OMEGA TEST

OMEGA TEST BELGELENDİRME TİCARET LİMİTED ŞİRKETİ İKİTELLİ OSB MAH. BAĞCILAR GÜNGÖREN SAN. SİT. METRO İŞ MERKEZİ NO:1 B BLOK İÇ KAPI NO:36 BAŞAKŞEHİR İSTANBUL TÜRKİYE

Deney Raporu
Test Report

22OMG0409.00
10-22

Müşterinin Adı / Adresi: Customer name/address	***GÜVENİR ELEKTRİK İTHALAT İHRACAT SANAYİ VE TİCARET LİMİTED ŞİRKETİ BÜYÜKHENDEK CD. ERSOY PASAJI NO:25/52 ŞIŞHANE BEYOĞLU/İSTANBUL***
Üretici Adı / Adresi : Manufacturer name/address	***GÜVENİR ELEKTRİK İTHALAT İHRACAT SANAYİ VE TİCARET LİMİTED ŞİRKETİ BÜYÜKHENDEK CD. ERSOY PASAJI NO:25/52 ŞIŞHANE BEYOĞLU/İSTANBUL***
İstek Numarası : Order no.	***T04092022.00.rev00***
Numunenin Adı ve Tarifi : Name and identity of test item	***EB 002; Anahtar*** EB 002; Push button
Numunenin Kabul tarihi : The date of receipt of test item	***06-09-2022***
Açıklamalar : Remarks	***DGC'ye EN IEC 61058-1:2018 Standardı uyarınca sayfa 3'teki Güvenlik Deneyleri yapılmıştır. Lütfen raporu inceleyiniz.*** Safety tests have been applied to EUT according to EN IEC 61058-1:2018 on page three. Please see the report below.
Deneyin Yapıldığı Tarih : Date of test	***13-09-2022 to 05-10-2022***
Raporun Sayfa Sayısı: Number of pages of the report	***42 sayfa*** / pages

Deney ve /veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri (olması halinde) ve deney metotları bu sertifikanın tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir.
The test and/or measurement results, the uncertainties (if applicable) with confidence probability and test methods are given on the following pages which are part of this report.

Mühür/Kaşe Seal	***Tarih*** Date	***Deney Sorumlusu*** Person in change of test	***Onaylayan*** Approval
OMEGA TEST BELGELENDİRME TİCARET LİMİTED ŞİRKETİ	***07-10-2022***	***Harun ÇELİK***	***Timur GÜSER***

Test Report
IEC 61058-1
Switches for appliances
Part 1: General requirements

Report reference No.....:	22OMG0409.00
Date of issue.....:	2022-10-07
Total number of pages.....:	42
Name of Testing Laboratory preparing the Report .....:	OMEGA TEST BELGELENDİRME TİCARET LİMİTED ŞİRKETİ İKITELLI OSB MAH. BAĞCILAR GÜNGÖREN SAN. SIT. METRO İŞ MERKEZI NO:1 B BLOK İÇ KAPI NO:36 BAŞAKŞEHIR İSTANBUL TÜRKIYE
Applicant's name.....:	GÜVENİR ELEKTRİK İTHALAT İHRACAT SANAYİ VE TİCARET LİMİTED ŞİRKETİ
Address .....:	BÜYÜKHENDEK CD. ERSOY PASAJI NO:25/52 ŞIŞHANE BEYOĞLU/İSTANBUL
Test specification:	
Standard.....:	EN IEC 61058-1:2018
	IEC 61058-1:2016;
Test procedure .....:	Type test
Non-standard test method.....:	N/A
Test Report Form No.....:	F510.15.rev00

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General disclaimer:

The test results presented in this report relate only to the object tested.
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Test item description .....:	Push button
Trademark .....:	O.C.M.
Manufacturer.....:	GÜVENİR ELEKTRİK İTHALAT İHRACAT SANAYİ VE TİCARET LİMİTED ŞİRKETİ
Model/type reference .....:	EB 002
Rating .....:	250V~, 50/60Hz, 2A ,

OMEGA TEST BELGELENDİRME TİCARET LİMİTED ŞİRKETİ

List of Attachments:	
Summary of testing:	
Tests performed (name of test and test clause): EN IEC 61058-1:2018	**Testing location:** OMEGA TEST BELGELENDİRME TİCARET LİMİTED ŞİRKETİ İKITELLI OSB MAH. BAĞCILAR GÜNGÖREN SAN. SIT. METRO İŞ MERKEZI NO:1 B BLOK İÇ KAPI NO:36 BAŞAKŞEHIR İSTANBUL TÜRKIYE
Copy of marking plate:  **The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.**	

Possible test case verdicts: **- test case does not apply to the test object.. :** N/A **- test object does meet the requirement..... :** P (Pass) **- test object does not meet the requirement.. :** F (Fail)
Testing ..... : Date of receipt of test item ..... : 06-09-2022 Date (s) of performance of tests ..... : 13-09-2022 to 05-10-2022
General remarks: The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. **Throughout this report a ☐ comma / ☒ point is used as the decimal separator.**
Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:
General product information:

Test items particulars:				
Type reference (*3.1.8 and 3.1.9*)..... :	☐ unique (U.T.)	☒ common (C.T.)		
Type of switch (*3.3.1 to 3.3.9*)..... :	☐ incorporated	☐ integrated	☐ rotary	
	☐ lever	☐ rocker	☒ push-button	
	☐ cord-operated	☐ push-pull	☐ biased switch	
	☐ other:			
Operation of the switch (*3.4.1 to 3.4.4*) ..... :	☐ **actuation** – of the actuating member by human activity			
	☐ **indirect actuation** – of the actuating member indirectly			
	☒ **actuating member** – pulled, pushed, turned or otherwise influenced to cause an operation(Electronic switch push by a button could also operated by a APP on phone)			
	☐ **actuating means** – part between the actuating member and the contact mechanism (A button switches to control the product and the disconnection device by a relay. The switch is an electronic switch which control by phone.)			
Connections to the switch (*3.5*)..... :	☒ external conductor	☐ integrated conductor		
Terminals and terminations (*3.6.1 to 3.6.8*) ....:	☐ terminal:			
	☐ screw type terminal (*7.20.12*)			
	☐ screw less terminal (*Push-in terminals / 7.20.13*)			
	☐ termination:			
	☐ flat quick-connect termination (*7.20.14*)			
	Tab terminals:			
	☐ 2.8 x 0.5 mm	☐ 2.8 x 0.8 mm	☐ 4.7 x 0.5 mm	
	☐ 4.7 x 0.8 mm	☐ 6.3 x 0.8 mm	☐ 9.5 x 1.2 mm	
	Female connector:			
	☐ 2.3 x 3.8 mm	☐ 2.9 x 6.0 mm	☐ 3.5 x 7.8 mm	
	☐ 4.0 x 11.1 mm			
	☐ solder (*7.20.15*)			
	☐ PCB (*Printed Circuit Board*)			
	☒ special declared type:			
Relating to insulation (*3.7.8 to 3.7.11*)..... :	☐ a class 0 appliance;		a class I appliance;	
	☒ a class II appliance;		a class III appliance;	
CTI (V) (*3.7.12*)..... :	---			
PTI (V) (*Annex C*)..... :	---			
Material group (*20.4.11*).....	☐ I	☐ II	☒ IIIa	☒ IIIb
Pollution, micro inside the switch (*3.8.1*)..... :	☐ 1	☐ 2	☐ 3	
Pollution, macro outside the switch (*3.8.2*) .....:	☐ 1	☒ 2	☐ 3	
Nature of supply (*7.1.1 to 7.1.3*)..... :	☒ AC	☐ DC	☐ both AC and DC	

Type of load – A.C. circuits (*IEC 61058-1-1:2016, Table 102*) ..... :	☒ Substantially resistive ☐ General purpose load ☐ Resistive and/or motor ☐ Circuit for specific load of motor with a locked rotor ☐ Circuit for an inductive load ☐ Resistive and capacitive ☐ Tungsten filament lamp load ☐ Circuit for specific lamp load(Self-ballasting lamps) ☐ Specific declared
Type of load – D.C. circuits. (*IEC 61058-1-1:2016, Table 103*) ..... :	☐ Substantially resistive ☐ Tungsten filament lamp load ☐ Resistive and capacitive load ☐ Circuit for specific lamp load ☐ Declared specific load
Ambient temperature (*7.3*) ..... :	☒ 7.3.1: 0 °C ≤ T ≤ 55 °C ☐ 7.3.2: not classified as 7.3.1 and 7.3.3 ☐ 7.3.3: accessible member and parts 0 °C ≤ T ≤ 55 °C and other parts of the switch not within 0 °C ≤ T ≤ 55 °C
Ambient temperature, actuating member (°C) :	☒ 0-55 °C
Ambient temperature, other parts (°C) ..... :	☒ 0-55 °C
Number of cycles (*7.4*) ..... :	1E3
IP number (*7.5 and 7.6*) ..... :	IP20
Glow wire temperature (°C) (*7.11*) ..... :	☐ 650 ☐ 750 ☒ 850 ☐ 960
Rated Impulse Voltage U_{imp} (V) (*7.12*) ..... :	2500V
Over voltage category (*7.13*) .....;	☐ Category I; ☒ Category II; ☐ Category III
Disconnection (*3.4.5 to 3.4.9 and 7.14*) ..... :	☒ disconnection ☐ micro-disconnection ☐ electronic-disconnection ☐ full-disconnection ☐ all-pole disconnection (*7.16.4*) ☐ combination declared
Coating for rigid printed board (*7.15*) ..... :	☐ type 1 ☐ type 2
According to type and/or connection of switches (*7.16*) ..... :	☐ 7.16.1 number of poles: Single poles ☒ 7.16.2 number of ways: ☐ 7.16.3 polarity reversal ☐ 7.16.5 number of non-switchable through connections:
Type of circuit (*7.16.6 according to code of switch type given in Table 2*) ..... :	☐ 1.2 ☐ 2.2 [1.2] ☐ 3.2 ☐ 4.2 ☐ 1.3 ☐ 2.3 ☐ 3.3 ☐ 4.3 ☐ 1.4 [1.2] ☐ 2.4 [1.3] ☐ 3.4 ☐ 4.4 ☐ 1.5 [1.2] [1.4] ☐ 2.5 ☐ 3.5 ☐ 4.5 ☐ 1.6 ☐ 2.6 ☐ 3.6 ☐ 1.7 ☐ 2.7 ☐ 3.7 [3.3] ☐ 1.8 ☐ 2.8 ☐ 3.8 ☐ Special ☐ 2.9 ☐ 3.9 [3.3]
According to configuration of switching device Electronic switch with (*7.17.1 – 7.17.5*)..... :	☐ SD without mechanical switching device; ☐ SD with series mechanical switching device; ☐ SD with parallel mechanical switching device; ☐ SD with series and parallel mechanical switching device; ☐ only mechanical switching device without SD. SD to be ☐ provided in the end application

