table 22.1	Pass

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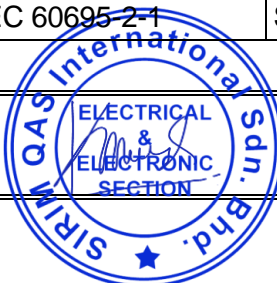
Clause	Requirement + Test	Result – Remark	Verdict
22.2	Screws in engagement with a thread of insulating material: correct introduction into the screw hole or nut ensured		NA
22.3	Contact pressure: not transmitted through insulating material other than ceramic, pure mica or other material no less suitable unless there is sufficient resiliency in metallic parts		NA
22.4	Screws and rivets locked against loosening or turning		Pass
22.5	Current-carrying parts of metal having mechanical strength, electrical conductivity and resistance to corrosion adequate:		Pass
	- copper;		NA
	- alloy with at least 58 % copper for parts made from cold-rolled sheet or with at least 50 % copper for other parts;		NA
	- stainless steel with at least 13 % chromium and not more than 0,12 % carbon		NA
	- steel with electroplated coating of zinc (ISO 2081): service condition ISO no. (1/2/3); IP (X0/X4/X5); thickness (µm) .....		NA
	- steel with electroplated coating of nickel and chromium (ISO 1456): service condition ISO no. (2/3/4); IP (X0/X4/X5); thickness (µm) .....		NA
	- steel with electroplated coating of tin (ISO 2093): service condition ISO no. (2/3/4); IP (X0/X4/X5); thickness (µm) .....		NA
	Current-carrying parts subjected to mechanical wear: not of steel with electroplated coating		Pass
	Metals having a great difference of electrochemical potential: not used in contact with each other		Pass
22.6	Contacts subjected to sliding action: of metal resistant to corrosion		NA
22.7	Thread-forming screws and thread-cutting screws not used for the connection of current-carrying parts		Pass
	Thread-forming screws and thread-cutting screws used to provide earthing continuity: not necessary to disturb the connection and at least two screws are used for each connection		NA

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Clause	Requirement + Test	Result – Remark	Verdict
<b>23</b>	<b>CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGH SEALING COMPOUND</b>		
	Values of items 1, 2, 6 and 7 of table 20 applied to terminals for external wiring and not applied to other live parts which are protected by a directly associated fuse with adequate breaking capacity or other current-limiting means, under the provision that the requirements of 101 are fulfilled		Pass
	Electronic switches without directly associated fuse or other current-limiting means: comply with table 20		NA
23.1	Creepage distances, clearances and distances through sealing compound no less than the values shown in table 20	See appended table 23.1	Pass
23.2	Insulating compound: not protrude above the edge of the cavity in which it is contained		NA
23.101	Electronic switches having control circuit suitable for connection to a SELV supply, the switching circuit being supplied with a voltage greater than the SELV: creepage distances and clearances between the control and switching circuits are not less than 5,5 mm (mm) .....		NA
	In case of electronic RCS and electronic TDS classified according to 7.103, see the relevant requirements in IEC 60669-2-2 and IEC 60669-2-3 for clearance and creepage between SELV and mains. (mm) .....		NA
23.102	Wire enamel at least grade 1 according to IEC 60317: clearances between the wire of the control coil, live parts of different polarity and exposed conductive parts may be reduced to a value equal to two-thirds the clearances required in absence of enamel		NA

<b>24</b>	<b>RESISTANCE OF INSULATING MATERIAL TO ABNORMAL HEAT, TO FIRE AND TO TRACKING</b>		
24.1	Parts of insulating material which might be exposed to thermal stresses due to electric effects and the deterioration of which might impair the safety are not unduly affected by abnormal heat and fire		Pass
24.1.1	Glow-wire test according to IEC 60695-2-1	See appended table 24.1.1	Pass

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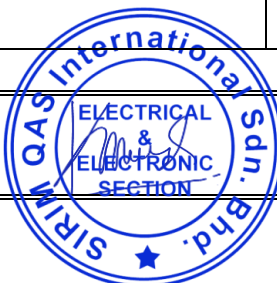


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Clause	Requirement + Test	Result – Remark	Verdict
24.2	Parts of insulating material retaining live parts in position of switches with IP>X0: of material resistant to tracking		NA
	Tracking test with solution A of IEC 60112	See appended table 24.2	NA

<b>25</b>	<b>RESISTANCE TO RUSTING</b>		
	Ferrous parts protected against rusting		Pass
	Test: 10 min in carbontetrachloride, trichloroethane or equivalent degreasing agent, 10 min 10 % solution of ammonium chloride, 10 min in a box with air saturated with moisture and 10 min at 100 °C ± 5 °C:		Pass
	No signs of rust		Pass

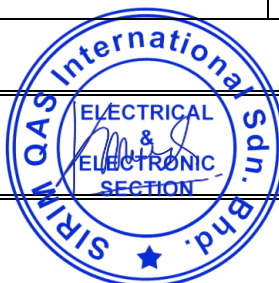
<b>26</b>	<b>EMC REQUIREMENTS</b>		
	Electronic switches designed to operate correctly under the conditions of electromagnetic environment in which they are intended to be used		Pass
26.1	Immunity		
	Electronic switches designed so that the switch state (ON or OFF) and/or the setting value are protected against interference		Pass
	Type of load .....	See page 2	—
	Test current: In (A) / Rated load (W or VA) .....	See page 2	—
	Test voltage: Vn (V) .....	See page 2	—
	Variation of less than ± 10 % of the value of the output power (rms) is not considered to be a change of setting		Pass
	Electronic switches tested, if applicable, in the following states (test parameters referred to table 104):		
	a) in the ON state, highest setting		Pass
	b) in the ON state, lowest setting		Pass
	c) in the OFF state		Pass
26.1.1	Voltage dips and short interruptions		Pass
	Electronic switch tested using the equipment specified in IEC 61000-4-11 in accordance with table 105: sequence: 3 dips/interruptions (duration: 10 cycles at rated frequency) with interval of 10 s minimum between each test event:		
	Test level: 0 % U <sub>T</sub>		Pass





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Clause	Requirement + Test	Result – Remark	Verdict
	Test level: 40 % U <sub>T</sub>		Pass
	Test level: 70 % U <sub>T</sub>		Pass
	After the test: electronic switch is in the original state and the setting is unchanged		Pass
	After the test: the general purpose electronic switch with included automatic functions shall operated as intended.		Pass
26.1.2	Surge immunity test for 1,2/50 µs wave impulses		Pass
	Test carried out according to IEC 61000-4-5 applying two positive discharges and two negative discharges at each of the following angles 0°, 90°, 270°, at a repetition rate of (60 ± 5) s, with an open-circuit test voltage of 1 kV (level 2)		Pass
	After the test: electronic switch is in the original state and the setting is unchanged		Pass
	After the test: the general purpose electronic switch with included automatic functions shall operated as intended.		Pass
26.1.3	Electrical fast transient/burst test		Pass
	Test carried out according to IEC 61000-4-4 in accordance with table 106, duration of the test 1 min +5/0 s for each positive and negative polarities: open-circuit output test voltage (± 10 %):		Pass
	Supply terminals/terminations: 1 kV		Pass
	Control terminals/terminations: 0,5 kV		NA
	After the test: electronic switch is in the original state and the setting is unchanged		Pass
	After the test: the general purpose electronic switch with included automatic functions shall operated as intended.		Pass
26.1.4	Electrostatic discharge test		Pass
	Electronic switch not intended to operate incandescent lamp: test carried out with only one load of the loads specified within the manufacturer's instructions .....		Pass
	Test carried out according to EN 61000-4-2 applying 10 positive and 10 negative discharge:		Pass
	- contact discharge to the conductive surface and to coupling planes (test voltage: 4 kV)		Pass
	- air discharge at insulating surfaces (test voltage: 8 kV)		Pass

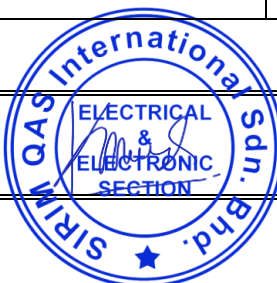




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Clause	Requirement + Test	Result – Remark	Verdict
	After the test: electronic switch is in the original switch state and the setting is unchanged		Pass
	Alter in the state and/or setting of electronic switches with a sensing surface intended to be operated by touch: possibility to operate the electronic switch as intended		Pass
	After the test: the general purpose electronic switch with included automatic functions shall operated as intended.		Pass
26.1.5	Radiated electromagnetic field test		Pass
	Test applicable only to electronic switches containing infra-red (IR) receivers, radio frequency receivers, passive infra-red (PIR) devices, devices containing microprocessors or similar		Pass
	Test carried out according to IEC 61000-4-3 applying a field strength of 3 V/m in the frequency range 80 MHz to 1000 MHz:		
	During the test: state of electronic switch is not changed		Pass
	Flickering of lamps or irregular running of motors due to the switching transient caused by frequency changes of the test equipment during the test procedure is neglected.		Pass
	After the test: electronic switch is in the original state and the setting is unchanged		Pass
	Time delay switches (TDS): switch is in the original state after the time delay		NA
	After the test: the general purpose electronic switch with included automatic functions shall operated as intended.		Pass
26.1.6	Radio-frequency voltage test		Pass
	Test applicable only to electronic switches containing infra-red (IR) receivers, radio frequency receivers, passive infra-red (PIR) devices, devices containing microprocessors or similar		Pass
	Test carried out according to IEC 61000-4-6 applying a conducted radio-frequency voltage of 3 V r.m.s. on supply lines and control lines:		
	During the test: state of electronic switch is not changed		Pass

