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Test Report issued under the responsibility of:



TEST REPORT IEC 61347-2-13 Part 2: Particular requirements: Section 13 – d.c. or a.c. supplied electronic controlgear for LED modules

Report Number:	171123069GZU-001
Date of issue:	10 Jan. 2018
Total number of pages	54 Pages
Name of Testing Laboratory preparing the Report	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
Applicant's name:	Eaglerise Electric & Electronic (China) Co., Ltd.
Address:	A3, Guicheng Science & Technology park, Jianping Road, Nanhai, Foshan, Guangdong, 528200, China.
Test specification:	
Standard:	IEC 61347-2-13:2014+A1:2016 used in conjunction with IEC 61347-1:2015
Test procedure:	S+LVD
Non-standard test method	N/A
Test Report Form No	IEC61347_2_13F
Test Report Form(s) Originator :	Intertek Semko AB
Master TRF	2016-10
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Test item description: :	Ac supplied electronic controlgear for LED module (independent LED driver)
Trade Mark:	EAGLERISE
Manufacturer :	Eaglerise Electric & Electronic (China) Co., Ltd.
Model/Type reference	EIP030V0120U1; EIP030V0240U1
Ratings:	Input: 220-240 VAC; 50/60 Hz; 0,24 A; Class II; IP 20; SELV;
	ta 50 °C; tc 85 °C; Independent type; 110 °C thermal protection;
	Inherently short-circuit proof; MM mark;
	Suitable for direct mounting on normally flammable surfaces;
	EIP030V0120U1: Output: Constant voltage type; 12 VDC; 0-2,5 A; max. 30 W;
	EIP030V0240U1: Output: Constant voltage type; 24 VDC; 0-1,25 A; max. 30 W



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Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):				
CB Testing Laboratory:	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch			
Testing location/ address:	Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD, Guangzhou, China			
Tested by (name, function, signature):	Jason Lin/ Engineer			
Approved by (name, function, signature):	Shelley Ying/ Technical Manager			
Testing procedure: CTF Stage 1:				
Testing location/ address				
Tested by (name function signature)				
Approved by (name, function, signature)				
Approved by (name, function, signature)				
Testing procedure: CTF Stage 2:				
Testing location/ address:				
Tested by (name + signature):				
Witnessed by (name, function, signature) .:				
Approved by (name, function, signature):				
Testing procedure: CTF Stage 3:				
Testing procedure: CTF Stage 4:				
Testing location/ address:				
Tested by (name, function, signature):				
Witnessed by (name, function, signature) .:				
Approved by (name, function, signature):				
Supervised by (name, function, signature) :				



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List of Attachments (including a total number of pages in each attachment):

Total 54 pages, page 1-48 is test report, page 49-54 is product photos.

Summary of testing:

The submitted samples are fulfilled the requirements of specified standard as following:

- 1) IEC 61347-2-13:2014+A1:2016 used in conjunction with IEC 61347-1:2015.
- 2) EN 61347-2-13:2014+A1:2017 used in conjunction with EN 61347-1:2015.
- 3) Additional requirement for independent LED driver according to IEC 60598-1:2014 and EN 60598-1:2015.
- 4) Additional requirements of DIN 57710-14:1982 for MM Mark.
- 5) Requirement of EMF have been considered according to EN 62493:2015.

All models had the same mechanical structure, output load, PCB layout; the only deference is the parameters for the components used in secondary circuit. Model EIP030V0120U1 was selected to do the full tests as its maximum secondary output current and maximum density current through secondary winding. Models EIP030V0240U1 were also selected to do abnormal conditions test and construction check.

Tests performed (name of test and test clause):	Testing location:
All clauses	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
	Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD, Guangzhou, China
Summary of compliance with National Differences	:
N/A	

opy of marking plate:				
		Repr	resentative	
PRI 220-240V- N 154 750	EAGLERISE www.eaglerise.com		EIP030V0120U1 PRI:220~240VAC, 50/60Hz, 0.24A, λ > 0.9 SEC:12VDC(Const.), 0~2.5A, 30W max. ta: -20~50°C, tc: 85°C D Δ V V S SELV	- sec
	Location: atta	ched on the enc	losure and visible during installation	
emark on a . The heigh	above marking: nt of graphical symbols	shall not be less	than 5 mm;	
. The heigh	nt of letters and numera	als shall be not le	ess than 2 mm.	