Mechanical switch with (*7.17.6 – 7.17.7*) ..... :	☒ or without electronics, which does not impact the safety of the switch; ☐ electronics, which impacts the safety of the switch
According to duty type (*7.18*) ..... :	☐ S1 – continuous duty ☐ S2 – short-time duty with defined ON and OFF ☐ S3 – intermittent periodic duty with defined ON and OFF ☒ as declared for a specific application
Linkage between contact and actuator speed (*7.19*) Speed of contact closure ..... :	☐ or opening is **dependent** on the actuator speed ☒ and opening is **independent** of the actuator speed
According to the type of terminals (*7.20*) for ... :	☐ unprepared conductors (*7.20.1*) ☐ prepared conductors (*7.20.2*) ☐ flexible stranded conductors (7.20.3) ☐ rigid stranded conductors (*7.20.4*) ☐ solid conductors (*7.20.5*) ☐ conductor size range according to Table 4 (*7.20.6*) ☐ a declared limited conductor size range (*7.20.7*) ☐ only one conductor (*7.20.8*) ☐ the interconnection of two or more conductors (*7.20.9*) ☐ assembling one time (*7.20.10*) ☐ assembling and disassembling more than one time (*7.20.11*) ☒ welding or ridged terminals (*7.20.16*) ☐ wires for connections (*7.20.17*) ☐ piercing conductors (*7.20.18*) ☐ declared by the manufacturer (*7.20.19*)
Type of built in protection (*7.21*)..... :	
Type of forced cooling (*7.22*)..... :	☐ Built in protection provided; ☒ None provided ☐ Not requiring forced cooling. ☐ Forced cooling required, with description of forced cooling.
According to the capacitor provided with the switch (*7.23.1 – 7.23.5*) ..... :	☐ Capacitor class X1 ☐ Capacitor class X2 ☐ Capacitor class X3 ☐ Capacitor class Y2 ☐ Capacitor class Y4

IEC 61058-1			
Clause	Requirement - Test	Result - Remark	Verdict

8	**MARKING AND DOCOMENTATION**		--
8.1	**Switch information**		P
8.1.1	The switch manufacturer provide adequate information to ensure that the:		P
	• appliance manufacturer can select and install a switch; • end user can use a switch as intended by the switch manufacturer; • corresponding tests can be performed in accordance with this standard		P
	Information is provided in one or more of the following ways, as in Table 3.		P
8.1.2	By switch marking.	☒ Ma	P
8.1.3	By documentation.	☒ Do	P
	Documentation available in any suitable format.	Instruction	P

Table 3 No.	**Switch information** Characteristic	Means of information: ☐ C.T. ☒ U.T.			P
1	**SWITCH IDENTIFICATION**				P
1.1	Manufacturer's name or trade mark.	See marking label			P
1.2	Type reference.	See marking label			P
2	**SWITCH ENVIRONMENT/MOUNTING**				--
2.1	Degree of protection provided for the switch when mounted according to documentation.	IP	20	code of IEC 60529	P
2.2	Degree of protection against electric shock, from outside an appliance.	See page 7 and (*3.7.8 to 3.7.11*).			P
2.3	Method of mounting and actuating the switch.				P
	Method of providing earthing if appropriate.				N/A
	Method(s) of mounting and orientation(s) declared.				P
2.4	Pollution degree micro.	See page 7 and (*3.8.1*).			N/A
2.5	Pollution degree macro.	See page 7 and (*3.8.2*).			P
3	**TEMPERATURE**				--
3.1	Ambient temperature limits if ≠ 0 – 55°C.			°C	N/A
4	**ELECTRICAL LOAD / CONNECTION**				--
4.1	Rated voltage or voltage range.	250		V	P
4.2	Nature of supply.	~			P
4.3	Frequency or frequency range.	50/60		Hz	P
4.4	The rated current and the electrical load type.	See page 3 "*Rating*".			P
4.5	For switches for more than one circuit, the current applicable to each circuit and to each terminal.	See page 3 "*Rating*".			N/A

	If these are different from each other, then it shall be made clear to which circuit or which terminal the information applies.			N/A
4.6	Rated impulse withstand voltage.	2500	V	P
4.7	Overvoltage category.	Category II		P
4.8	Duty-type and relevant (ON/OFF-time)	Continues		N/A
4.9	Type and/or connection of switch.			P
4.10	Configuration of switching device:			N/A
5	**TERMINALS / CONDUCTORS**			--
5.1	All terminals suitably identified			P
	☒ or their purpose self-evident ☐ or the switch circuitry visually apparent			P
	For terminals intended for the connection of supply conductors, the identification may take the form	☐ of a letter L, ☐ a number ☐ or of an arrow		N/A
5.2	Terminals for earthing marked with the protective earth symbol	Class II		N/A
5.3	The method of connection and disconnection for push-in terminals.	No such terminals		N/A
5.4	The type of conductor to be connected to the terminal.	☐ solid, ☐stranded and/or ☐ flexible		N/A
5.5	The suitability of the terminal for connection of conductors indicated:			--
	• maximum conductor diameter		mm	N/A
	• minimum conductor diameter		mm	N/A
5.6	Suitability for interconnection of two or more conductors to terminals.			N/A
5.7	The type of solder terminal mechanical securement before soldering, iron, bath, etc.			N/A
5.8	For terminals with specific connection method, such as:			--
	• solder temperatures or process declared			N/A
5.9	Terminals for prepared conductors indicate the method for preparing the conductors.			N/A
5.10	For tabs with dimensions other than those according to IEC 61210:			--
	• the appropriate female connector			N/A
6	**OPERATING CYCLES / SEQUENCE**			--
6.1	Number of operating cycles.	1E3		P
6.2	Operating sequence for switches with more than one circuit.			N/A
6.3	Forces applied to end stops or full travel of actuating member.			N/A
7	**SIGNAL INDICATORS**			--
7.1	Maximum power of tungsten filament signal lamps.		W	N/A
	Marking visible when replacing lamp.			N/A
7.2	Intended function or operation of the signal indicator.			N/A

8	**CIRCUIT DISCONNECTION**		--
8.1 – 8.4	☐ Electronic ☐ Micro ☐ Full ☐ Combination	Disconnection by a certified relay	P
9	**INSULATING MATERIALS**		--
9.1	Tracking ☐ PTI or ☐ CTI		N/A
9.2	Glow-wire temperatures.	See table glow wire test.	P
10	**COOLING CONDITION**		--
10.1 10.2 10.3 10.4 10.5 10.6	☐ Not requiring forced cooling ☐ Requiring cooling ☐ Direction of air for forced cooling ☐ Speed of air for forced cooling ☐ Thermal resistance of heat sink ☐ Incoming temperature, density and other details of the air stream		N/A
11	**PROTECTIVE DEVICE**		--
11.1	Rated current/fusing characteristic/breaking capacity of replaceable built-in protection	Fuse used	P
11.2	Type/function of non-replaceable built-in protection.	Fuse used	P
11.3	External protective device rated current, fusing characteristic, breaking capacity.		N/A
12	**TEST CONDITIONS**		--
12.1	Test condition for switches having a contact making and breaking speed independent from the speed of actuation		N/A
12.2	Special requirements for testing such as minimum electric load in 3.2.11, thermal current I_{th} (3.2.12)		N/A
8.2	**Symbols** (*when used*)		--
	☒ Ampere (A) ☒ Volt (V) ☐ Watt (W) ☐ Volt-amperes (VA) Alternating current (*single-phase*) ☐or a.c. ☐ or a.c. Direct current ☐or d.c. ☐ or____d.c.		P
	Tungsten filament lamp load:	⊗	N/A
	Protective earth symbol:	⏚	N/A
	Hertz – Frequency of supply	Hz	50/60Hz	P
	Number of operating cycles	See 8.5		P
	Symbol for micro-disconnection	μ		N/A
	☐ "OFF"-position or the direction of actuation to the "OFF" position ☐ "ON"-position or the direction of actuation to the "ON" position	○ |	0, 1, 2, 0	P
	Electronic disconnection	ε		N/A
8.3	**Load rating**			--
8.3.2	Substantially resistive			P
8.3.3	Resistive load and motor load			N/A
8.3.4	Resistive load and capacitive load			N/A

8.3.5	Resistive load and tungsten filament lamp load		P
8.3.6	Declared specific load		N/A
8.3.7	Inductive loads		N/A
8.3.8	General Purpose loads		N/A
8.4	**Temperature rating**		--
8.4.1	☐ 25 T 85 (-25 °C up to +85 °C) (*example*) ☐ T 85 (0 °C up to +85 °C) (*example*)		N/A
	If no information is given:		P
	• rated ambient temperature range is 0 – 55 °C		P
8.4.2	Switches only partially suitable for a rated ambient temperature > 55 °C:		N/A
	• T85/55 or 25T85/55 (*examples*)		N/A
8.5	**Operating cycles**		--
	Information about rated operating cycles by using symbol "E", indicating exponent.	1E3	P
8.6	**Switches intended for use in Class II equipment or appliances**		--
	The symbol ⧈ shall not be marked on the switch.		P
8.7	**Required marking**		--
	Shall preferably be on the body of the switch.	On the enclosure	P
	Not on screws, removable washers or other removable.		P
	Marking for replaceable fuse incorporated in a switch shall be placed on the fuse-holder or in the proximity of the fuse.	Incorporated fuse, non-replaceable	N/A
	The characteristics may be indicated by symbols (see IEC 60127).	Incorporated fuse, non-replaceable	N/A
8.8	**Legibility and durability of marking**		--
	The requirements of 8.1 to 8.8 is checked by inspection and by rubbing the marking by hand for 15 s with a piece of cotton cloth:		--
	a) soaked with water and		P
	b) again for 15 s soaked with aliphatic solvent hexane		P
	After these tests, the marking shall still be legible.		P
8.9	**Switches with their own enclosure**		--
	• "OFF"-position, clearly indicated	0	P
	Switches with micro-disconnection or electronic disconnection:		--
	• not marked with symbol "O" for the "OFF" position		N/A
	Switches where marking of switch position is impossible or leads to misunderstanding:		--
	• direction of actuation(s) is marked		N/A
	Switches having more than one actuating member:		--
	• marking shall indicate, for each of the actuating members, the effect achieved by its operation		N/A

	For switches classified as unique type, 7.10.1, the OFF marking is according to the manufacturer's declaration.		N/A
	For push-button switches with a single button the OFF position is not required to be marked.		N/A