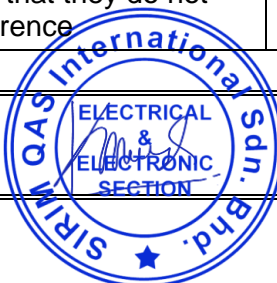
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Clause	Requirement + Test	Result – Remark	Verdict
	Flickering of lamps or irregular running of motors due to the switching transient caused by frequency changes of the test equipment during the test procedure is neglected.		Pass
	After the test: electronic switch is in the original state and the setting is unchanged		Pass
	After the test: the general purpose electronic switch with included automatic functions shall operated as intended.		Pass
26.1.7	Power-frequency magnetic field test		Pass
	Test applicable only to electronic switches containing devices susceptible to magnetic fields, for example, Hall elements, electrodynamic microphones, etc.		Pass
	Test carried out according to IEC 61000-4-8 applying a magnetic field of 3 A/m, 50 Hz:		
	During the test: state of electronic switch is not changed		Pass
	Flickering of lamps or irregular running of motors due to the switching transient caused by frequency changes of the test equipment during the test procedure is neglected.		Pass
	After the test: electronic switch is in the original state and the setting is unchanged		Pass
	After the test: the general purpose electronic switch with included automatic functions shall operated as intended.		Pass
26.2	Emission		
26.2.1	Low-frequency emission		Pass
	Electronic switches designed that they do not cause excessive disturbances in the network		Pass
	Electronic switch complies with IEC 61000-3-2 and IEC 61000-3-3		Pass
	Electronic switches with electromechanically operated contact mechanism (for example, a relay) are deemed to meet the requirements of IEC 61000-3-2 without need for testing		Pass
26.2.2	Radio-frequency emission		Pass
	Electronic switches designed that they do not cause excessive radio interference		Pass

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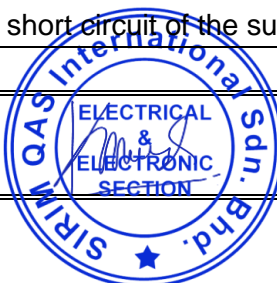


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Clause	Requirement + Test	Result – Remark	Verdict
	Electronic switch complies with the requirements of CISPR 14		NA
	Electronic switch complies with the requirements of CISPR 15 (modified on sub-clauses 8.1.3.1 and 8.1.3.2)		Pass

<b>101</b>	<b>ABNORMAL CONDITIONS</b>		
	Electronic switches do not create hazard under abnormal conditions		Pass
101.1.1.1	Fault conditions test: temperature rises not exceed the values given in table 102, column concerning clause 101	See appended table 101.1.1.1	Pass
	Temperature limited by a fuse: additional test carried out in case of doubt	-	NA
101.1.1.2	Electronic switches without incorporated temperature-limiting devices and without incorporated fuses:		NA
	Test current: conventional tripping current $I_f$ (A) for 1h of the fuse which, in the installation, will protect the electronic switch .....		—
	Temperature rise measured after steady state or after 4 h .....	See appended table 101.1.1.2	NA
	Electronic switches protected by automatic protective devices (including fuses):		NA
	Current with which the protecting device releases after 1 h (A) .....		—
	Test current: 0.95 times the current with which the protecting device releases after 1 h (A) .....		—
	Temperature rise measured after steady state or after 4 h .....	See appended table 101.1.1.2	NA
	Electronic switches protected by incorporated fuses complying with IEC 60127:		Pass
	Rated current of incorporated fuse (A) .....	4A	—
	Test current: $2.1 I_n$ (A) .....	4A	—
	Temperature rise measured after 30 min .....	See appended table 101.1.1.2	Pass
101.2	Protection against electric shock even during fault conditions		Pass
	Electronic switches tested according to clause 10 immediately following the test of 101.1		Pass
101.3	Short circuit test: prospective short circuit of the supply: 1500 A; $I^2t$ : 15000 A <sup>2</sup> s:		Pass

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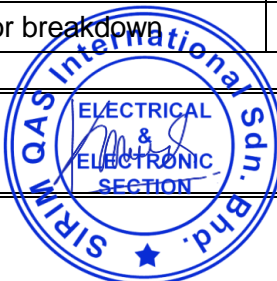




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Clause	Requirement + Test	Result – Remark	Verdict
	Test voltage Vn (V) .....	240 V	—
	Type of fuse recommended by the manufacturer .....	-	—
	N° of short circuits; N° of specimens used .....	6; 1	—
	During the test: emission of flames or burning particles not occur		Pass
	After the test:		
	- accessible metal parts not live		Pass
	- contacts of any incorporated automatic protective device not welded, unless the electronic switch is obviously useless		Pass
101.4	Abnormal operation of the control circuit (only for electronic RCS energized by impulses)		NA
	Behaviour of electronic RCS during abnormal operation of the control circuit is not dangerous		NA
	Test made on three additional specimens of electronic RCS meeting with requirements of clauses 15 and 16:		NA
	Control circuit continuously energized at its rated voltage (V) .....		—
	Switching circuit loaded for 1 h with rated current (A) at rated voltage (V) .....	- A; - V	—
	After this test:		
	- RCS still operate		NA
	- temperature rise of any part of the electronic RCS enclosure and plywood support, which may be touched by the standard test finger, test probe B of IEC 61032, $\leq 75$ K (K) .....		NA
	- temperature rise of the plywood support which cannot be touched by the standard test finger, test probe B of IEC 61032, $\leq 100$ K (K) .....		NA
	- electronic RCS did not emit flames, melted material, glowing particles or burning drops of insulating material		NA
	After cooling down to ambient temperature:		
	Electronic RCS withstand a dielectric test (sub-clause 16.2), test voltage (a.c., for 1 min), between switching and control circuits:		NA
	- test voltage (V) .....		—
	During the test: no flashover or breakdown		NA

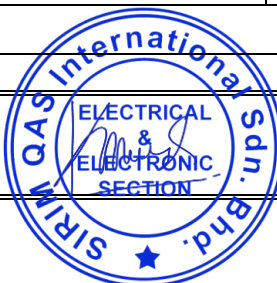
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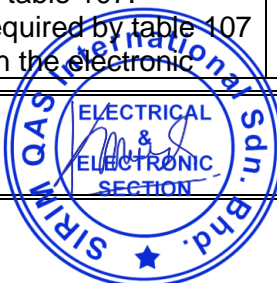
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Clause	Requirement + Test	Result – Remark	Verdict
	Electronic RCS still meet the requirements of 10.1		NA
	Electronic RCS coil is then intermittently energized for 1 h using a voltage equal to its rated control voltage, the switching circuit being supplied with rated current at rated voltage:		NA
	class of insulating material .....		—
	temperature-rise limit (IEC 60085) (K) .....		—
	temperature-rise measured (K) .....		NA
	Behaviour of electronic TDS during abnormal operation of the control circuit is not dangerous		NA
	Test made on three additional specimens of electronic TDS meeting with requirements of clauses 15 and 16:		NA
	Control circuit continuously energized at its rated voltage (V) .....		—
	Switching circuit loaded for 6 h with rated current (A) at rated voltage (V) .....	- A; - V	—
	Adjustable electronic TDS: adjusted to the shortest delay time (s) .....		—
	After this test:		NA
	- electronic TDS still operate		NA
	- temperature rise of any part of the electronic TDS enclosure and plywood support, which may be touched by the standard test finger, test probe B of IEC 61032, $\leq 75$ K (K) .....		NA
	- temperature rise of the plywood support which cannot be touched by the standard test finger, test probe B of IEC 61032, $\leq 100$ K (K) .....		NA
	- electronic TDS did not emit flames, melted material, glowing particles or burning drops of insulating material		NA
	After cooling down to ambient temperature:		
	Electronic TDS withstand a dielectric test (sub-clause 16.2), test voltage (a.c., for 1 min), between switching and control circuits:		NA
	- test voltage (V) .....		—
	During the test: no flashover or breakdown		NA
	Electronic TDS still meet the requirements of 10.1		NA



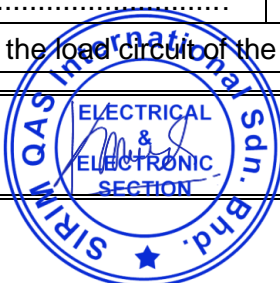
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Clause	Requirement + Test	Result – Remark	Verdict
<b>102</b>	<b>COMPONENTS</b>		
	Components which, if they fail, may impair the safety of the electronic switch comply with the relevant IEC standards, as far as applicable		Pass
	Components marked with their operating characteristics used in accordance with these markings		Pass
102.1	Fuses comply with:		
	- IEC 60127	IEC 60127	Pass
	- other relevant IEC publications		NA
	Rated breaking capacity (A): 1500 A or 35 A ..	1500A	Pass
102.2	Capacitors: the short-circuiting or disconnection of which cause an infringement of the requirements under fault conditions with regard to shock or fire hazard:		NA
	Trade mark; article of capacitor .....	-	—
	Capacitor complies with IEC 60384-14		NA
	Capacitor passing the damp heat steady-state test specified in 4.12 of IEC 60384-14 with a duration of not less than 21 days are considered acceptable		NA
	Capacitor in accordance with table 107: approved type of capacitor required by table 107 according to the application in the electronic switch; observed .....		NA
	Capacitor marked with:		
	- rated voltage (V) .....		NA
	- rated capacitance (μF) .....		NA
	- reference temperature (°C) .....		NA
	Capacitors: the short-circuiting of which cause a current = 0,5 A through the terminals of the capacitor:		NA
	Trade mark; article of capacitor .....		—
	Capacitor complies with IEC 60384-14		NA
	Capacitor passing the damp heat steady-state test specified in 4.12 of IEC 60384-14 with a duration of not less than 21 days are considered acceptable		NA
	Capacitor in accordance with table 107: approved type of capacitor required by table 107 according to the application in the electronic		NA