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l'est item particulars	
Classification of installation and use	Independent; class II and used for LED
Supply Connection	Terminal block
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	23 Nov. 2017
Date (s) of performance of tests	23 Nov. 2017 to 10 Jan. 2018
General remarks:	
"(See Enclosure #)" refers to additional information ap "(See appended table)" refers to a table appended to th	pended to the report. le report.
Throughout this report a $oxtimes$ comma / $oxtimes$ point is us	sed as the decimal separator.
Clause numbers between brackets refer to clauses	in IEC 61347-1
When determining for test conclusion, measurement υ	incertainty of tests has been considered.
agreement, for any loss, expense or damage occasior authorized to permit copying or distribution of this repo name or one of its marks for the sale or advertisement be approved in writing by Intertek. The observations a sample tested. This report by itself does not imply that under an Intertek certification program.	ied by the use of this report. Only the Client is ort and then only in its entirety. Any use of the Intertel to f the tested material, product or service must first nd test results in this report are relevant only to the the material, product, or service is or has ever been
The test report only allows to be revised only within the regulation was withdrawn or invalid.	e report defined retention period unless standard or
The clause which indicated with * is the subcontract te	st item.
Manufacturer's Declaration per sub-clause 4.2.5 of	IECEE 02:
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided	☐ Yes ⊠ Not applicable
When differences exist; they shall be identified in th	e General product information section.
	Name: Eaglerise Electric & Electronic (China) Co
Name and address of factory (ies)	Ltd. Beijiao Branch
Name and address of factory (ies) :	Ltd. Beijiao Branch Address: No.4, East Huanzhen Road, Beijiao Shunde Foshan, Guangdong 528000, China



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Modification history:

Based on and superseded the report 151231020GZU-001/002 issued on 28 Jan. 2016, the change as following:

- Updated the version of report form, and the standard from "IEC 61347-2-13:2014" to "IEC 61347-2-13:2014+A1:2016"; from "IEC 61347-1:2007+A1:2010 + A2:2012" to "IEC 61347-1:2015"; from "EN 61347-1:2008+A1:2011+A2:2013" to "EN 61347-1:2015"; from "EN 61347-2-13:2014" to "EN 61347-2-13:2014+A1:2017"; from "EN 62493: 2010" to "EN 62493: 2015".
- 2) Added additional requirement for independent LED driver according to IEC/EN 60598-1, which had been considered in test report number 151231020GZU-002.
- 3) Updated the critical components information.



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IEC 61347-2-13				
Clause	Requirement + Test		Result - Remark	Verdict

4 (4)	GENERAL REQUIREMENTS		
- (4)	Insulation materials according requirements in Annex N of IEC 61347-1	(see Annex N)	Р
- (4)	Compliance of <u>independent controlgear enclosure</u> with IEC 60 598-1		Р
- (4)	Built-in electronic controlgear with double or reinforced insulation comply with Annex O of IEC 61347-1	(see Annex O)	N/A
4 (4)	SELV controlgear comply with Annex I of this part 2 and Annex L of IEC 61347-1	(see Annex L)	Р
4 (-)	Transformer comply with IEC 61558		Р
	Dielectric strength test of insulated winding wires is limited to 3 kV if input voltage \leq 300 V		Р

6 (6)	CLASSIFICATION					
	Built-in controlgear:	Yes		No	\boxtimes	
	Independent controlgear:	Yes	\square	No		
	Integral controlgear:	Yes		No	\boxtimes	
6 (-)	Auto-wound controlgear:	Yes		No	\boxtimes	
	Separating controlgear:	Yes		No	\boxtimes	
	Isolating controlgear:	Yes		No	\boxtimes	
	SELV controlgear:	Yes	\square	No		

7 (7)	MARKING		Р
7.1 (7.1)	Mandatory markings		Р
	a) mark of origin		Р
	b) model number or type reference	EIP030V0120U1 (Representative)	Р
	c) symbol for independent controlgear, if applicable		Р
	d) correlation between interchangeable parts and controlgear marked		N/A
	e) rated supply voltage (V)	220-240 V	Р
	supply frequency (Hz)	50/60 Hz	Р
	supply current (A)	0,24 A	Р
	f) earthing symbol		N/A
	k) wiring diagram		Р
	I) value of tc	85 °C	Р