9	**PROTECTION AGAINST ELECTRIC SHOCK**		--
9.1	Switches shall be constructed so that there is adequate protection against contact with live parts in any position of use when the switch is mounted and operated as in normal use. Checked by inspection and by the following test:		--
	a) applied to accessible parts of the switch when mounted in accordance with the manufacturer's documentation, with any detachable parts, except lamps with caps, removed;		P
	b) The insulating properties of lacquer, enamel, paper, cotton, oxide film on metal parts, beads and sealing compounds which soften in heat:		--
	• shall not be relied upon to give the required protection against contact with live parts		P
	c) Probe B according to IEC 61032 (IEC 60529:1989, Figure 1) jointed test finger is:		--
	• applied without force in every possible position		P
	If Probe B is able to enter the opening:		--
	• the finger is repeated with an electrical contact indicator to show contact		N/A
	d) Probe 11 according to IEC 61032 straight unjointed test finger is applied:		--
	• with 20 N of force to any opening that prevents the entry of probe B		P
	e) Test pin Probe 13 according to IEC 61032 is applied to:		--
	• openings in insulation materials and unearthed metal parts without force in every possible position		P
	It shall not be possible to touch bare live parts.		P
	For switches which have any parts of double insulation construction:		--
	• not possible to touch with the jointed test finger unearthed metal parts separated from live parts by basic insulation, or by the basic insulation itself		P
9.1.1	Accessible metal parts which are needed for the operation of a switch may be connected to live parts by means of a protective impedance:		--
	The protective impedance shall consist of resistors and/or capacitors comply with one of the following at least:		N/A
	☐ a) 2 independent resistors of the same nominal value in series complying with 24.4; ☐ b) 2 independent capacitors in series, of the same value complying with class Y2 according to IEC 60384-14; ☐ c) 1 resistor complying with 24.4 and 1 capacitor complying with class Y2 according to IEC 60384- 14 in series		N/A
	The removal of protective impedances, or their short-circuiting, possible:		--

	• only by destruction of the switch or by rendering the electronic switch obviously unusable			N/A
	The protective impedances so designed and arranged that along their surfaces and between their surfaces:			--
	• the requirements according to Clause 20 are met			N/A
9.1.2	If a cover or cover-plate or a fuse can be removed without the use of a tool or if the instruction for use specifies that, for the purpose of maintenance, when replacing the fuse, covers and cover-plates fastened by means of a tool have to be removed:			--
	• protection against contact with live parts assured even after removal of the cover or cover-plate			N/A
	Checked with Probe C according to Figure 3 IEC 61032:1997, through the hole, applying up to 20 N of force.			--
	The pin shall not touch live parts.			N/A
9.1.3	An actuating member fixed adequately if the removal of the actuating member gives access to live parts.	No such actuating member		N/A
9.2	For switches for appliances other than of Class III, actuating members shall be of one of the following types:			--
	a) insulating material;			P
	b) metal separated from basic insulated parts by supplementary insulation;			N/A
	c) metal separated from live parts by double or reinforced insulation;			N/A
	d) for electronic switches, metal separated from live parts by protective impedances			N/A
	Item d) measurements carried out between either a single accessible metal part or any combination of accessible metal parts and earth, through a non-inductive resistor of 2 kΩ:			--
	☐ at rated voltage (and rated load in ON-state) ☐ in ON- and OFF-state ☐ and/or at lowest and highest setting value			N/A
	The current not exceed, in any measurement:			--
	• 0,7 mA (*peak*) for a.c. ≤ 1 kHz or 2 mA for d.c.		mA	N/A
	For frequencies > 1 kHz:			
	• the limit of 0,7 mA is multiplied by the value of the frequency in kHz, but shall not exceed 70 mA		mA	N/A
9.3	Capacitors not connected to unearthed metal parts which are accessible when the switch is mounted.	No such capacitors		N/A
	Metal casing of capacitors separated by supplementary insulation from accessible unearthed metal parts, when the switch is mounted.			N/A
10	**PROVISION FOR EARTHING**			--
10.1	Switches for Class II appliances:			--
	• have no provision for earthing the switch or parts thereof			P
	Interconnections for maintaining the earthing circuit are permitted.			N/A

10.2	Earthing terminals, earthing terminations and other earthing means:			--
	• not connected electrically to any neutral terminal			N/A
10.3	Accessible metal parts of switches for Class I appliances:			--
	• have provision for earthing			N/A
10.3.1	Parts separated from live parts by double or reinforced insulation, and parts screened from live parts by metal parts connected to an earthing terminal, earthing termination, or other earthing means:			--
	• not regarded as likely to become live in the event of an insulation fault			N/A
10.3.2	Accessible metal parts of switches connected to earth through their fixing means:			--
	• provided the provision is made for clean metallic surfaces at the connection points			N/A
10.4	The connection between an earthing terminal/termination or other earthing means, and parts required to be connected thereto, is of low resistance.			--
	a) a current of $1.5I_R$ but ≥ 25 A a.c. with ≤ 12 V, passed between the type of used earthing and each of the parts in turn		A	N/A
	The resistance not exceeding 50 mΩ.		mΩ	N/A
10.5	Earthing terminals of all types for unprepared conductors:			--
	• is of a size ≥ required for the corresponding current carrying terminal			N/A
	Not possible to loosen the clamping means without the aid of a tool, and they be adequately locked against unintentional loosening.			N/A
10.5.1	Terminals according to 11.1 and 11.2:			--
	• provide sufficient resilience for adequate locking against unintentional loosening			N/A
10.5.2	Switch subjected to excessive vibration or temperature cycling:			--
	• special provisions are used			N/A
10.6	Thread-cutting and thread-forming screws may be used to provide earthing continuity;			--
	• provided it is not necessary to disturb the connection in normal use			N/A
	• and at least 2 screws are used for each connection (*see tests in 19.2*)			N/A
10.7	All parts of an earthing terminal:			--
	• no risk of corrosion			N/A
10.8	The body of an earthing terminal shall be:			--
	☐ of brass ☐ or other metal no less resistant to corrosion			N/A
	Unless:			--
	☐ it is a part of the enclosure when any screws or nuts be of brass plated steel complying with 19.3 ☐ or other metal no less resistant to corrosion and rusting			N/A

10.9	If the body of an earthing terminal is part of a frame or enclosure of aluminium or aluminium alloy:		--
	• precautions taken to avoid risk of corrosion resulting from contact between copper and aluminium or its alloys		N/A

11	**TERMINALS AND TERMINATIONS**		--
11.1 11.1.1	**Common requirements to terminals** General		--
	Terminals enable a safe and reliable connection for the conductors declared under the conditions of the intended use.		N/A
	Screws and nuts for clamping the conductors:		--
	• shall not serve to fix any other part		N/A
	• they may hold the clamping part in place or prevent it from turning		N/A
	Clamping shall be between metal surfaces except for terminals:		--
	• intended to be used in circuits carrying a current ≤ 0,2 A, one of the surfaces may be non-metallic		N/A
11.1.2	Design of terminals		--
	• so designed that a suitable conductor may be inserted into the aperture to the designed depth without undue force and undue damage to the conductor and terminal		N/A
11.1.3	Insulation		--
	Terminals shall be designed so that there is no reduction of the insulation strength:		--
	• when the conductor is attached to the terminal as declared by the manufacturer (*see clause 20*)		N/A
11.1.4	Connection		--
	A terminal shall be designed so that a conductor cannot slip out:		--
	• while being connected or while the switch is being operated as intended (*checked by TT1*)		N/A
11.2	**Fixing of terminals**		--
11.2.1	Terminals shall be fixed so, that they will not work loose:		--
	• when the conductor is connected or disconnected		N/A
	The intended removal of a conductor shall require an action other than a pull at the conductor.		N/A
	Does not preclude floating terminals or terminals mounted on floating elements, used in some stack-type switches.		N/A
	For terminals declared 7.20.14 (*flat quick-connect termination*) the tabs shall:		--
	• allow the application and withdrawal of female connectors without damage to the switch (*checked by TT2*)		N/A
11.2.2	For terminals declared 7.20.13 (*push in*) in combination with conductors declared unprepared (*7.20.1*):		--

	• checked by inspection and 11.8.4		N/A
11.3	**Location and shielding of terminals**		--
11.3.1	Terminals shall be located or shielded so that when wires are connected, there:		--
	• is no reduction of the insulation strength of the terminals, live parts or to accessible metal parts		N/A
11.3.2	Terminals suitable for the connection of flexible conductors (7.20.3) shall be located or shielded so that:		--
	• there is no risk of contact between live parts and accessible metal parts		N/A
11.3.3	For switches for class II appliances there shall be no risk of contact:		--
	• between live parts and metal parts separated from accessible metal parts by supplementary insulation only (*checked by inspection and for stranded wires by TT3*)		N/A
11.4	**Terminals for interconnection of more than one conductors**		--
	Terminals to be used for the interconnection of more than one conductor (7.20.9)		--
	• designed so that the combination of the most onerous sizes connected simultaneously, does not result in a hazard (*checked by inspection and TT4*)		N/A
11.5	**Thermal stress**		--
	Terminals shall withstand thermal stress occurring in normal use.		--
	Checked according to TE2 in Clause 17 of ..... :	☐ IEC 61058-1-1:2016 or ☐ IEC 61058-1-2:2016.	N/A
11.6	**Test sequences**		--
	Depending on terminals allowing the connection of prepared or unprepared conductors:		--
	• the tests are conducted according Table 5 in the sequence with increasing TT-number	See table 5.	N/A
11.7	**Conductor escape test (TT1)**		--
	Conductors as declared by the manufacturer.	mm²	N/A
	Or of **maximum** cross sectional areas in Table 4.	See table 4.	N/A
	The conductor is inserted into the terminal over a length equal to the minimum distance prescribed.		N/A
	Or, if no distance is prescribed, until an end-stop is reached.		N/A
	Or until the conductor just projects from the far side of the terminal and in the position most likely to assist a strand to escape.		N/A
	Test is repeated with the terminal fitted with conductors as declared.	mm²	N/A
	Or of **minimum** cross sectional area in Table 4	See table 4.	N/A
	Terminals declared suitable for prepared conductors (7.20.2), the declared type used.		N/A
	Terminals declared for rigid conductors (7.20.5), before insertion into the terminal:		--

	• the wires are straightened			N/A
	Terminals declared for stranded conductors (7.20.3 or 7.20.4), these are twisted:			--
	• in one direction, so a twist of one complete turn in a length of approximately 2 cm is obtained			N/A
	Terminals declared screw type terminals (7.20.12) these are:			--
	• tightened with the torque according to Table 10	See table 10.		N/A
	Terminals declared for the connection of two or more conductors (7.20.9):			--
	• the test is repeated with the terminal fitted with the declared numbers of conductors			N/A
	Terminals declared for solder or welding terminals (7.20.15 or 7.20.16) or if the connection is designed so that a slip out is prevented by design:			--
	• no test is necessary			N/A
	After the test, the conductor shall not have:			--
	• escaped into or through the gap between the clamping means and retaining device			N/A
11.8	**Terminal displacement test (TT2)**			--
11.8.1	Connection test			--
	A conductor connected and disconnected 10 times using the parameters of TT1, if no test according to 11.8.2 is required.			N/A
	Terminals declared for only one time connection (7.20.10), test is not required.			N/A
	After the test the terminal:			--
	• have not displaced from its intended position			N/A
11.8.2	Screw-type terminal			--
	a) is fitted with a conductor of the **smallest**		mm²	N/A
	or **declared** cross sectional area as in Table 4	See table 4.		N/A
	The terminal screw being tightened with a torque as specified in appropriate column of Table 10.	See table 10.		N/A
	b) If the screw has a hexagonal head with a slot, the torque applied is as in column III of Table 10.	See table 10.		N/A
	c) The conductor is subjected to a pull force as in Table 6, applied without jerks, for 1 min, in the direction of the axis of the conductor space.		N	N/A
	d) Repeat a) to c) with the **largest** wire size.		mm²	N/A
	Terminals declared for the connection of two or more conductors (7.20.9):			--
	• the test is repeated with the terminal fitted with the declared number of conductors			N/A
	Terminals declared suitable for two or more conductors (7.20.9):			--
	• the appropriate pull is applied consecutively to each conductor			N/A
	During the test:			--
	• the conductor shall not move noticeably in the terminal			N/A