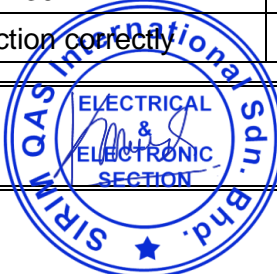
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Clause	Requirement + Test	Result – Remark	Verdict
	switch; observed .....		
	Capacitor marked with:		
	- rated voltage (V) .....		NA
	- rated capacitance ( $\mu$ F) .....		NA
	- reference temperature ( $^{\circ}$ C) .....		NA
	Capacitors: for suppression of electromagnetic interference:		NA
	Trade mark; article of capacitor .....		—
	Capacitor complies with IEC 60384-14		NA
	Capacitor passing the damp heat steady-state test specified in 4.12 of IEC 60384-14 with a duration of not less than 21 days are considered acceptable		NA
	Capacitor in accordance with table 107: approved type of capacitor required by table 107 according to the application in the electronic switch; observed .....		NA
	Capacitor marked with:		
	- rated voltage (V) .....		NA
	- rated capacitance ( $\mu$ F) .....		NA
	- reference temperature ( $^{\circ}$ C) .....		NA
102.3	Resistors: the short-circuiting or interruption of which cause an infringement of the requirements with regard to the protection against fire and electric shock in case of a defect:		NA
	Manufacturer / characteristics of resistor .....	/ $\Omega$	—
	- constant value under overload conditions		NA
	reference temperature of the resistor according to clause 17 ( $^{\circ}$ C) .....		—
	- comply with sub-clause 14.1 of IEC 60065		NA
102.4	Automatic protective devices (other than fuses)		NA
	Automatic protective devices comply with IEC 60730 as far as applicable		NA
102.4.1	Automatic protective devices which switch off the current (cut-outs):		NA
	Adequate making and breaking capacity		NA
	Reference temperature above 55 $^{\circ}$ C: specimens tested at reference temperature according to clause 17 ( $^{\circ}$ C) .....		NA
102.4.1.1	Non-self-resetting cut-outs in the load circuit of the electronic switch:		NA



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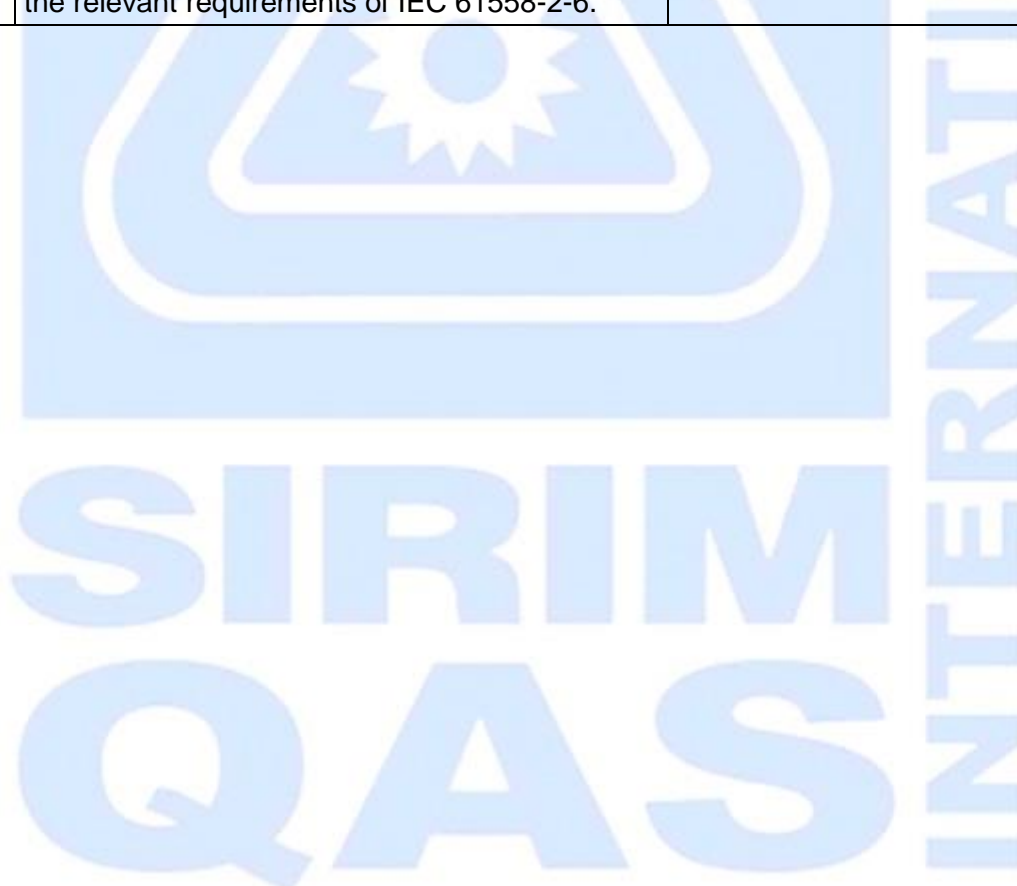
Clause	Requirement + Test	Result – Remark	Verdict
	Test voltage: 1.1 V <sub>n</sub> (V) .....		—
	Cut-outs in electronic switches for incandescent or fluorescent lamps:		NA
	10 cycles; test current: 2.1 I <sub>n</sub> (A) of the protecting fuse (IEC 60127) or the conventional fusing current (other fuses) .....		—
	During the test: no sustained arcing		NA
	After the test: specimens show no damage		NA
	Electric strength between open contacts: test voltage 500 V a.c. for 1 min		NA
	Cut-outs in electronic switches for speed control circuits:		NA
	I <sub>n</sub> (A) of electronic switch (cosφ 0.6) .....		—
	Making: 10 operations with: test current: 9 I <sub>n</sub> (A); cosφ 0.8 ± 0.05 .....		—
	Breaking: 10 operations with: test current: 6 I <sub>n</sub> (A); cosφ 0.6 ± 0.05 .....		—
	During the test: no sustained arcing		NA
	After the test: specimens show no damage		NA
	Electric strength between open contacts: test voltage (V): 1200 V a.c. (V <sub>n</sub> ≤ 130 V) or 2000 V (V <sub>n</sub> > 130 V) for 1 min: .....		NA
102.4.1.2	Self-resetting cut-outs in the load circuit of the electronic switch:		NA
	Test voltage: 1.1 V <sub>n</sub> (V) .....		—
	Cut-outs in electronic switches for incandescent lamps:		NA
	200 cycles; test current: 2.1 I <sub>n</sub> (A) of the protecting fuse (IEC 60127) or conventional fusing current (other fuses) .....		—
	During the test: no sustained arcing		NA
	After the test: specimens show no damage		NA
	Electric strength between open contacts: test voltage 500 V a.c. for 1 min		NA
102.4.2	Automatic protective devices which only decrease current to the electronic switch (10 cycles):		NA
	Test current per clause 17 for 4 h (A) .....		—
	Test current increased to 2.1 I <sub>n</sub> (A) of the protecting fuse (IEC 60127) or the conventional fusing current (other fuses) for 30 min .....		—
	After the test: specimens function correctly		NA





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Clause	Requirement + Test	Result – Remark	Verdict
	Temperature rise test per clause 17:		NA
	- electronic switch state not change		NA
	- fuses and other protective devices not operate		NA
	- permissible temperature rises determined in table 102, column concerning clause 17, not exceeded	See appended table 102.4.2	NA
	After the test, electronic switch is in operating condition		NA
	Sealing compounds, if any, have not flowed		NA
102.5	Transformer		Pass
	Transformers intended for SELV circuits shall be of the safety isolating type and shall comply with the relevant requirements of IEC 61558-2-6.		Pass



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Clause	Requirement + Test		Result – Remark	Verdict	
12.2.5	<b>TABLE: test with apparatus shown in figure 10 (screw terminals)</b>			Pass	
	rated current (A) .....:		1.9 A	—	
	type of conductors .....:		Rigid solid/ rigid stranded	—	
	smallest/largest cross-sectional area per table 2 (mm²) .....:		0.5 mm²/ 1.0 mm²	—	
	number of conductors .....:		1	—	
	nominal diameter of thread (mm); torque per table 3 (Nm) .....:		2.8 mm; 0.4 Nm	—	
Cross-sectional area (mm²)		Diameter of bushing hole per table 4 (mm)	Height H per table 4 (mm)	Mass (kg)	Remarks
0.5		6.5	260	0.3	Pass
1.0		6.5	260	0.4	Pass
supplementary information: Provide with certificate terminal block					

12.2.6	<b>TABLE: pull test (screw terminals)</b>			Pass
	rated current (A) .....	1.9 A		—
	smallest/largest cross-sectional area per table 2 (mm <sup>2</sup> ) .....	0.5 mm <sup>2</sup> / 1.0 mm <sup>2</sup>		—
	nominal diameter of thread (mm); torque 2/3 per table 3 (Nm) .....	2.8 mm; 0.27 Nm		—
Cross-sectional area (mm <sup>2</sup> )	Number of conductors	Type of conductors (rigid solid / rigid stranded)	Pull per table 5 applied for 1 min (N)	Remarks
0.5	1	rigid stranded	30	Pass
1.0	1	rigid stranded	40	Pass
supplementary information:				