Total Quality. I	Page 8 of 54	Poport No : 1711	20606711.001
			230099920-001
Olaviaa	IEC 61347-2-13	Desult. Demorts) (andiat
Clause	Requirement + Test	Result - Remark	Verdict
	m) symbol for declared temperature	110 °C	Р
	t) LUM earthing symbol		N/A
	u) if not SELV maximum working voltage U _{out} betwee	een:	N/A
	- output terminals (V):		N/A
	- output terminals and earth (V):		N/A
7.1 (-)	Constant voltage type:	Yes 🛛 No 🗌	
	- rated output power P _{rated} (W):	Max. 30 W	Р
	- rated output voltage <i>U</i> _{rated} (V):	12 Vdc	Р
	Constant current type:	Yes 🗌 No 🖂	
	- rated output power P _{rated} (W):		N/A
	- rated output current I _{rated} (A):		N/A
	Indication if for LED modules only		Р
7.1 (7.2)	Marking durable and legible		Р
	Rubbing 15 s water, 15 s petroleum; marking legible		Р
7.2 (7.1)	Information to be provided, if applicable		Р
	h) declaration of protection against accidental contact		Р
	i) cross-section of conductors (mm ²)		Р
	j) number, type and wattage of lamp(s)		Р
	s) SELV symbol		Р
7.2 (-)	- declaration of mains connected windings		N/A

8 (10)	PROTECTION AGAINST ACCIDENTAL CONTAC	T WITH LIVE PARTS	Р
- (10.1)	Controlgear protected against accidental contact with live parts		Р
- (A2)	Voltage measured with 50 k Ω	(see Annex A)	N/A
- (A3)	Voltage > 35 V peak or > 60 V d.c. or protective impendance device	(see Annex A)	N/A
- (10.1)	Lacquer or enamel not used for protection or insulation		Р
	Adequate mechanical strength on parts providing protection		Р
- (10.2)	Capacitors > 0,5 μF: voltage after 1 min (V): < 50 V	Max. 0,222 μ F; Measured max. 5,7 V peak discharged voltage after 1 second.	N/A
- (10.3)	Controlgear providing SELV		Р



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Clause	Requirement + Test	Result - Remark	Verdict
	Accessible conductive parts are insulated from live parts by double or reinforced insulation in SELV controlgear		Р
	No connection between output circuit and the body or protective earthing circuit		Р
	No possibility of connection between output circuit and the body or protective earthing circuit through other conductive parts		Р
	SELV outputs separated by at least basic insulation		Р
	ELV conductive parts insulated as live parts		N/A
	Tests according Annex L of IEC 61347-1	(see Annex L)	Р
- (10.4)	Accessible conductive parts in SELV circuits		N/A
	Output voltage under load \leq 25 V r.m.s. or \leq 60 V d.c.		N/A
	If output voltage > 25 V r.m.s. or > 60 V d.c.;		N/A
	No load output \leq 35 V peak or \leq 60 V d.c and touch current does not exceed 0,7 mA (peak) or 2 mA d.c. $\hfill :$		
	One conductive part is insulated if output voltage or current exceeding the values above and withstand test voltage 500 V		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor	Y1 capacitor	Р
	Y1 or Y2 capacitors comply with IEC 60384-14		Р
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A

9 (8)	TERMINALS		Р
	Screw terminals according section 14 of IEC 60598-1:		Р
	Separately approved; component list	(see Annex 1) approved terminal block	Р
	Part of the controlgear	(see Annex 2)	N/A
	Screwless terminals according section 15 of IEC 60598-1:		N/A
	Separately approved; component list	(see Annex 1)	N/A
	Part of the controlgear	(see Annex 3)	N/A

10 (9)	PROVISION FOR PROTECTIVE EARTHING	
- (9.1)	Provisions for protective earthing	
	Terminal complying with clause 8	N/A



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	IEC 61347-2-13		
Clause	Requirement + Test	Result - Remark	Verdict