11.8.3	Flat quick-connect termination			--
	For terminals declared 7.20.14 (flat quick-connect termination) compliance is:			--
	• checked by applying the axial forces without jerks to the tab equal to those specified in **IEC 61210:2010, Table 6 (*retention force*)**		N	N/A
	No significant displacement or damage shall occur.			N/A
11.8.4	Push in terminals.			--
	Conductors fitted as **declared** by the manufacturer.		mm²	N/A
	Or of **maximum** cross sectional areas as in Table 4.	See table 4.		N/A
Step a)	• Insert of the conductor into the terminal.			N/A
Step b)	• Twist through 90° in an axial direction.			N/A
Step c)	• Apply a pull force in opposite to direction of insertion as in Table 6; without jerks, for 1 min.		N	N/A
Step d)	• Disconnect the conductor by the designed disconnect means other than a pull on the conductor only.			N/A
Step e)	• New conductor for each of the next 3 insertions indicated above.			N/A
Step f)	• At the 5th insertion, the conductor for the 4th insertion is reused.			N/A
	The test repeated with the terminal fitted with conductors as **declared**.		mm²	N/A
	Or of **minimum** cross sectional area according to Table 4.	See table 4.		N/A
	Compliance of the test:			--
	During the application of the pull, the conductor shall not come out of the terminal.			N/A
	After these tests, neither the terminal nor the clamping means shall have worked loose.			N/A
11.9	**Strand escape test (TT3)**			--
	The insulation from the end of a stranded conductor having the **minimum** or **declared** cross sectional area as in Table 4 is removed for a length of 8 mm.	See table 4.		N/A
	One strand of the flexible conductor is separated and left free.			N/A
	The remainder are fully inserted into the terminal and clamped.			N/A
	Terminals declared for unprepared stranded conductors 7.20.3 and 7.20.4:			--
	The free strand shall be bent without tearing the insulation back and without making sharp bends in every possible direction.			N/A
	The free strand of the flexible conductor shall not touch relevant parts mentioned in 11.3.			N/A
	The free strand of a flexible conductor connected to an earthing terminal shall not touch any live part.			N/A

11.10	**Multiple conductors (TT4)**			--
	Conductors fitted as **declared** by the manufacturer.		mm²	N/A
	Or of **maximum** cross sectional areas as in Table 4	See table 4.		N/A
	For conductors classified 7.20.13, perform steps a) to c) of TT2 Clause 11.8.4.			--
Step a)	• Insert the conductor into the terminal, either as far as possible or insert so that adequate connection is obvious.			N/A
Step b)	• Twist it through 90° in an axial direction.			N/A
Step c)	• Apply a pull force in opposite to direction of insertion as in Table 6; applied without jerks, for 1 min.		N	N/A
	For conductors classified 7.20.12 perform steps a) to c) of TT2 Clause 11.8.2.			--
	a) The screw-type terminal is fitted with a conductor of the **smallest** or **declared** cross sectional area as in Table 4	See table 4.		N/A
	The terminal screw being tightened with a torque as specified in appropriate column of Table 10.	See table 10.		N/A
	b) If the screw has a hexagonal head with a slot, the torque applied is as in column III of Table 10.	See table 10.		N/A
	c) The conductor is subjected to a pull force as in Table 6, applied without jerks, for 1 min, in the direction of the axis of the conductor space.		N	N/A
	Compliance of the test:			--
	During the application of the pull, the conductor shall not come out of the terminal.			N/A
	After these tests, neither the terminal nor the clamping means shall have worked loose.			N/A

12	**CONSTRUCTION**		--
12.1 12.1.1	**Constructional requirements relating to protection against electric shock** When double insulation is used the design shall be such that the:		--
	• basic and the supplementary tested separately		P
	Unless compliance to the properties of both insulations is provided in another way:		--
	a) Basic and supplementary insulation cannot be tested separately, the insulation is considered to be reinforced insulation.		P
	b) Specially prepared specimens, or specimens of the insulating parts.		N/A
12.1.2	Creepage distances and clearances not reduced, as a result of wear, below values in clause 20.		P
	If any conductive part of the switch becomes loose and moves out of position it:		--
	• cannot get so disposed in normal use that creepage distances or clearances across supplementary or reinforced insulation are reduced	Components and conduct parts fixed reliable	N/A
	For the purpose of this test:		--

	☐ not expected that two independent fixings will become loose at the same time ☐ parts fixed by screws or nuts provided with locking washers not liable to become loose springs and ☐ spring parts not become loose or fall out of position if they do not do so during the tests of Clauses 18 and 19			N/A
12.1.3	Integrated conductors is rigid and fixed,			P
	• or insulated that creepage distances and clearances not reduced below values in Clause 20			P
	Insulation, if any, shall be such that it cannot be damaged during mounting or in normal use.			P
	If the insulation of a conductor is not at least electrically equivalent to that of cables and cords complying with the appropriate IEC standard or does not comply with the dielectric strength test made between the conductor and the metal foil wrapped around the insulation under the conditions specified in Clause 15:			--
	• the conductor is a bare conductor			N/A
12.1.4	Full disconnection or micro-disconnection can only be achieved using a:			--
	• series mechanical contact			N/A
12.1.5	Electronic disconnection is formed by any parallel components or path across a series contact			N/A
	• or when no mechanical contact is provided in the switch			N/A
12.2	**Constructional requirements relating to safety during mounting and normal operation of the switch**			--
12.2.1	Covers, cover plates, removable actuators and the like cannot be displaced or removed except by use of a tool.	Integral switch, end product enclosure fixed by four screws		P
	Fixings for a cover or cover plate do not serve to fix any other part except an actuating member.			P
	Not possible to mount removable parts, such that indication of switch positions does not correspond with the actual switch position.			P
12.2.2	Fixing screws of covers or cover plates captive.			N/A
12.2.3	Switch not damaged when its actuating member is removed as intended.			N/A
12.2.4	Pull-cord insulated from live parts.			N/A
	Possible to fit or to replace it without removing parts causing live parts to become accessible.			N/A
12.2.5	Illuminated indicator incorporated in a switch, provides correct indication as declared by the manufacturer.			--
	Checked by connecting the switch to a voltage ±10 % of marked U_L or U_N.	225-275	V	P
12.3	**Constructional requirements relating to the mounting of switches and to the attachment of cords**			--

12.3.1	Methods of mounting do not adversely affect compliance with this standard.		N/A
	Switch cannot rotate, or be displaced, and be removed from an appliance without the aid of a tool.		N/A
	If removal of a part is necessary during the normal use, requirements of clauses 9, 15 and 20 is satisfied before and after such removal.		N/A
12.3.2	A conductor intended to be disconnected shall:		--
	• indicate an obvious method for insertion and disconnection of the conductors		N/A
	The intended disconnection of a conductor shall require an operation:		--
	• other than a pull at the conductor		N/A
12.3.3	Openings for the use of a tool intended to assist the insertion or disconnection shall:		--
	• be clearly distinguishable from the opening for the conductor		N/A

13	**MECHANISM**		N/A
13.1	For DC switches with a voltage rating above 28 V dc in combination with a current rating above 0,1 A:		--
	• the speed of contact making and breaking shall be independent of the speed of actuation		N/A
13.2	A switch with an intermediate position shall:		--
	• not create an unintended operation		N/A
13.3	When the actuating member is released		--
	☐ it take automatically or stay in the position corresponding to the moving contacts ☐ except only one rest position		N/A
13.4	Cord-operated switch (pull cord) shall be constructed so that, after actuating the switch and releasing the cord:		--
	• the relevant parts of the mechanism are in a position allowing the immediate performance of the next movement in the cycle of actuation		N/A
13.5	Multi-pole switches makes and breaks all poles substantially together.		N/A
	Unless otherwise declared according to Table 3 "Operating sequence".		N/A
	The neutral may make before and break after the others.		N/A

14	**PROTECTION AGAINST INGRESS OF SOLID FOREIGN OBJECTS, INGRESS OF WATER AND HUMID CONDITIONS**		P
14.1	**Protection against ingress of solid foreign objects**		--
	Degree of protection as in 13.3 of IEC 60529.	Integral switch, the end product comply the requirements	P
	Detachable parts are removed.	No detachable parts	N/A

	Switch which relies on mounting for the declared degree of protection:			--
	• mounted in or on a closed box to simulate the appliance • tests performed using this simulated assembly	Lamp cap insert into the gauge according to IEC 60061, and the lamp holder mount a E27 lamp		N/A
	For numerals 5 and 6:			--
	• test carried out according to category 2 with the specimen in the most unfavourable position to the manufacturer's declarations for a period of 8 h			N/A
	During the 8 h the specimen loaded alternatively 1 h with the maximum I_R and 1 h without current.		A	N/A
	For the test for first characteristic numeral 5, the switch comply if:			--
	• all actions function as declared			N/A
	• □t at the terminals ≤ 55 K tested as in 16.2 at I_R and at 25 ± 10°C		K	N/A
	• dielectric strength of 15.3 with no humidity treatment before application of test voltage 75 % of the test voltage in 15.3		V	N/A
	• no transient fault between live parts and earth metal, accessible metal parts, or actuating members has occurred			N/A
	Test for 1st characteristic numeral 6, no deposit of dust is inside the switch at the end of the test.			N/A
14.2	**Protection against ingress of water** Degree of protection against ingress of water when mounted and used as declared.			--
	Checked by tests in IEC 60529 with the switch placed in any position of normal use.			N/A
	Switches kept at 25 ± 10 °C for 24 h before being subjected to the test.		°C	N/A
	The test is carried out according to IEC 60529 as follows:			--
	☐ IPX1 – IPX2 switches as in 14.2.1 – 14.2.2 with **the drain holes open** ☐ IPX3 – IPX9 switches as in 14.2.3 – 14.2.9 with **the drain holes closed**			N/A
	a) Switch not electrically loaded during these tests.			N/A
	The water temperature shall not differ from that of the switch by more than 5 K.			N/A
	b) Detachable parts are removed.			N/A
	c) Switches incorporating separate gaskets, screwed glands, membranes or other sealing means, manufactured from rubber or thermoplastic materials are:			--
	• aged in a heating cabinet with an atmosphere having the composition and pressure of the ambient air and ventilated by natural circulation			N/A
	d) Switches **without T-rating** (*7.3.1*), kept in the cabinet at a temperature of 70 ± 2 °C for 240 h		°C	N/A
	Switches **with T-rating** (*7.3.2*), kept in the cabinet at a temperature of T + 30 °C for 240 h		°C	N/A