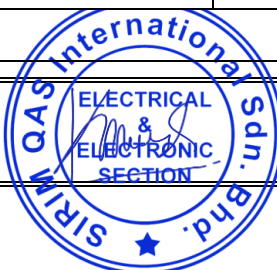


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Clause	Requirement + Test	Result – Remark	Verdict	
12.2.7	<b>TABLE: tightening test (screw terminals)</b>		Pass	
	rated current (A) .....:	1.9 A	—	
	nominal diameter of thread (mm); torque 2/3 per table 3 (Nm) .....:	2.8 mm; 0.4 Nm	—	
Largest cross-sectional area per table 2 (mm <sup>2</sup> )	Permissible number of conductors	Type of conductors (rigid solid / rigid stranded)	Number of wires and nominal diameter of wires per table 6	Remarks
1.0 mm <sup>2</sup>	2	rigid solid	1 x 1.13	Pass
1.0 mm <sup>2</sup>	2	rigid stranded	7 x 0.42	Pass
supplementary information:				

12.3.10	<b>TABLE: mechanical stresses occurring in normal use</b>				NA
	rated current (A) .....	-			—
	largest/smallest cross-sectional area per table 7 (mm <sup>2</sup> ) .....	-			—
	Number of connection (after that conductor subjected to a pull of 30 N for 1 min) / disconnection	Type of conductor (solid / rigid stranded / flexible)	Cross-sectional area (mm <sup>2</sup> )		Remarks
	-	-	-		-
	-	-	-		-
	<b>TABLE: test with apparatus shown in figure 10</b>				
	rated current (A) .....	-			—
	type of conductors .....	rigid solid / rigid stranded			—
	smallest/largest cross-sectional area per table 7 (mm <sup>2</sup> ) .....	-			—
	number of conductors.....	-			—
	Cross-sectional area (mm <sup>2</sup> )	Diameter of bushing hole per table 4 (mm)	Height H per table 4 (mm)	Mass (kg)	Remarks
	-	-	-	-	-
	-	-	-	-	-
supplementary information:					

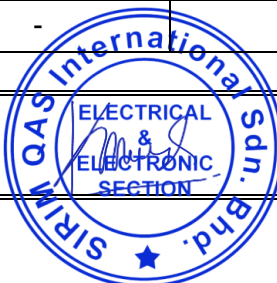
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Clause	Requirement + Test				Result – Remark		Verdict
12.3.11	<b>TABLE: electrical and thermal stresses occurring in normal use</b>						NA
Test a)	Test carried out for 1 h connecting rigid solid conductors:						NA
	test current per table 8 (A) .....				-		—
	nominal cross-sectional area (mm²) .....				-		—
Screwless terminal number		Voltage drop (mV)			Required voltage drop		
1		-			≤ 15 mV		
2		-			≤ 15 mV		
3		-			≤ 15 mV		
4		-			≤ 15 mV		
5		-			≤ 15 mV		
Test b)	Temperature cycles test) carried out on terminals subjected to Test a):						-
	test current per table 8 (A) .....						—
	nominal cross-sectional area (mm²) .....						—
	allowed voltage drop (mV) .....				≤ 22,5 mV or 2 times 24 <sup>th</sup> cycle value (mV)		—
Screwless terminal number		1	2	3	4	5	Remarks
voltage drop after 24 <sup>th</sup> cycle		-	-	-	-	-	
voltage drop after 48 <sup>th</sup> cycle		-	-	-	-	-	
voltage drop after 72 <sup>th</sup> cycle		-	-	-	-	-	
voltage drop after 96 <sup>th</sup> cycle		-	-	-	-	-	
voltage drop after 120 <sup>th</sup> cycle		-	-	-	-	-	
voltage drop after 144 <sup>th</sup> cycle		-	-	-	-	-	
voltage drop after 168 <sup>th</sup> cycle		-	-	-	-	-	
voltage drop after 192 <sup>th</sup> cycle		-	-	-	-	-	
12.3.10	<b>TABLE: mechanical stresses occurring in normal use</b>						-
	rated current (A) .....				-		—
	largest/smallest cross-sectional area per table 7 (mm²) .....				-		—
Number of connection (after that conductor subjected to a pull of 30 N for 1 min) / disconnection		Type of conductor (solid / rigid stranded / flexible)		Cross-sectional area (mm²)		Remarks	
-		-		-		-	
-		-		-		-	

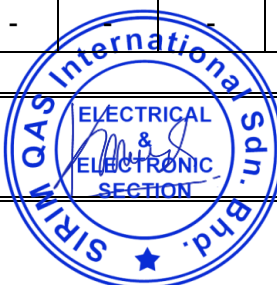


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Clause	Requirement + Test		Result – Remark	Verdict
	TABLE: test with apparatus shown in figure 10			-
	rated current (A) .....		-	—
	type of conductors .....		rigid solid / rigid stranded	—
	smallest/largest cross-sectional area per table 7 (mm²) .....		-	—
	number of conductors.....		-	—
Cross-sectional area (mm²)	Diameter of bushing hole per table 4 (mm)	Height H per table 4 (mm)	Mass (kg)	Remarks
-	-	-	-	-
supplementary information:				

12.3.12	<b>TABLE: deflection test (principle of test apparatus shown in figure 11a)</b>						NA
	Test carried out for 1 h connecting rigid solid conductors:						-
	test current (A) (equal rated current) .....						—
	required voltage drop (mV) .....	≤ 25 mV					—
Type of conductor	Smallest			Largest			Remarks
cross-sectional area per table 9 (mm <sup>2</sup> )	-			-			-
force per table 10 (N)	-			-			-
screwless terminal number	1	2	3	1	2	3	-
starting point (X = deflection original point)	X	X+10°	X+20°	X	X+10°	X+20°	-
voltage drop 1 <sup>st</sup> deflection (mV)	-	-	-	-	-	-	-
voltage drop 2 <sup>nd</sup> deflection (mV)	-	-	-	-	-	-	-
voltage drop 3 <sup>rd</sup> deflection (mV)	-	-	-	-	-	-	-
voltage drop 4 <sup>th</sup> deflection (mV)	-	-	-	-	-	-	-
voltage drop 5 <sup>th</sup> deflection (mV)	-	-	-	-	-	-	-
voltage drop 6 <sup>th</sup> deflection (mV)	-	-	-	-	-	-	-
voltage drop 7 <sup>th</sup> deflection (mV)	-	-	-	-	-	-	-
voltage drop 8 <sup>th</sup> deflection (mV)	-	-	-	-	-	-	-
voltage drop 9 <sup>th</sup> deflection (mV)	-	-	-	-	-	-	-
voltage drop 10 <sup>th</sup> deflection (mV)	-	-	-	-	-	-	-

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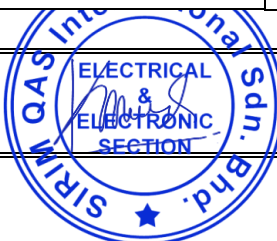
Clause	Requirement + Test	Result – Remark						Verdict
	voltage drop 11 <sup>th</sup> deflection (mV)	-	-	-	-	-	-	-
	voltage drop 12 <sup>th</sup> deflection (mV)	-	-	-	-	-	-	-
supplementary information:								

16.1		TABLE: insulation resistance		Pass
item per table 14	test voltage applied between:		measured (MΩ)	required (MΩ)
1	between all poles connected together and the body, with the switch in the “on” position		> 1000	5
supplementary information:				

16.2	TABLE: electric strength			Pass
	rated voltage (V) .....	240 V		—
item per table 14	test voltage applied between:	test voltage (V)	flashover / breakdown (Yes/No)	
1	between all poles connected together and the body, with the switch in the “on” position	2000	No	
supplementary information:				

17	TABLE: temperature rise measurements		Pass
	cross-sectional area of conductor not less than 1,5 mm <sup>2</sup> (mm <sup>2</sup> ) (table 15) ..... :	1.5 mm <sup>2</sup>	—
	terminal screws: torque (Nm) (2/3 table 3 or appropriate figures 1, 2, 3, 4)..... :	0.27 Nm	—
	type of load ..... :	Fluorescent	—
	rated current (A) / rated load (W or VA) ..... :	1.9 A	—
	rated voltage (V) ..... :	240 V	—
	test voltage between 0,9 and 1,1 Vn (V), whichever is the more unfavourable ..... :	264 V	—
parts of the electronic switch		max. measured temperature rise (K)	permissible temperature rise (K)

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Clause	Requirement + Test	Result – Remark	Verdict
Terminal L		1.2	< 55
Terminal Load		1.5	< 55
Supply Cable L		- 2.9	< 70
Supply Cable Load		- 3.1	< 70
Enclosure		- 2.1	< 70
supplementary information:			

17	<b>TABLE: temperature rise measurements</b>		Pass
	cross-sectional area of conductor not less than 1,5 mm <sup>2</sup> (mm <sup>2</sup> ) (table 15) .....	1.5 mm <sup>2</sup>	—
	terminal screws: torque (Nm) (2/3 table 3 or appropriate figures 1, 2, 3, 4) .....	0.27 Nm	—
	type of load .....	Incandescent	—
	rated current (A) / rated load (W or VA) .....	1.9 A	—
	rated voltage (V) .....	240 V	—
	test voltage between 0,9 and 1,1 V <sub>n</sub> (V), whichever is the more unfavourable .....	264 V	—
parts of the electronic switch		max. measured temperature rise (K)	permissible temperature rise (K)
Terminal L		12.5	< 55
Terminal Load		12.0	< 55
Supply Cable L		6.3	< 70
Supply Cable Load		5.2	< 70
Enclosure		12.0	< 70
supplementary information:			