	Locked against loosening and not possible to loosen by hand	N/A
	Not possible to loosen clamping means unintentionally on screwless terminals	N/A
	All parts of material minimizing the danger of electrolytic corrosion	N/A
	Made of brass or equivalent material	N/A
	Contact surface bare metal	N/A
	Test according 7.2.3 of IEC 60598-1	N/A
- (9.2)	Provision for functional earthing	N/A
	Comply with clause 8 and 9.1	N/A
	Functional earth insulated from live parts by double or reinforced insulation	N/A
- (9.3)	Lamp controlgear with conductors for protective earthing by tracks on printed circuit board	N/A
	Test with a current of 25 A between earthing terminal or earthing contact and each of the accessible metal parts; measured resistance (Ω) at \geq 10 A according 7.2.3 of IEC 60598-1: < 0,5 Ω	N/A
- (9.4)	Earthing of built-in lamp controlgear	N/A
	Earth by means of fixing to earthed metal of luminaire in compliance of 7.2 of IEC 60598-1	N/A
	Earthing terminal only for earthing the built-in controlgear	N/A
- (9.5)	Earthing via independent controlgear	N/A
- (9.5.1)	Earth connection to other equipment	N/A
	Looping or through connection, conductor min. 1,5 mm ² and of copper or equivalent	N/A
	Protective earthing wires in line with 5.3.1.1 and clause 7 of IEC 60598-1	N/A
- (9.5.2)	Earthing of the lamp compartments powered via the independent lamp controlgear	N/A
	Test with a current of 25 A between input and output earth terminals; measured resistance (Ω) between earthing terminal or earthing contact and each of the accessible metal parts at \geq 10 A according 7.2.3 of IEC 60598-1: < 0,5 Ω	N/A
	Output earthing terminal marked as in 7.1 t) of IEC 61347-1	N/A



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Clause	Requirement + Test	Result - Remark	Verdict

11 (11)	MOISTURE RESISTANCE AND INSULATION		Р
- (11)	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance:		Р
	For basic insulation \geq 2 $M\Omega$:	>100 MΩ	Р
	For double or reinforced insulation $\geq 4~M\Omega$:	>100 MΩ	Р
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		Р

12 (12)	ELECTRIC STRENGTH		Р
- (12)	Immediately after clause 11 electric strength test for 1 min		Р
	Basic insulation for SELV, test voltage 500 V		Р
	Working voltage \leq 50 V, test voltage 500 V		N/A
	Working voltage > 50 V \leq 1000 V, test voltage (V):		Р
	Basic insulation, 2U + 1000 V	1480 V	Р
	Supplementary insulation, 2U + 1000 V		N/A
	Double or reinforced insulation, 4U + 2000 V	2960 V	Р
	No flashover or breakdown		Р
	Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in IEC 61347-1		Р

14 (14)	FAULT CONDITIONS		Р
- (14.1)	When operated under fault conditions the controlge	ear:	Р
	- does not emit flames or molten material		Р
	- does not produce flammable gases		Р
	 protection against accidental contact not impaired 		Р
	Thermally protected controlgear does not exceed the marked temperature value		Р
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	Р
- (14.2)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (after any reduction in 14.2 - 14.5)	(see appended table)	N/A
- (14.3)	Short-circuit or interruption of semiconductor devices	(see appended table)	Р



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		IEC 61347-2-13	-2-13	
Clause	Requirement + Test		Result - Remark	Verdict
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- (14.4)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N/A
- (14.5)	Short-circuit across electrolytic capacitors	(see appended table)	Р
14 (-)	Reversed voltage polarity if d.c. supplied control gear	(see appended table)	N/A
- (14.6)	After the tests has been carried out on three samp	les:	Р
	The insulation resistance $\geq 1~M\Omega$:	>100 MΩ	Р
	No flammable gases		Р
	No accessible parts have become live		Р
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		Р
- (14.7)	Relevant fault condition tests with high-power a.c. supply	Yes	
14 (-)	Temperature declared thermally protected lamp controlgear fulfil requirements in Annex C		Р

15 (-)	TRANSFORMER HEATING	Р
15.1	General	Р
	Transformer comply with clause L.6 and L.7 of IEC 61347-1	Р
	Output voltage of SELV controlgear not exceed limits in 10.4 of IEC 61347-1 during the test of 15.1 and 15.2	Р
15.2 (-)	Normal operation	Р
	Comply with clause L.6 of IEC 61347-1	Р
15.3 (-)	Abnormal operation	Р
	Comply with clause L.7 of IEC 61347-1	Р
	Double LED modules or equivalent load connected in parallel to the output terminals of constant voltage type	Р
	Double LED modules or equivalent load connected in parallel to the output terminals of constant current type	N/A
15 (-)	During and at the end of the tests no defect impairing safety, nor any smoke or flammable gases produced	