	Switch according to 7.3.3, the "T" equals the lower of the two values following the letter T in 8.4.2.		°C	N/A
	Switches with glands or membranes are fitted and connected with conductors as in clause 11.			N/A
	Glands tightened with a torque as in Table 11.	See table 11.		N/A
	Fixing screws for enclosures are tightened with a torque as in Table 10.	See table 10.		N/A
	e) Immediately after ageing, the parts are taken out of the cabinet and left at 25 ± 10 °C, avoiding direct daylight, for at least 16 h		°C	N/A
	f) Switch which relies on mounting for the declared degree of protection:			--
	• mounted in or on a closed box to simulate the appliance			N/A
	• tests performed using this simulated assembly			N/A
	g) For tests of 2nd characteristic numerals 3 and 4, hand-held spray in IEC 60529 used.			N/A
	After the test, the switch shall withstand the dielectric strength test specified in 15.3.		V	N/A
	And inspection show no trace of water on insulation which could result in a reduction of creepage and clearance below the values specified in clause 20			N/A
14.3	**Protection against humid conditions**			—
	Cable inlet openings and drain-holes left open. Drain-hole for a water-tight switch is opened.	☐Yes ☐ No ☐N/A		—
	a) Before being placed in the humidity cabinet, the specimens are brought to a temperature between t and t + 4 °C.	25	°C	—
	b) Detachable parts removed and subjected to the humidity treatment with the main part.	☐Yes ☐ No ☐N/A		—
	c) Humidity treatment carried out in a humidity cabinet containing air maintained between 20 °C and 30 °C, with a relative humidity above 91 %.	93	%	—
	The specimens kept in the cabinet for 96 h.	96	h	—
	d) After removing the specimens from the cabinet, the testing of 15.2 and 15.3:			
	• completed within 2 h under ambient conditions			P
	The switch does not show any damage			P

15	**INSULATION RESISTANCE AND DIELECTRIC STRENGTH**		P
15.1	**General requirements.**		--
	Checked by the tests of 15.2 and 15.3, immediately after test of 14.3.		P
	The foils not pressed into openings but are pushed into corners and the like by means of the jointed test finger (test probe B according to IEC 61032).		P
	Basic insulation and supplementary insulation cannot be tested separately:		--

	• The insulation is subjected to the test voltages specified for reinforced insulation.		N/A
	The tests are not carried out across protective impedances and poles interconnected by components.		N/A
15.2	**Measurement of insulation resistance**		--
	The insulation resistance is measured with a DC voltage of ~ 500 V applied, being made 60 s after application of the voltage.		P
	The insulation resistance not less than specified in Table 7.	See table 7.	P
15.3	**Insulation test voltage**		--
	The test voltage raised uniformly from a value not greater than the rated U_n to the value specified in Table 8 within not more than 5 s and held at that value for 60 s.	See table 8.	P

16	**HEATING**			P
16.1	**General requirements**			--
	Switches shall be constructed so that they do not attain excessive temperatures in normal use.			P
	The materials used shall be such that the performance of the switches is not adversely affected by operation in normal use at the rated temperature of the switch.			P
16.2	**Contacts and terminals**			--
	The material and design of the contacts and terminals shall be such that the operation and performance of the switch is not adversely affected by their oxidation or other deterioration.			--
	Compliance is checked by Clause 17.			P
16.3	**Other parts**			--
16.3.1	Switch parts other than the contacts and terminals, in normal use shall not:			--
	• attain temperatures which impair the performance or operation of the switch or create a hazard to the user (*checked by Clauses 17 and 21*)	Integral switch, tested with the end product lamp holder adaptor		P
16.3.2	Insulation for conductors provided with the switch shall be rated:			--
	• not less than the relevant maximum temperature rating of the switch (*checked/verified on data provided by switch manufacturer*)			P
16.4	**Heating test**			--
	Unless declared otherwise, the test is carried out on 3 specimens mounted as declared by the manufacturer.			--
	a) Conductors of an approximate length of 1 m, are fitted to the terminals or leads.			N/A
	The cross-sectional area as declared.		mm²	N/A
	Or specified in Table 4 "medium".	See table 4.		N/A

	b) Connected conductors when provided are joined to conductors in item a) per the manufacturer's instructions.			N/A
	c) Screw terminals and/or nuts are tightened with a torque equal to 2/3 of the appropriate column of Table 10.		Nm	N/A
	d) Heating cabinets for testing switches without forced convection or a draught free condition.			P
	e) The temperature of the air in the heating cabinet is measured as near as possible to the centre of the space occupied by the specimens and at a distance not closer than 50 mm to the specimen.			P
	f) Switches declared as 7.3.2 or 7.3.3, are placed in a heating cabinet and the temperature is raised to the maximum T-rating of the switch.		°C	N/A
	The temperature of the cabinet maintained at T ± 5 °C or T ± 5 % (T ± 0,05T), whichever is greater.		°C	N/A
	g) Partially suitable rated switches as 7.3.3, with accessible parts rated 0 to 55 °C, exposed to a temperature ≤ 55 °C.		°C	N/A
	The internal switch enclosure with a T rating is tested as described for "all parts".		°C	N/A
	h) The temperature of mounting surfaces of the test equipment is between T and 20 °C.	25	°C	P
	i) The specimens are subjected to 20 operating cycles with no current flowing.			P
	The actuating member is left in the most unfavourable "ON" position.	Put the push button to the "ON" position		P
	If more "ON" positions, then the verification shall be realized at the most unfavourable one			N/A
	Actuating members of biased switches are fixed in the declared "ON" position.			N/A
	j) Multi-way switches are loaded as specified in 5.3 resulting in the maximum heating.			N/A
	k) Switches for DC or AC and DC voltage where no polarity is given, the test with DC voltage is performed in both polarities and an average value calculated.			N/A
	l) During the test, the switch state does not change.			P
	Fuses and other protective devices not operate.			P
	m) Any convenient AC or DC voltage may be used for the test circuit as far as the result is not affected.	AC voltage as declared		P
	n) The load is adjusted to allow the maximum rated current I_r if not other declared.			P
	o) Switch provided with components generating heat in addition to the heat generated by the contacts, are operated in the most unfavourable mode.			N/A

	p) The ON period is maintained with the test current until a constant temperature at the terminals is attained.		P
	A temperature considered constant when 3 successive readings taken at intervals of 5 min indicate no change greater than ± 2 °C.		P
	For a cycling load, after 1 h, the maximum temperature of the cycle is measured.	Continues load	N/A
	q) Thermocouples shall measure the temperature of the surfaces of the switch indicated below.		P
	During the test, the temperatures necessary to perform the ball pressure test of 21.1 measured.		P
	The non-metallic surfaces likely to attain the highest temperature are measured without disassembling the switch.		P

17	**ENDURANCE**		P
	See IEC 61058-1-1 for mechanical switch testing.		P
	See IEC 61058-1-2 for electronic switch testing.		N/A

18	**MECHANICAL STRENGTH**			P
18.1	**General requirements**			--
	Accessible parts shall have adequate mechanical strength to withstand a minimum level of force during normal use.			P
18.2	**Impact**			--
	Switches rated;			--
	• ≥ 0 °C are tested at 25 °C± 10 °C	25	°C	P
	• < 0 °C, are cooled to the minimum rated temperature T + 0/-5 °C for 2 h prior to testing		°C	N/A
	The impact is delivered using the spring hammer test apparatus of IEC 60068-2-75.			--
	The impact is equal to:			--
	• 0,5 Nm ± 0,04 Nm,			P
	• for foot operated switches: 1,0 Nm ± 0,05 Nm			N/A
	One specimen is mounted in the test plate of Figure 11.			N/A
	Remove the mounting device and specimen from the cold cabinet, when required.			N/A
	Immediately apply 3 blows, in a direction perpendicular to the switch.			N/A
18.3	**Pull**			--
18.3.1	Cord-operated switches are submitted to an additional pull test as follows:			--

	• mounted as declared by the manufacturer • the pull-cord is subjected to a force, without jerks • first for 60 s in the normal direction • then for 60 s in a direction 45° maximum from the normal direction • minimum values of the pull force as in Table 9 or three times the values of the normal operating force if that is greater			--
	The sample shall not be damaged in a way that reduces the electrical safety.	See table 9.		N/A
18.3.2	Pull (switches other than cord operated switches).			--
	Testing is completed at 25 °C ± 10 C.	25	°C	P
	A pull force is applied for 60 s to try to pull off the actuating member.			P
	The pull to be applied is 15 N.			P
	But if the actuating member is intended to be pulled in normal use,			--
	The pull force is increased to 30 N.			P
18.4	**Push**			--
	A push force of 30 N, using a switch not subjected to the pull force, shall be:			--
	• applied for 60 s to try to push in the actuating members			P
	The sample shall not be damaged in a way that reduces the electrical safety.			P

19	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		P
19.1	**General requirements for electrical connections** Contact pressure is not transmitted through insulating material other than		--
	☐ ceramic pure ☐ mica ☐ other material no less suitable ☒ there is visual evidence of sufficient resiliency in the metallic parts to compensate for any possible shrinkage or distortion of the insulating material		P
	The suitability of the material is considered in respect to the stability of the dimensions within the temperature range applicable to the switch.	Integral switch	P
	This requirement is not applicable to connections internal to a switch where the connection is used for:		--
	• lamps for indicating purposes		N/A
	• and where the current in this circuit is ≤ 20 mA		N/A
19.2 19.2.1	**Screwed connections** Screwed connections, not tested in Clause 11, electrical or other:		--
	• withstand the mechanical stresses occurring in normal use	Integral switch, the screws used to fixed the end product enclosure	P
19.2.2	Screws transmitting contact pressure		--
	• is in engagement with a metal thread		P
	Such screws not be of metal which is		--