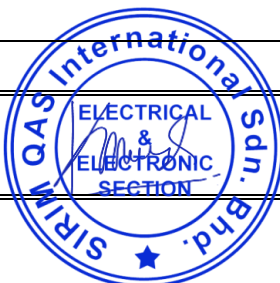


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Clause	Requirement + Test	Result – Remark		Verdict
19	TABLE: reduced electric strength after normal operation			
Item per table 20	Test voltage applied between:	Test voltage ( V )	Flashover / breakdown ( Yes / No )	
1	between all poles connected together and the body, with the switch in the “on” position	1500V	NO	
	TABLE: temperature rise measurements after normal operation			Pass
	cross-sectional area of conductor not less than 1,5 mm <sup>2</sup> (mm <sup>2</sup> ) (table 15) .....	1.5 mm <sup>2</sup>	—	
	terminal screws: torque (Nm) (2/3 table 3 or appropriate figures 1, 2, 3, 4).....	0.27 Nm	—	
	type of load .....	Fluorescent	—	
	rated current (A) / rated load (W or VA) .....	1.9 A	—	
	rated voltage (V) .....	240 V	—	
	test voltage between 0,9 and 1,1 Vn (V), whichever is the more unfavorable .....	264 V	—	
parts of the electronic switch		max. measured temperature rise (K)	permissible temperature rise (K)	
Terminal L		7.7	< 55	
Terminal Load		6.4	< 55	
Supply Cable L		4.0	< 70	
Supply Cable Load		2.9	< 70	
Enclosure		4.4	< 70	
supplementary information:				

19.106	<b>TABLE: Test for RCS energized by impulses (under no-load conditions):v</b>					NA
	impulse duration declared by the manufacturer .....					—
n. specimen	rated control voltage (V)	control voltage of 0,9 times the rated value (V)	20 operations: RCS operates as intended (Yes/No)	control voltage of 1,1 times the rated value (V)	20 operations: RCS operates as intended (Yes/No)	
-	-	-	-	-	-	
supplementary information:						

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Clause	Requirement + Test	Result – Remark	Verdict
20.1	TABLE: impact test		Pass
part of enclosure tested per table 18 (A, B, C, D)	blows per part	height of fall (mm)	Comments
A	5	100	No Damage
B	4	100	No Damage
supplementary information:			

21.2	<b>TABLE: ball pressure test of thermoplastic materials</b>			Pass
	allowed impression diameter (mm) .....	≤ 2 mm		—
	part under test	material designation / manufacturer	test temperature (°C)	impression diameter (mm)
	Base	Polycarbonate	125	1.08
supplementary information:				

21.3	<b>TABLE: ball pressure test of thermoplastic materials</b>			Pass
	allowed impression diameter (mm) .....	≤ 2 mm		—
	part under test	material designation / manufacturer	test temperature (°C) <sup>(1)</sup>	impression diameter (mm)
	Cover	Polycarbonate	70	1.23
supplementary information:				
<sup>(1)</sup> 70 °C / 40 °C + highest temperature rise determined during the test of clause 17				

22.1	<b>TABLE: threaded part torque test</b>					Pass
	threaded part identification	diameter of thread (mm)	column number (I, II, or III)	applied torque ( Nm )	times (5/10)	no damage
	Terminal screw	2.8	III	0.4	5	Pass
supplementary information:						



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Clause	Requirement + Test		Result – Remark				Verdict
23.1	<b>TABLE: creepage distances, clearances and distances through sealing compound</b>						Pass
	rated voltage (V) ..... :		240 V				—
item per table 20	creepage distance dcr, clearance cl and distance through sealing compound dtsc at/of:	requir ed cl (mm)	cl (mm)	requir ed dcr (mm)	dcr (mm)	requir ed dtsc (mm)	dtsc (mm)
2	Between live parts of different polarity	-	-	3 ≥	5.8	-	-
3	Between live parts and:						
	accessible surfaces of parts of insulating material	-	-	3 ≥	18.4	-	-
7	Between live parts of different polarity	3 ≥	3.6	-	-	-	-
8	Between live parts and:	3 ≥	14.5	-	-	-	-
	accessible surfaces of parts of insulating material						
supplementary information:							

24.1.1	TABLE: glow-wire test			Pass
part under test	material designation / manufacturer	test temperature (°C)	remarks	
Base	Polycarbonate	850	Pass	
Cover	Polycarbonate	650	Pass	
supplementary information: Time of glowing/burns after removal of tip: -				

24.2	TABLE: resistance to tracking			NA
	number of drops .....	50		—
part under test	material designation / manufacturer		test voltage (V)	flashover / breakdown (Yes/No)
-	-		175	-
supplementary information:				



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Clause	Requirement + Test	Result – Remark		Verdict
101.1.1.1	<b>TABLE: fault conditions test</b>			Pass
	cross-sectional area of conductor not less than 1,5 mm <sup>2</sup> (mm <sup>2</sup> ) (table 15) .....	1.5 mm <sup>2</sup>		—
	terminal screws: torque (Nm) (2/3 table 3 or appropriate figures 1, 2, 3, 4) .....	0.27 Nm		—
	type of load .....	Fluorescent		—
	rated current (A) / rated load (W or VA) .....	1.9 A		—
	rated voltage (V) .....	240 V		—
	test voltage between 0,9 and 1,1 V <sub>n</sub> (V), whichever is the more unfavourable .....	264 V		—
fault conditions simulated		remarks		verdict
T1 Transformer		Sample not function		Pass
Q2 Transistor		Sample not function		Pass
RV1 Varistor		Sample not function		Pass
	<b>TABLE: temperature rise measurements</b>			NA
	temperature measured after (min) .....	-		—
parts of the electronic switch		max. measured temperature rise (K)	permissible temperature rise (K)	
-		-	-	
	<b>TABLE: additional temperature rise measurements in case of temperature limited by a fuse</b>			NA
	current under the relevant fault conditions measured with the fuse short-circuited (A) ....	-		—
	type of fuse as specified by IEC 60127 .....	-		—
	test duration corresponding to the maximum fusing time corresponding to the current measured (min) .....	-		—
parts of the electronic switch		max. measured temperature rise (K)	permissible temperature rise (K)	
-		-	-	
supplementary information:				





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Clause	Requirement + Test	Result – Remark	Verdict
101.1.1.2	<b>TABLE: temperature rise measurements during overload tests</b>		Pass
	cross-sectional area of conductor not less than 1,5 mm <sup>2</sup> (mm <sup>2</sup> ) (table 15) .....	1.5 mm <sup>2</sup>	—
	terminal screws: torque (Nm) (2/3 table 3 or appropriate figures 1, 2, 3, 4) .....	0.27 Nm	—
	rated voltage (V) .....	240	—
	test voltage between 0,9 and 1,1 V <sub>n</sub> (V), whichever is the more unfavourable .....	264	—
parts of the electronic switch		max. measured temperature rise (K)	permissible temperature rise (K)
Terminal L		29.3	< 110
Terminal Load		22.6	< 110
Supply Cable L		26.6	< 110
Supply Cable Load		17.1	< 110
Enclosure		4.8	< 75
supplementary information:			

102	TABLE: components					Pass
Description	Manufacturer	Type / model	Technical data	Compliance to Standard	Mark(s) of Conformity	
Base	-	-	Polycarbonate	IEC 60669-2-1	Tested in appliance	
Cover	-	-	Acrylonitrile butadiene styrene	IEC 60669-2-1	Tested in appliance	
Terminal	-	-	Stainless steel	IEC 60669-2-1	Tested in appliance	
Terminal screw	-	-	Brass	IEC 60669-2-1	Tested in appliance	
Relay	OMRON	G6BK-1114P	5A, 250VAC/30VDC	EN 61810-1	TUV R 50158246	
alternative	Hongfa	HFE60	5A, 250VAC/30VDC	-	UL E134517	



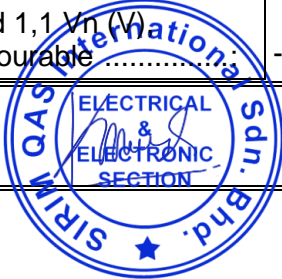
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Clause	Requirement + Test			Result – Remark		Verdict
Description	Manufacturer	Type / model	Technical data	Compliance to Standard	Mark(s) of Conformity	
Fuse	Bel Fuse Inc	0659C-series	4A, 250VAC	DIN EN 60127-1, IEC 60127-1	VDE 40039275	
alternative	Eaton Bussmann	S501 Series	4A, 250VAC	IEC 60127-1	VDE 40015517	
	Littelfuse	216 Series	4A, 250VAC	IEC 60127-1	VDE 40013834	
	Schurter	SPT 5x20	4A, 250VAC	IEC 60127-1	VDE 40014395	
Transformer	Xuyi Ouge Electronic Co.Ltd.	EE-0802	85VAC-277VAC, 3.8VDC	-	Test in appliances	
- Bobbin	Sumimoto Bakelite Co. Ltd	PM9360/ PM9820/	FV-0	-	UL E41429	
	Chang Chun Plastic Co. Ltd	T375HF	V-0	-	UL E59481	
- Copper wire	Tai-I Electric Wire & Cable Co. Ltd.	2UEW	100 % Copper 155 °C	-	UL E85640	
- Insulating tape	Jingjiang Jingyi Adhesive Product Co. Ltd	MARA	PET film tapes, 130°C	-	UL E246950	
- Triple insulating tape	Shenzhen Darun Science & Technology Co. Ltd.	-	34 - 18 AWG, 130°C	-	UL E335841	
Transformer - alternative	Premier Magnetic	PNK-32023	85VAC-277VAC, 3.8VDC	-	UL E177139	
Varistor	Walsin	7D Series	275VAC, 710Vc	IEC 61051-1, IEC 61051-2, IEC61051-2-2	VDE 40010090	
alternative	Littelfuse	LA Varistor Series	275VAC, 710Vc	IEC 60950-1, IEC 61051-1, IEC 61051-2	VDE 116895	
	Bourns	MOV-07DxxxK Series	275VAC, 710Vc	-	UL 1449 E313168	
PCB	Shenzhen JDB Technology Co Ltd	IPE(R)	FR-4 board, TG130-140,	-	UL 796 E488074	
		UTCH	HASL lead free, 1oz finish copper	-		



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Clause	Requirement + Test			Result – Remark		Verdict
Description	Manufacturer	Type / model	Technical data	Compliance to Standard	Mark(s) of Conformity	
Capacitor 1000uF	Changzhou Huawei Electronics Co.,Ltd	GR 1826	1000uF, 25V	IEC 60669-2-1	Tested in appliance	
alternative	Nichicon	VR Series	1000uF, 25V	-	-	
	Multicomp	MCGPR Series	1000uF, 25V	-	-	
	Panasonic	FR Series	1000uF, 25V	-	-	
	Kemet	ESK Series	1000uF, 25V	-	-	
Capacitor 1uF, 400V	Nichicon	VZ(M)	1uF, 400V	IEC 60669-2-1	Tested in appliance	
alternative	Changzhou Huawei Electronics Co.,Ltd	GR Type	1uF, 450V	-	-	
	Würth Elektronik	WCAP-ATG5 Series	1uF, 400V	-	-	
	Panasonic	NHG Series	1uF, 400V	-	-	
	Rubycon	PX Series	1uF, 400V	-	-	
Inductor	Coilcraft	RFC1010 Series	100uH, 2.15A	IEC 60669-2-1	Tested in appliance	
alternative	Panasonic	ELC-16B Series	150uH, 2.2A	-	-	
	Würth Elektronik	WE-TIF Series	100uH, 2.45A	-	-	

102.4.2	<b>TABLE: temperature rise measurements after test for automatic protective devices which only decrease current to the electronic switch</b>			NA
	cross-sectional area of conductor not less than 1,5 mm <sup>2</sup> (mm <sup>2</sup> ) (table 15) .....	-		—
	terminal screws: torque (Nm) (2/3 table 3 or appropriate figures 1, 2, 3, 4) .....	-		—
	type of load .....	-		—
	rated current (A) / rated load (W or VA) .....	-		—
	rated voltage (V) .....	-		—
	test voltage between 0,9 and 1,1 V <sub>n</sub> (V) whichever is the more unfavourable .....	-		—
				

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Clause	Requirement + Test	Result – Remark		Verdict
	parts of the electronic switch	max. measured temperature rise (K)	permissible temperature rise (K)	
	-	-	-	
supplementary information:				

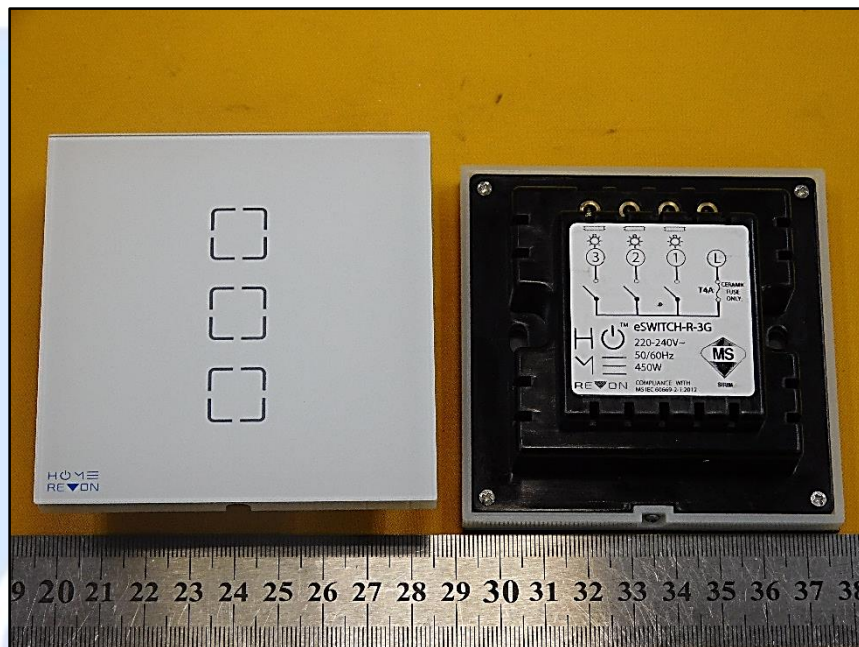


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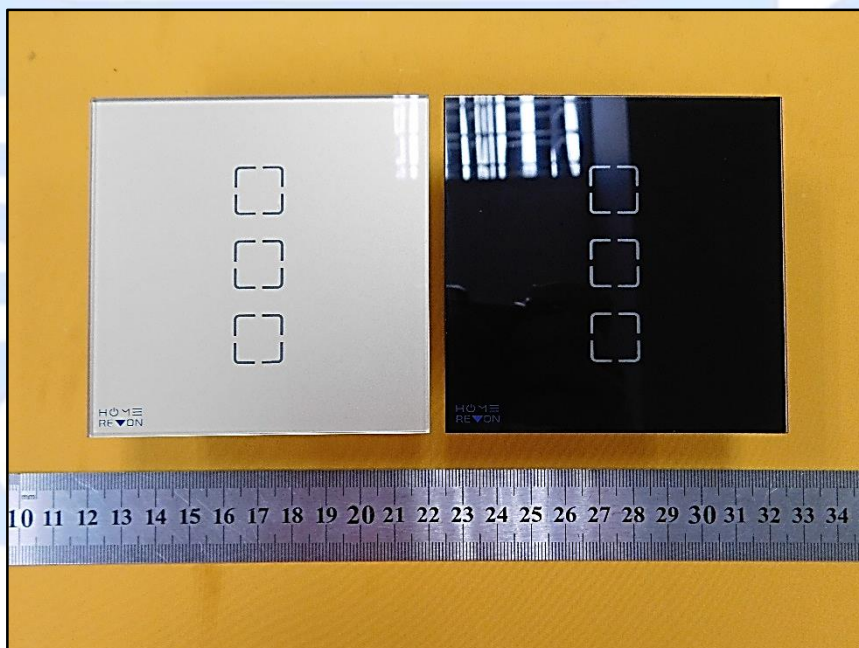


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### PHOTOGRAPH(S) OF TEST SAMPLE(S)



Front and rear view: eSWITCH-R-3G

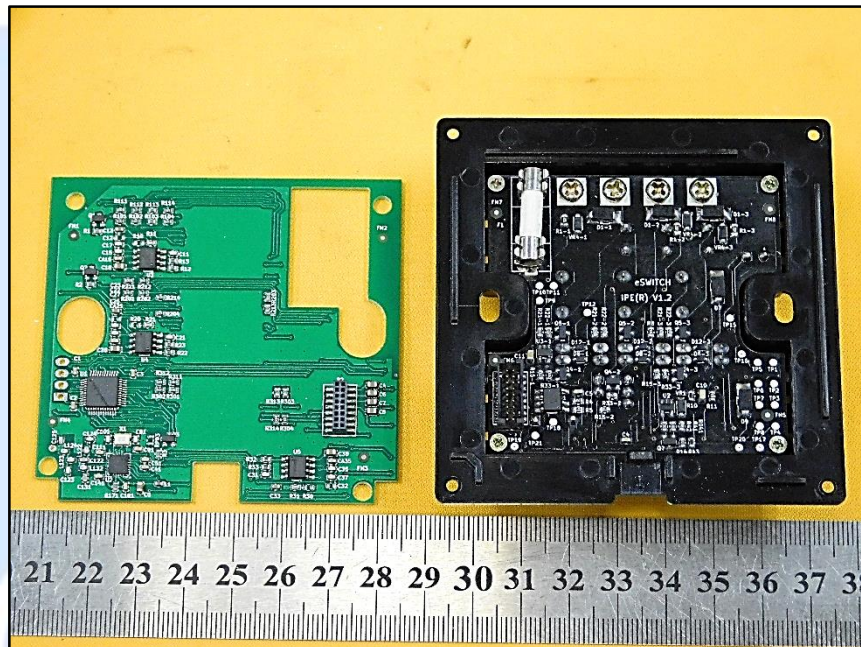


Front view: cover with silver and black color

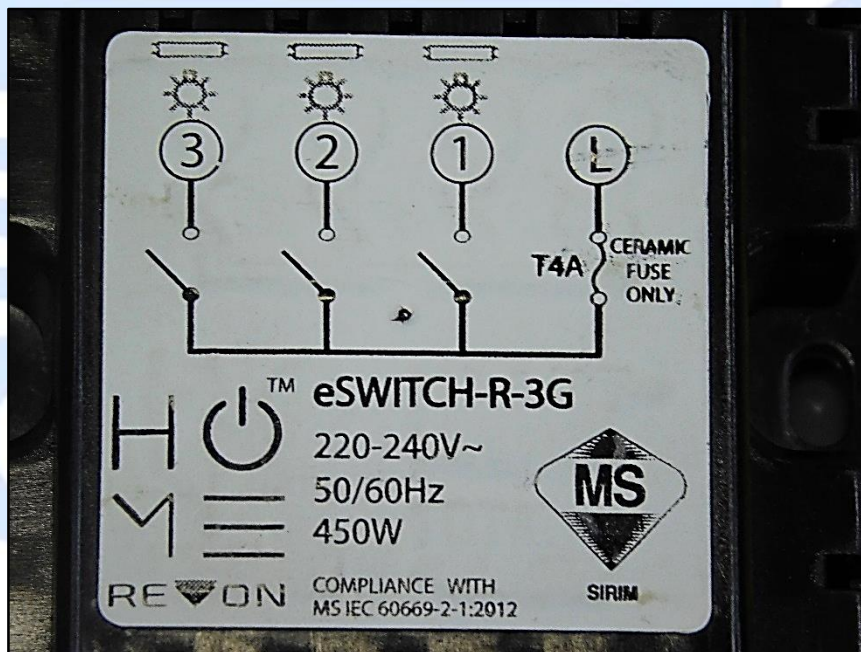


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### PHOTOGRAPH(S) OF TEST SAMPLE(S)