	• soft or liable to creep, as zinc or aluminium	No such screws	N/A
19.2.3	Mechanical connections used during installation of switches may be made of using thread-forming or thread-cutting tapping screws:		--
	• only if the screws are supplied together with the piece in which they are intended to be inserted	Integral switch, end product need no used screws for installation	N/A
	Thread-cutting tapping screws intended to be used during installation:		--
	• captive with the relevant part of the switch		N/A
19.2.4	Thread-forming (*metal sheet*) screws not used:		--
	☐ for the connection of current-carrying parts ☐ unless they clamp directly in contact with each other and are provided with means of locking		N/A
	Thread-cutting (*self-tapping*) screws not used:		--
	☐ for electrical connection of current-carrying parts ☐ unless they generate a full metric ISO thread or a thread of equivalent effectiveness		N/A
	Such screws not used:		--
	☐ if likely to be operated by the user or installer ☐ unless the thread is formed by a swaging action		N/A
	The screws or nuts are tightened and loosened:		--
	☐ 10 times with thread of insulating material; ☒ 5 times in all other cases	Applied to end product, the screws used to fixed the enclosure	P
	Nuts concentric with the button or lever are tightened and loosened 5 times. Thread:		--
	☐ insulating material ⇒ the torque is 0.8 Nm ☐ are of metal ⇒ the torque is 1.8 Nm		N/A
	Screws and nuts are tightened and loosened by means of a suitable test screwdriver or spanner.		P
	The torque applied when tightening being equal to that specified in the appropriate column of Table 10, if not otherwise specified.	See table 10.	P
	During the test:		--
	• terminals shall not work loose		P
	• and damage that could impair the further use of the screwed connection		P
19.2.5	Switches having screwed glands are submitted to the following test.		--
	Screwed glands fitted with a cylindrical metal rod having a diameter equal to the nearest integer value less than the internal diameter of the packing, in millimetres		N/A
	The glands then tightened by means of a suitable spanner, the torque specified in Table 11 being applied to the spanner for 60 s.	See table 11.	N/A
19.2.6	Correct introduction of the screws which are operated during mounting or connection of the switch into the screw holes or nuts shall be ensured.		--
	Compliance checked by inspection and manual test.		N/A

19.2.7	Screws which make a mechanical connection between different parts of the switch shall be locked against loosening if the connection carries current.		--
	Rivets used for current carrying connections shall be secured:		--
	• against loosening if these connections are subject to torsion in normal use		N/A
	Sealing compound which softens in heat provides adequate locking:		--
	• only for screw connections not being subject to torsion in normal use		N/A
19.2.8	Screws and nuts for clamping the conductors shall have:		--
	• a metric ISO standard thread or a thread comparable in pitch and mechanical strength		N/A
19.3	**Current-carrying parts**		--
	Current-carrying parts and parts in an earthing path:		--
	• have adequate mechanical strength and resistance to corrosion	☒ inspection ☐ checked by Clause 22	P

20	**CLEARANCES, CREEPAGE DISTANCES, SOLID INSULATION AND COATINGS OF RIGID PRINTED BOARD ASSEMBLIES**		P
20.1	**Generally requirements**		--
	Compliance is checked:		--
	• with detachable parts removed	No detachable parts	N/A
	• and movable parts which can be assembled in different orientations placed in the most unfavourable position		N/A
	Distances through slots or openings in surfaces of insulating material are:		--
	• measured to a metal foil in contact with the surface		P
	The foil is pushed into comers and the like by means of:		--
	• the jointed test finger of IEC 61032 Probe B but is not pressed into openings		P
	A force is applied to bare conductors and accessible surfaces in order to attempt to reduce clearances when making the measurement. The force is:		--
	☒ 2 N for bare conductors. ☒ 30 N for accessible surfaces.		P
	When applied to openings as specified in 9.1, the distance through insulation between live parts and the metal foil:		--
	• not reduced below the specified values		P
20.2	**Clearances**		--
20.2.1	General		--
	The clearances shall be dimensioned to withstand the rated impulse voltage declared by the manufacturer according to 7.12 considering the:		--
	• rated U_n and overvoltage category in annex E	Category II	P
	• pollution degree declared by the manufacturer	Pollution degree II	P

20.2.2	Clearances for basic insulation ≥ the values given in Table 12	See table 12.	P
	Smaller clearances except those in Table 12 with note 5 may be used if the switch meets the U_{imp} test of annex G:		--
	• but only if the parts are rigid or located by mouldings,		N/A
	• or if the construction is such that there is no likelihood of the distances being reduced by distortion		N/A
	• or by movement of the parts during mounting, connection and normal use		N/A
20.2.3	Clearances for functional insulation ≥ the values for basic insulation in 20.2.2.		P
20.2.4	Clearances for supplementary insulation ≥ the values given in Table 12.	See table 12.	P
20.2.5	Clearances for reinforced insulation ≥ the values for basic insulation in 20.2.2 but using the next higher step for the rated U_{imp} in Table 12.	See table 12.	P
20.3	**Clearances for disconnection**		--
20.3.1	Electronic disconnection.		--
	No clearances specified for electronic disconnection.		N/A
20.3.2	Micro disconnection		--
	Clearances between terminals and terminations fulfil functional insulation according to 20.2.3.		P
	No clearances are specified for the distance across the contacts.		P
	For switches with a rated impulse withstand voltage < 1,5 kV, clearances between other current-carrying parts which are separated by the action of the switch:		--
	• ≥ the actual value of the distance between the relevant contacts		N/A
	Switches with a rated impulse withstand voltage of 1,5 kV the clearance of the other current carrying parts which are separated by action of the switch:		--
	• shall be at least 0,5 mm		N/A
20.3.3	Full disconnection		--
	Clearances for full disconnection ≥ the values in Table 12.	See table 12.	N/A
	Switches provided by two or more breaks in series:		--
	• the separation is the sum of the distances of the breaks		N/A
	Each break ≥ 1/3 of the prescribed distance.		N/A
20.4	**Creepage distances**		--
20.4.1	General – The creepage distances shall be dimensioned for the voltage expected to occur in normal use taking into account the pollution degree declared by the manufacturer according to 7.8 and 7.9 and the material group.		--
	Relationship between material group and proof tracking index (PTI) values:		--

	Material group.....:	IIIa	⇒ PTI:	175	N/A
	PTI values obtained in accordance with annex C.				N/A
	CTI (Comparative tracking index) may be substituted for PTI in Clause 20.....:	175	V		N/A
	Creepage distances for:				--
20.4.2 20.4.3 20.4.4 20.4.5 20.4.6	☒basic insulation ≥ the values in Table 13 ☐functional insulation ≥ the values in Table 14 ☐supplementary insulation ≥ the values for basic insulation in 20.4.2 ☒reinforced insulation ≥ double the values for basic insulation in 20.4.2 ☒disconnection ≥ the values for functional insulation in 20.4.3	See table 13 and 14.			P
20.5	**Solid insulation –** withstanding electrical and mechanical stresses, thermal and environmental influences which may occur during the anticipated life of the switch:				--
	• checked during tests of clauses 14, 15, 16 and 17 in IEC 61058-1-1:2016 or IEC 61058-1-2:2016				P
	Distance through accessible supplementary solid insulation				--
	• have a minimum value of 0.8 mm				N/A
	Distances through accessible reinforced solid insulation have minimum values:				--
	☐ for rated U_{imp} ≤ 1500 V: ≥ 0.8 mm; ☒ for rated U_{imp} ≥ 2500 V: ≥ 1.5 mm.				P
20.6 20.6.2	**Coatings of rigid printed board assemblies.** **Type 1 coating:** The insulation distances of a printed board assembly with type 1 coating declared:				--
	• comply with pollution degree 1 of clearances in Table 12 and of creepage distances in Table 14				N/A
	Test specimens:				--
	☐ as in 5.1 and 5.2 of IEC 60664-3 ☐ or any representative rigid printed board assemblies as in 5.3 of IEC 60664-3				N/A
20.6.3	**Type 2 coating:** A printed board assembly with type 2 coating declared shall comply with the requirements for solid insulation as specified in 20.5.				--
	• checked by the relevant test of Clause 6 of IEC 60664-3:2003 with the test levels or conditions as given in Table 15 and the test specimens as in 20.6.2				N/A

21	**FIRE HAZARD**		P
21.1	**Resistance to heat**		--
21.1.2	Compliance is checked with new samples using the ball pressure test according to IEC 60695-10-2 at:		--
	☐ the temperatures using either the (A) heating test results (*see 21.1.3*) ☒ or (B) calculated temperatures (*see 21.1.4*)		P
	The ∅ of the impression by the ball not > 2 mm.	See table "Fire hazard"	P

21.2	**Resistance to abnormal heat**		--
	Parts of non-metallic material shall be resistant to abnormal heat	See table "Resistance to abnormal heat"	P

22	**Resistance to rusting**		N/A
	Ferrous parts, the rusting of which might impair safety, adequately protected against rusting.		N/A

23	**ABNORMAL OPERATION AND FAULT CONDITIONS FOR ELECTRONIC SWITCHES.**		P
	See IEC 61058-1-1 for mechanical switch testing.		P
	See IEC 61058-1-2 for electronic switch testing.		N/A

24	**Components for switches**			P
24.1	**General requirements** Components which, if they fail, may cause risk of electric shock or fire shall comply • either with the requirements of this standard • or with the relevant IEC component standard as far as they reasonably apply			--
24.2	**Protective devices**			--
24.2.1	General Protective devices shall be in accordance with the relevant IEC publications and/or the additional requirements specified in the following sub-clauses: ☒ 24.2.2 fuses; ☐ 24.2.3 cut-outs; ☐ 24.2.7 protective devices which only decrease the current; ☐ 24.2.8 fusing resistors			--
24.2.2	Fuses:			--
	• comply with IEC 60127 or IEC 60269-3 and have a rated breaking capacity ≥1 500 A			N/A
	• unless any fault current through the fuse is limited to the breaking capacity of the fuse			P
24.2.3	Cut-outs – have adequate making and breaking capacity. If the cut-out in the switch is subjected to a reference temperature outside the range 0 °C to 35 °C or 55 °C:			--
	• samples tested at this reference temperature		°C	N/A
	During the test:			--
	• the other conditions shall be similar to those occurring in the switch			N/A
	• no sustained arcing shall occur			N/A
	After the test:			--
	• the specimens show no damage impairing their further use or the safety of the switch			N/A
24.2.4	Non-resettable cut-outs: ☐ thermal links in accordance with IEC 60691 ☐ or bi-metallic single operation devices (*SOD*) according to IEC 60730-2-9 Compliance checked by the tests according to 24.2.3. After the test the supply shall be:			--

	• cut out and the temperature neither exceed the maximum temperatures specified by the manufacturer for abnormal conditions	See table "Non-resettable cut-outs – After the test"		N/A
24.2.5	Resettable, non-self-resetting cut-outs shall be:			--
	• in accordance with IEC 60730-1 and appropriate parts of IEC 60730-2			N/A
	• checked by the tests according to 24.2.3 and the following additional tests			N/A
	Resettable, non-self-resetting cut-outs in the load circuit of the switch:			--
	• tested at $1.1U_N$ of the switch and with loads as specified below		V	N/A
	The cut-outs are reset after each operation and caused to operate 10 times:			--
	• Cut-outs in switches for incandescent lamps tested in a non-inductive circuit and loaded with the conventional fusing current of the protecting fuse		A	N/A
	• Cut-outs in switches for speed control circuits, subjected to 2 series of 10 operations. I_n the:			--
	• 1st series the cut-out closes a circuit with $9I_N$ ($cos\ \varphi = 0.8 \pm 0.05$).		A	N/A
	• 2nd series, the circuit $6I_N$ ($cos\ \varphi = 0.6 \pm 0.05$).		A	N/A
	• Cut-outs for other types of load are tested with the opening and closing current as declared		A	N/A
24.2.6	Self-resetting cut-outs – shall be in compliance with IEC 60730 series. Checked by the tests according to 24.2.3 and the following additional tests:			--
	• Self-resetting cut-outs in the load circuit of the switch tested at $1.1U_N$:		V	N/A
	• Cut-outs in switches for incandescent lamps operated automatically for 200 cycles in a non-inductive circuit and loaded with conventional fusing current of the protecting fuse.		A	N/A
24.2.7	Protective devices which only decrease the current (for example PTC resistors) be:			--
	☐ of a thermistor type according to Annex J in IEC 60730-1:2013 ☐ or PTC-S thermistors according to IEC 60738-1			N/A
	Checked by the tests according to 24.2.3 and the following additional tests. For PTC-S thermistors, with power dissipation > 15 W for the rated zero-power resistance at an ambient temperature of 25 °C, the encapsulation/tubing comply:			--
	• with flammability category V-1 or better according to IEC 60695-11-10 and IEC 60695-11-20			N/A
24.2.8	Fusing resistors:			--
	• have adequate breaking capacity and does not cause emission of flames or burning particles			N/A
24.3	**Capacitors**			--
	• comply with Table 16 or as declared (7.23)			N/A
24.4	**Resistors**			--

	Resistors for protective impedances according to 9.1.1 and resistors the short-circuiting or disconnecting of which would cause an infringement of the requirements for operation under fault conditions (*see Clause 23*):		--
	• have an adequate stable resistance value under overload and complies with the requirements of 14.1 of IEC 60065:2014		N/A

25	**EMC REQUIREMENTS**		N/A
25.1	**General**		--
	Tests in Clause 25:		--
	• carried out on requested by the manufacturer		N/A
	Electronic switches for appliances		--
	• fulfil the requirements for immunity and emission when used in accordance with the manufacturer's specification		N/A
	Electronic switches intended to be built in or incorporated in an appliance.		--
	• comply with the requirements for immunity and emission as evaluated in the end product		N/A
25.2 25.2.1	**Immunity** General Electronic switches so designed that the switch state (ON or OFF) and/or setting value is protected against electromagnetic interference.		--
	The electronic switch is mounted as in normal use		N/A
	Loaded as specified in clause 17 at U_N	V	N/A
	Each electronic switch is tested, if applicable, in the following states:		--
	☐ ON, ☐ highest setting; ☐ lowest setting; ☐ OFF, ☐ highest setting; ☐ lowest setting.		N/A
25.2.2	Voltage dips and short interruptions		--
	Electronic switch tested as in 25.2.1 with Table 17 using the test equipment specified in IEC 61000-4-11, 3 dips/interruptions with ≥ 10 s minimum (between each test event).		N/A
	Abrupt changes in supply voltage occurs at zero crossings.		N/A
	The change between the test voltage U_T and the changed voltage is abrupt.		N/A
	U_T = to the rated voltage.		N/A
	Test level of 0 % = to a total supply voltage interruption.		N/A
	During the test: • the electronic switch state and/or setting may alter		N/A
	Occasional flickering of luminaires and irregular running of motors during the test are neglected.		N/A
	After the test, the electronic switch:		--
	• be in the original state and the setting unchanged		N/A

25.2.3	Surge immunity test		--
	Tests carried out according to IEC 61000-4-5 with an open-circuit test voltage of 1 kV (*level 2*).		N/A
	During the tests, the switch state and/or setting shall not alter.		N/A
	After the tests the electronic switch is in the original state and the setting is unchanged.		N/A
25.2.4	Electrical fast transient test		--
	The electronic switch subjected to repetitive fast transients (*bursts*) on supply and control terminals / terminations.		N/A
	The test is carried out according to IEC 61000-4-4 with the following specification:		--
	The level of the repetitive fast transients consisting of bursts is in accordance with Table 18.		--
	☐ Supply terminals/terminations 1 kV (level 2) ☐ Control terminals/terminations 0,5 kV (level 2)		N/A
	The duration of the test ≥ 1 min.		N/A
	During the test, the electronic switch state and/or setting may alter.		N/A
	After the test, the switch shall remain in its original state.		N/A
25.2.5	Electrostatic discharge test		--
	The electronic switch mounted as in normal use.		N/A
	The following levels apply:		--
	☐ test voltage of contact discharge: 4 kV; ☐ test voltage of air discharge: 8 kV.		N/A
	During the test, the electronic switch state and/or setting may alter.		N/A
	After the test, the switch shall remain in its original state.		N/A
25.2.6	Radiated electromagnetic field test Electronic switch subjected to electromagnetic fields tested as follows:		--
	Test carried out according to IEC 61000-4-3, applying a field strength of 3 V/m.		N/A
	After the test, the electronic switch is in the original state and the setting is unchanged.		N/A
	During the test, the electronic switch state and/or setting may alter:		--
	• no other changes observed		N/A
25.2.7	Power-frequency magnetic field test		--
	• carried out according to IEC 61000-4-8 by applying a magnetic field of 3 A/m, 50 Hz.		N/A
	During the test, the state of the electronic switch shall not change.		N/A
	Occasional flickering of lamps or irregular running of motors during the test **does not** occur.		N/A

25.3 25.3.1	**Emission** Low frequency emission Checked by tests according to IEC 61000-3-2 and IEC 61000-3-3 or IEC 61000-3-5.		--
	Requirements met if the electronic switch complies with the criteria's specified in these standards.		N/A
	If overview shows an envelope of the spectrum with a monotonal decrease according to the increasing order of harmonics:		--
	• measurements restricted to harmonics up to order 11		N/A
25.3.2	Radio-frequency emission		--
	The electronic switch complies with the requirements of.....:	☐ CISPR 14-1 ☐ CISPR 15	N/A
	Electronic switch used for electrical lighting application, complies with CISPR 15.		N/A

Annex C	**PROOF TRACKING TEST** (PTI) **(*normative*)**		--
	Proof tracking test made according to IEC 60112.	175	N/A

Annex E	**RELATION BETWEEN RATED IMPULSE WITHSTAND VOLTAGE U_{IMP}, RATED VOLTAGE U_N AND OVERVOLTAGE CATEGORY (*normative*)**	P

Table E1	**Rated impulse withstand voltage for switches energized directly from the low voltage mains**						--
	Nominal voltage of the supply system based on IEC 60038 (V) Three phase Single phase		Voltage line to neutral derived from nominal voltages a.c. or d.c. up to including (V)	U_{imp} [2) 3)] (kV) Overvoltage category			—
				I	II	III	—
	--	250	≤300	--	2.5	--	P

Annex G	**IMPULSE VOLTAGE TEST** (*normative*)		N/A
	To verify that clearances will withstand specified transient overvoltage.		--
	Impulse withstand voltage test U_{imp} is carried out with a voltage having a 1.2/50 µs wave-form as in IEC 60060-1 and is intended to simulate overvoltage of atmospheric origin.	V	N/A
	The test is conducted for a minimum of 3 impulses of each polarity with an interval > 1 s between pulses.		N/A
	When surge suppression is provided inside the specimen, the impulse have the following characteristics: Waveform		--
	1.2/50 µs for the no-load voltage with amplitudes equal to the values in Table G1; 8/20 µs for an appropriate surge current.		N/A

Annex G	**IMPULSE VOLTAGE TEST** (*normative*)	N/A
	To verify that clearances will withstand specified transient overvoltage.	--

	Impulse withstand voltage test U_{imp} is carried out with a voltage having a 1.2/50 µs wave-form as in IEC 60060-1 and is intended to simulate overvoltage of atmospheric origin.		V	N/A
	The test is conducted for a minimum of 3 impulses of each polarity with an interval > 1 s between pulses.			N/A
	When surge suppression is provided inside the specimen, the impulse have the following characteristics: Waveform			--
	1.2/50 µs for the no-load voltage with amplitudes equal to the values in Table G1; 8/20 µs for an appropriate surge current.			N/A

Table G1	**Test voltages for verifying clearances at sea level**			--
	Rated impulse withstand voltage Û (kV)	Impulse test voltage at sea level Û (kV)		—
				N/A

Annex H	**ALTITUDE CORRECTION FACTORS (*normative*)**	N/A
	Dimensions given in Table 22 are valid for altitudes ≤ 2000 m above sea level, clearances for altitudes > 2000 m sea level is multiplied by the altitude correction factor specified as follows:	--

Table H.1	**Altitude correction factors**				
	Altitude (m)	Normal barometric pressure (kPa)	Multiplication factor for clearances		—
					N/A

Annex I	**TYPES OF COATINGS FOR RIGID PRINTED BOARD ASSEMBLIES (*normative*)**		N/A
	Type 1 coating:		--
	Provides only protection against pollution by coating to pollution degree 1.		N/A
	Clearance and creepage distance of 20.1 and 20.2 apply to the rigid printed board assembly under the coating		N/A
	Type 2 coating:		--
	Provides protection against pollution and insulation that the clearance and creepage distance of 20.1 and 20.2 are not applicable between conductors under the coating.		N/A

11.1.1	General			--
Table 4	**Resistive current carried by the terminal and related cross-sectional areas of terminals for unprepared conductors**			--
	Flexible conductors			--
	Terminal size..... :			—
	Resistive current carried by the terminal ..... :		A	—

	Cross-sectional areas ..... :		mm²	N/A
	Supplementary information:			
	Rigid conductors			
	Terminal size..... :			—
	Resistive current carried by the terminal ..... :		A	—
	Cross-sectional areas ..... :		mm²	N/A
	Supplementary information:			

11.6	**Test sequences**							--
Table 5	**Terminal test sequence**							--
	Reconnection	**Conductor**	**TT1**	**TT2**	**TT3**	**TT4**	**Examples of terminals**	—
	Possible (7.20.11)	Unprepared (7.20.1).					Screw 7.20.12, Piercing 7.20.18, Push in 7.20.13	N/A
	Possible (7.20.11)	Prepared (7.20.2)					Screw 7.20.12, Piercing 7.20.18, Push in 7.20.13, Quick connect	N/A
	Not possible (7.20.10)	unprepared (7.20.1).					Solder 7.20.15 Welding 7.20.16	N/A
	Not possible (7.20.10)	Prepared (7.20.2)					Fixed wires (7.20.17) and terminations in general	N/A
	Supplementary information:							--

15.2	**Measurement of insulation resistance**			—
	The insulation resistance measured with a DC voltage ~ 500 V, the measurement being made 60 s after application of the voltage.			--
Table 7	**Minimum insulation resistance**			--
	Insulation to be tested	Insulation resistance		--
	Functional	≥ 2 MΩ	> 999.9 MΩ	P
	Basic	≥ 2 MΩ	--	N/A
	Supplementary	≥ 5 MΩ	--	N/A
	Reinforced	≥ 7 MΩ	> 999.9 MΩ	P
	Across disconnections	≥ 2 MΩ	> 999.9 MΩ	P
	Supplementary information:			