Internal construction: PCB Board



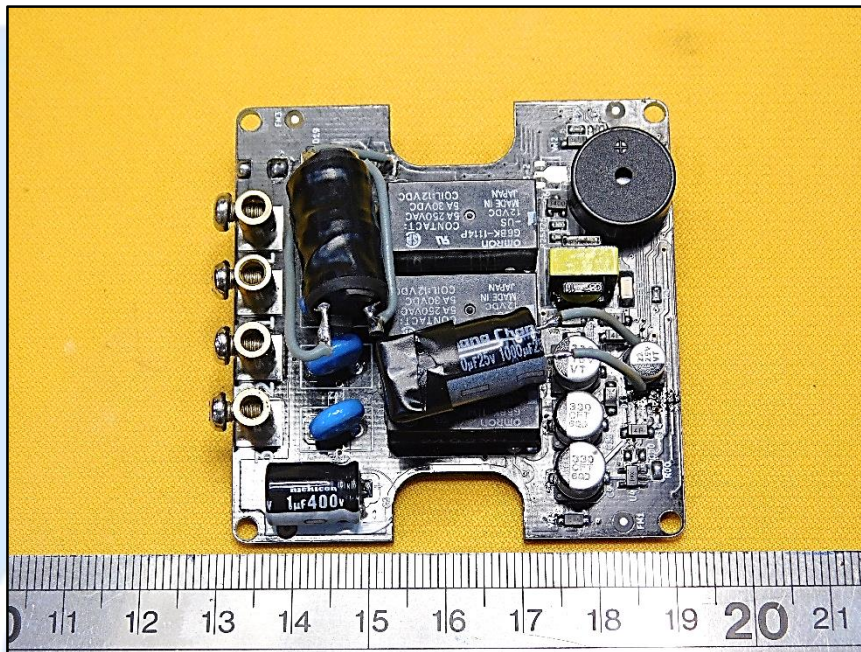
Markings



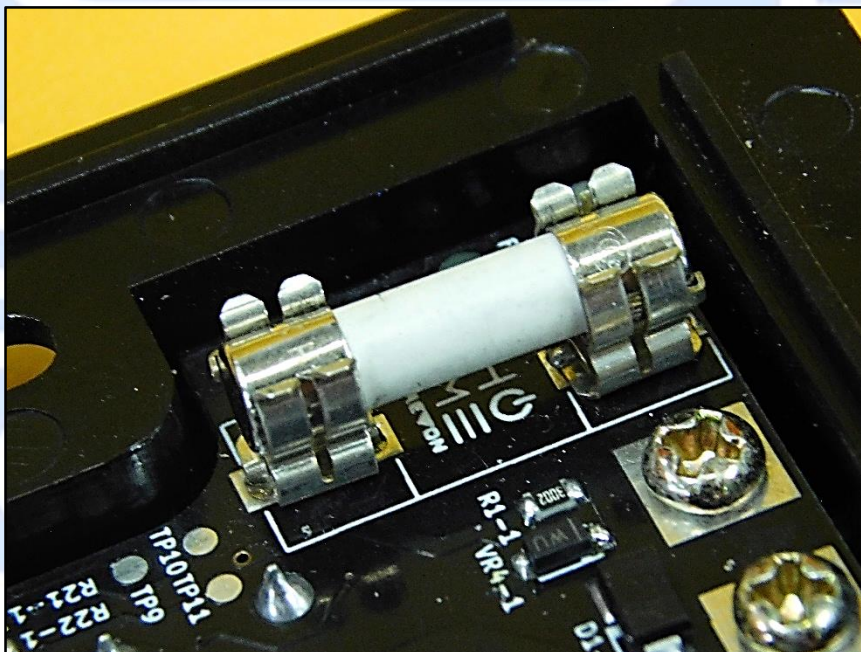


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### PHOTOGRAPH(S) OF TEST SAMPLE(S)



Components



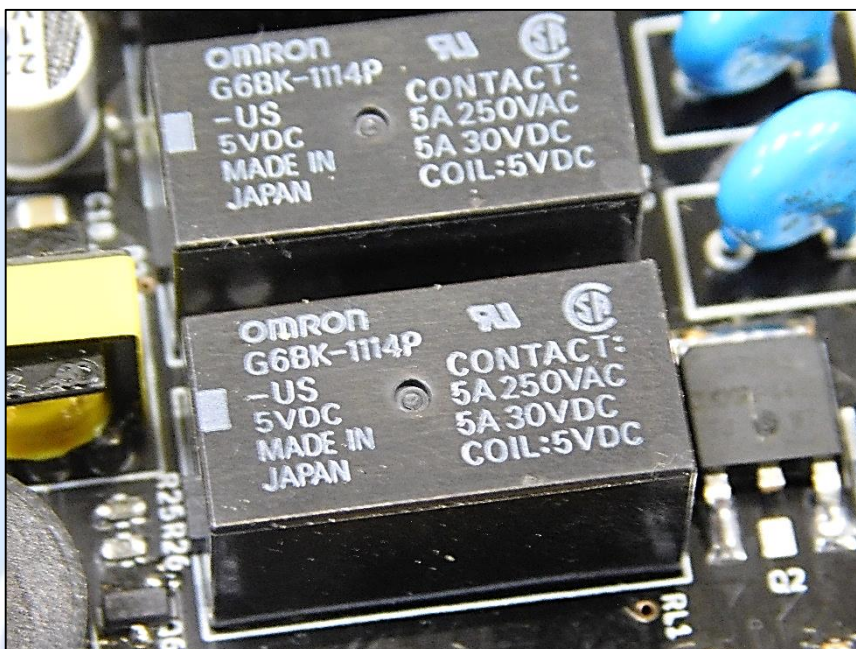
Component: Fuse



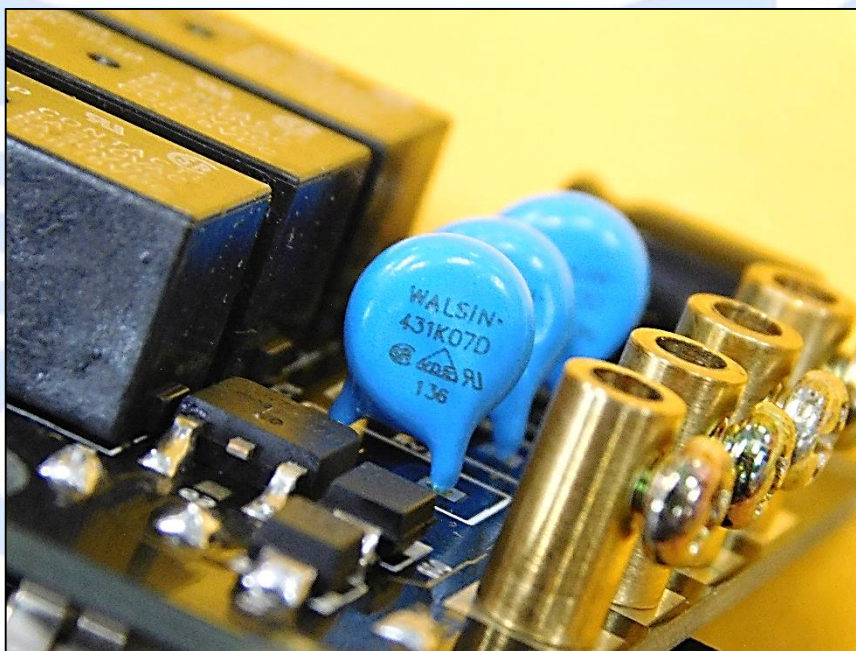


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### PHOTOGRAPH(S) OF TEST SAMPLE(S)



Component: Relay



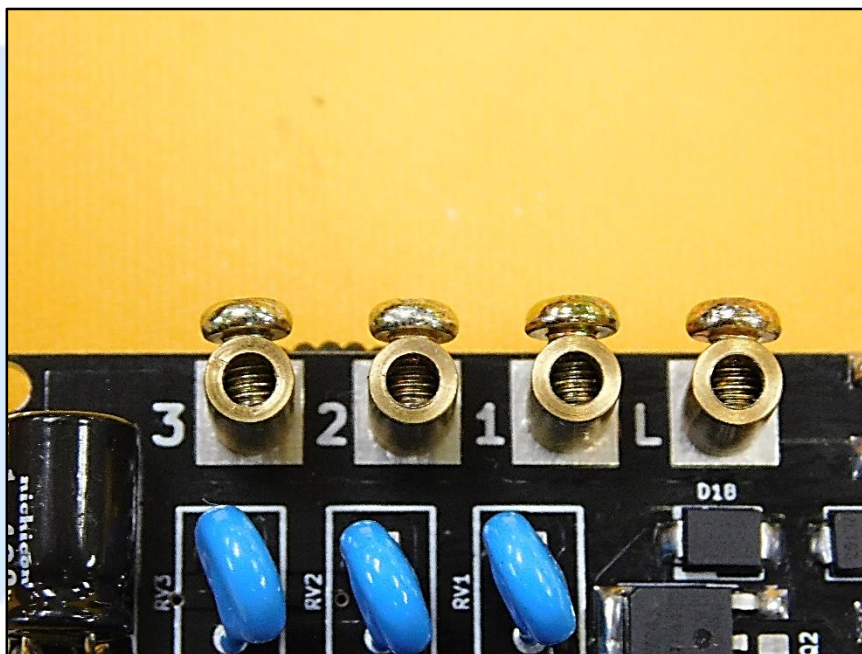
Component: Varistor



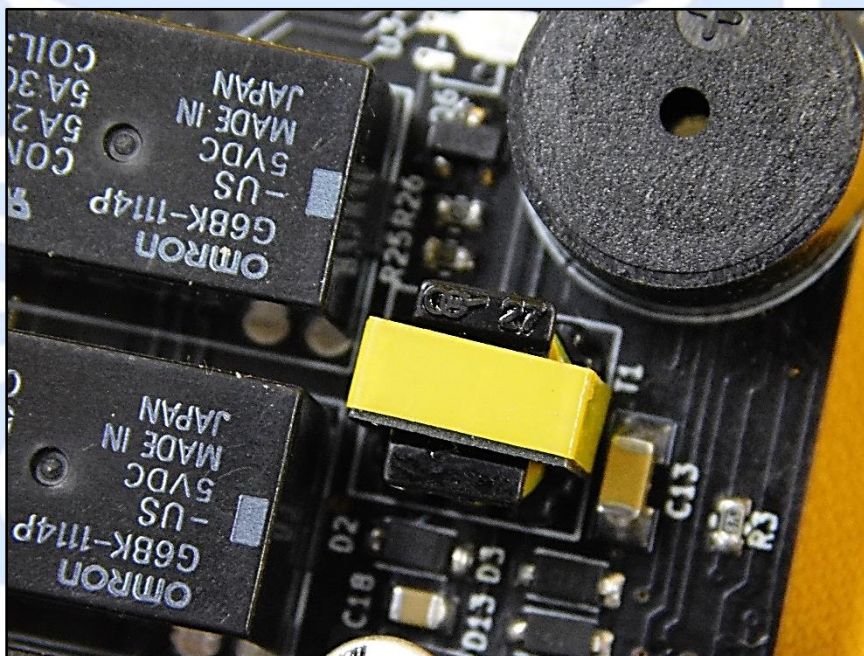


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### PHOTOGRAPH(S) OF TEST SAMPLE(S)



Component: Terminal and terminal screw



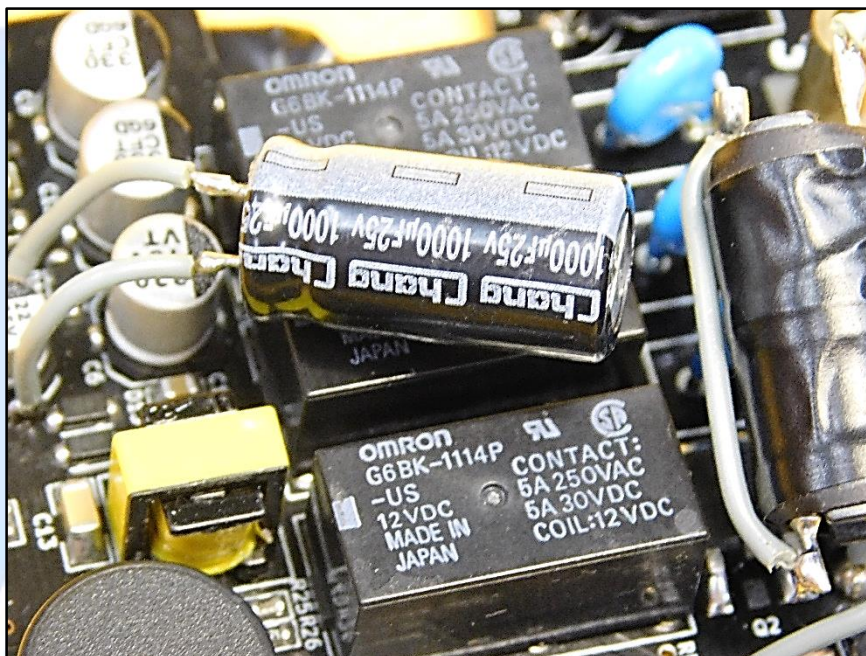
Component: Transformer



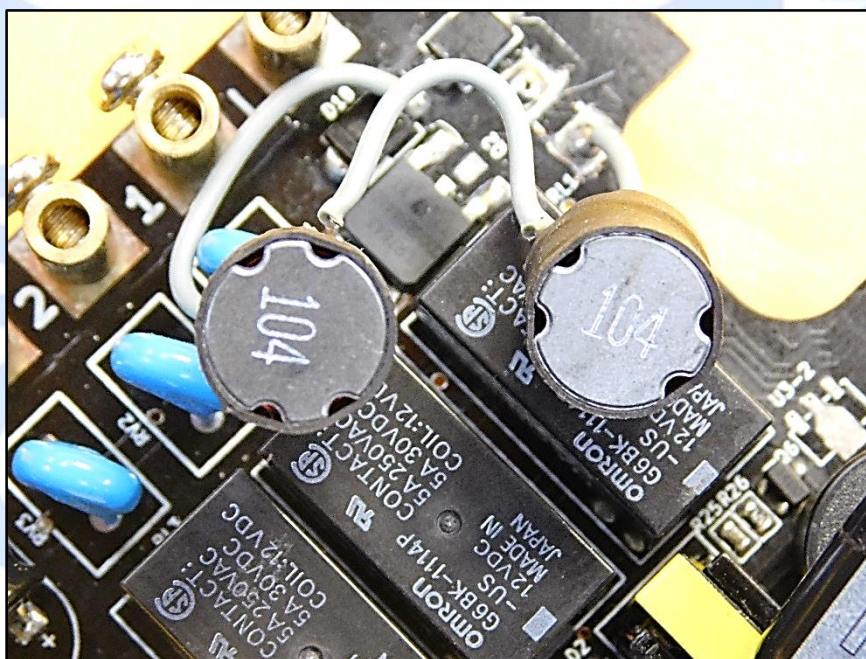


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### PHOTOGRAPH(S) OF TEST SAMPLE(S)



Component: Capacitor



Component: Inductor



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**PHOTOGRAPH(S) OF TEST SAMPLE(S)**

Diameter of terminal screw



## CONDITIONS RELATING TO THE USE OF SIRIM QAS INTERNATIONAL TEST REPORT

1. A Test Report will be issued in respect of Testing Services conducted and shall relate only to the Sample actually tested. SIRIM QAS International makes no warranty whatsoever and the Applicant shall not represent in any manner that any duplication or mass production of the Product is same as the Sample actually tested or that SIRIM QAS International has tested any of the duplicated or mass produced Product.
2. The Test Report shall not be amended, changed, varied or modified in any manner whatsoever by the Applicant or otherwise.
3. If the Test Report is to be furnished to any third party or to the public, each such Test Report shall be furnished in full, legible and in its entirety.
4. The Test Report shall not be reproduced and shall not in any event be used for any advertising purposes or whatsoever without written approval from the Managing Director of SIRIM QAS International of No 1, Persiaran Dato' Menteri, Building 8, Section 2, P.O. Box 7035, 40700 Shah Alam, Selangor Darul Ehsan.
5. Customer (Applicant/Manufacture/Factory, etc.) is not permitted to use any SIRIM QAS International, SIRIM or other SIRIM's subsidiaries logo or words on packaging, sample's manual, technical specification, brochures/flyers or any other means without the prior written approval from the Managing Director of SIRIM QAS International.
6. If such approval is obtained from the Managing Director of SIRIM QAS International, the Applicant may only include the phrase, "A sample of this product has been tested by SIRIM QAS International ... (Test Report No) ... (dated) .... (for what test) ... (to which standard)" or such similar words which stress that only the Sample was actually tested. This phrase shall only be used for the purpose of product advertisement or product promotion (eg; brochures). For avoidance of doubt, the statement shall not be used on the sample and packaging of the sample.
7. In the event there is an investigation from a Government Regulatory Agency concerning the Applicant's Test Report, SIRIM QAS International may disclose the information pertaining to the Test Report for purposes of such investigation.
8. Further or in the alternative, it is strictly forbidden unless with prior written approval from the Managing Director of SIRIM QAS International, to represent in any manner whatsoever that SIRIM QAS International, SIRIM and/or other SIRIM's subsidiaries has endorsed, approved or validated the Product of the Applicant in any manner whatsoever.
9. In the event the Applicant is found in breach of this provision, SIRIM QAS International, SIRIM and/or other SIRIM's subsidiaries without prejudice to any other rights and remedies may take whatever action necessary including but not limited to:
  - a) Informing and placing a notice in the media;
  - b) Obtaining an injunction from Court (cost on a solicitor-client basis to be borne by the Applicant);
  - c) Refusing to accept any further Product for Testing Services from the Applicant or whosoever related to the Applicant, whether subsidiary or otherwise;
  - d) Instructing the Applicant to withdraw and recall the advertisement, statement or document in question and advertise a clarification and apology to SIRIM QAS International, SIRIM and/or other SIRIM's subsidiaries twice in a national publication of SIRIM QAS International's choice at the Applicant's sole cost; and
  - e) Informing or lodging a report pertaining the Applicant's Test Report with the relevant authorities.
10. Certified true copies of the Test Report may be issued upon request by the Applicant upon payment of the relevant fee.
11. Corrections to test report shall only be allowed within 6 months from issuance date of the test report and shall be limited to maximum 3 times, after either case whichever occurs earlier, a new test report shall be issued and replace the previous one (having error(s) or lack of information). Issuance of Supplementary Report to the original Test Report shall be for the followings;
  - a) Misprints and typo errors
  - b) Missing technical information
  - c) Test data not reported
  - d) Mistake in reporting of test data