15.3	**Insulation test voltage**			--
	The insulation is subjected to a voltage of substantially sine wave form, 50 or 60 Hz.			--
Table 8	**Dielectric strength**	Rated voltage (V)		--
	Insulation or disconnection to be tested	Test voltage (V)		--
	Functional	---		P

	Basic	500V		N/A
	Supplementary	--		N/A
	Reinforced	3000V		P
	Electronic disconnection	--		N/A
	Micro-disconnection	--		N/A
	Full disconnection	--		N/A
	No flash over or breakdown occurs.			P
	Supplementary information:			

16.3	**Heating test**			--
	Test voltage ..... :	250	V	—
	Resistive or declared current ..... :	2	A	—
	Cross-sectional areas ..... :	N/A	mm²	—
Thermocouple locations			Max. temperature measured, (°C)	
cable			24.9	P
Enclosure			27.8	P
PCB			27.9	P
resistance			63.2	P
	Supplementary information: Declared load type, choose the unfavourable condition			--

18.3	**Pull**				--
Table 9	**Minimum values of pull force**				--
	Rated current	Force (N)			—
	A	Normal direction	45° from normal direction		—
	☐≤ 4 ☐> 4	☐50 ☐100	☐25 ☐50		N/A
	Supplementary information:				--
19.2	**Screwed connections**				--
Table 10	**Torque values**				--
	Type of screw	Nominal thread ∅ (mm)	Torque (Nm)		—
	Terminal:				N/A
	Assembly:	2.8	0.5	Fixed the end product enclosure	P
	Cord anchorages:				N/A
	Other:				N/A
19.2.5	Switches having screwed glands are submitted to the following test.				--
Table 11	**Torque values for screwed glands**				--

	∅ of the test rod (mm)	Torque for glands of			—
		Metal		Nm	N/A
		Insulating material		Nm	N/A
	Supplementary information:				--
	After the test neither the glands nor the enclosure of the specimen shall show any damage.				N/A

20	**CLEARANCES, CREEPAGE DISTANCES, SOLID INSULATION AND COATINGS OF RIGID PRINTED BOARD ASSEMBLIES**				P
	Working voltage (V):				—
	Degree of pollution, micro:	☐ 1 ☐ 2 ☐ 3			—
	Degree of pollution, macro:	☐ 1 ☒ 2 ☐ 3			—
Table 12 – 14	**Creepage distance Cd and clearance Cl across:**	required Cd (mm)	Cd (mm)	required Cl (mm)	Cl (mm)
	Functional, sealed or incapsulated				
	Functional,				
	Basic	≥2.5	>6.0	≥1.5	>6.0
	Supplementary				
	Reinforced	≥5.0	>6.0	≥3.0	>6.0
	Full disconnection				
	Micro disconnection				
	Supplementary information:				

20.6	**Coatings of rigid printed board assemblies.**			--
Table 15	**Test levels and conditions (Type 2 coating)**			--
	IEC 60664-3 sub-clause	Test levels and conditions		—
	6.6.1 cold storage	- 25°C		N/A
	6.6.3 Rapid change of temperature	Degree of severity 2 (- 25°C to 125°C)		N/A
	Supplementary information:			

21	**Fire hazard**			--
21.1.2	Ball pressure test according to IEC 60695-10-2 at the temperatures using: (A) heating test results (*clause 16*) (B) calculated temperatures			--
Non-metallic materials to be tested:		Ball pressure temperature (°C)	Max 2.0 mm impression	--
Enclosure		125	1.70 mm	P
PCB		125	1.56 mm	P
	Supplementary information:			

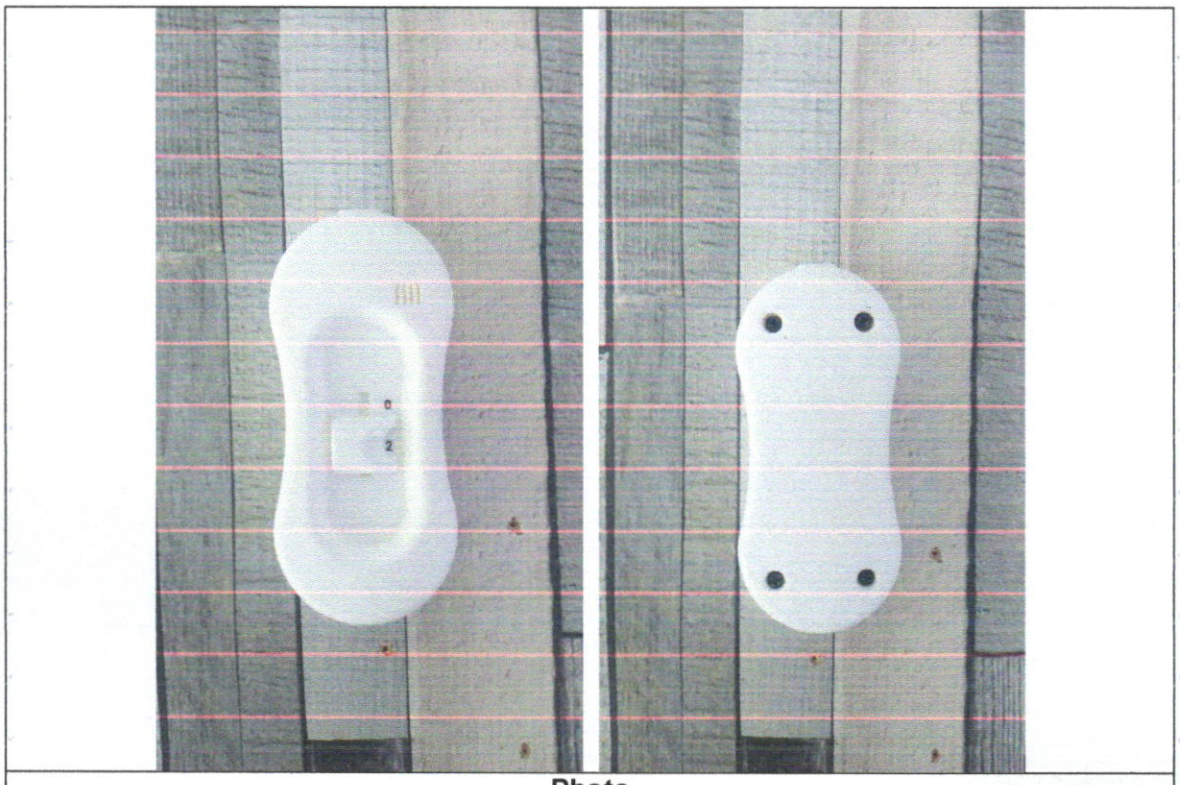
21.2	**Resistance to abnormal heat**	--

Non-metallic materials to be tested:		Test temperature (°C)	• extinguish within 30 s • no ignition of the layer of wrapping tissue	--
Enclosure		850	No flame	P
PCB		850	No flame	P
	Supplementary information:			

24.2.4	Non-resettable cut-outs – After the test:			--
Thermocouple locations		Max. temperature measured, (°C)	Max permitted (°C) declared	--
				N/A
				N/A
				N/A
	Supplementary information:			

24.3	**Capacitors**				--
Table 16	**Requirements for capacitors**				--
	Application of capacitors	Type(s) of capacitors (*according IEC 60384-14*)			—
	Between live conductor	$U_N \leq$ 125V	125V < $U_N \leq$ 250V Over-current protection		—
	(Z = impedance)		Without [1]	With [1]	--
	L or N and earth (PE)	☐Y4	☐Y2	☐Y2	N/A
	L and N or L1 and L2				--
	• without Z in series	☐X2	☐X1	☐X2	N/A
	• with Z in series, by short-circuiting of capacitor, limits the current to ≥ 0.5 A	☐X3	☐X2	☐X3	N/A
	• < 0.5 A No special requirement				N/A
	[1] Fusing resistor (built in or external).				--
	Supplementary information:				--

Photo Documentation



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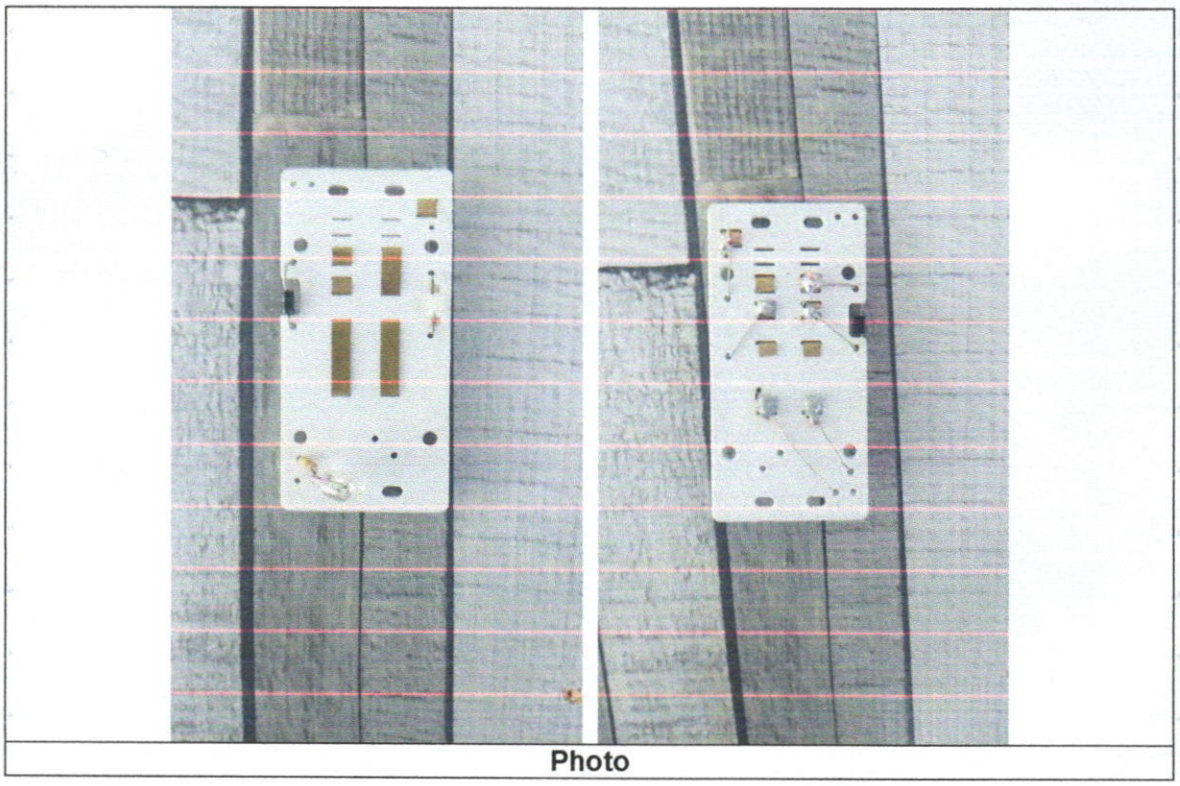

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