16 (15)	CONSTRUCTION	Р
- (15.1)	Wood, cotton, silk, paper and similar fibrous material	
	Wood, cotton, silk, paper and similar fibrous material not used as insulation	Р



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Clause	Requirement + Test	Result - Remark	Verdict	

- (15.2)	.2) Printed circuits		Р
	Printed circuits used as internal connections complies with clause 14		Р
- (15.3)	Plugs and socket-outlets used in SELV or ELV	circuits	N/A
	No dangerous compatibility between output socket-outlet and a plug for socket-outlets for input circuit in relation to installation rules, voltages and frequencies		N/A
	Plugs and socket-outlets for SELV comply with IEC 60906-3 and IEC 60884-2-4		N/A
	Plugs and socket-outlets for SELV \leq 3 A, \leq 25 V r.m.s. or \leq 60 V d.c. and \leq 72 W comply with IEC 60906-3 and IEC 60884-2-4 or:		N/A
	 plugs not able to enter socket-outlets of other standardised system 		N/A
	 socket-outlets not admit plugs of other standardised system 		N/A
	- socket-outlets without protective earth		N/A
- (15.4)	Insulation between circuits and accessible parts		Р
- (15.4.2)	SELV circuits		Р
	Source used to supply SELV circuits:		Р
	- safety isolating transformer in accordance with relevant part 2 of IEC 61558		Р
	- controlgear providing SELV in accordance with relevant part 2 of IEC 61347		Р
	- another source		N/A
	Voltage in the circuit not higher than ELV		Р
	SELV circuits insulated from LV by double or reinforced insulation		Р
	SELV circuits insulated from non SELV circuits by double or reinforced insulation		N/A
	SELV circuits insulated from FELV circuits by supplementary insulation		N/A
	SELV circuits insulated from other SELV circuits by basic insulation		N/A
	SELV circuits insulated from accessible conductive parts according Table 6 in 15.4.5	No accessible conductive parts	N/A
- (15.4.3)	FELV circuits		N/A
	Source used to supply FELV circuits:		N/A
	- separating transformer in accordance with relevant part 2 of IEC 61558		N/A



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IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict

	- separating controlgear providing basic insulation between input and output circuits in accordance with relevant part 2 of IEC 61347	N/A
	- another source	N/A
	- source in circuits separated by the LV supply by basic insulation	N/A
	Voltage in the circuit not higher than ELV	N/A
	FELV circuits insulated from LV supply by at least basic insulation	N/A
	FELV circuits insulated from other FELV circuits if functional purpose	N/A
	FELV circuits insulated from accessible conductive parts according Table 6 in 15.4.5	N/A
	Plugs and socket-outlets for FELV system comply with:	N/A
	 plugs not able to enter socket-outlets of other voltage systems 	N/A
	 socket-outlets not admit plugs of other voltage systems 	N/A
	- socket-outlets have a protective conductor contact	N/A
- (15.4.4)	Other circuits	N/A
	Insulation between circuits other than SELV or FELV and accessible conductive parts in according Table 6 in 15.4.5.	N/A
- (15.4.5)	Insulation between circuits and accessible conductive parts	N/A
	Accessible conductive parts insulated from active parts of electric circuits by insulating according Table 6	N/A
	Requirements for Class II construction with equipotential bonding for protection against indirect contact with live parts:	N/A
	- all conductive parts are connected together	N/A
	- conductive parts are reliably connected together according test of IEC 60598-1 cl. 7.2.3	N/A
	- conductive parts comply with requirements of Annex A in case of insulation fault	N/A

17 (16)	CREEPAGE DISTANCES AND CLEARANCES	Р
- (16)	Creepage distances and clearances according to 16.2 and 16.3	Р
	Controlgears providing SELV comply with additional requirements in Annex L	Р
	Insulating lining of metallic enclosures	N/A



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IEC 61347-2-13				
Clause	Requirement + Test		Result - Remark	Verdict

	Controlgear protected against pollution comply with Annex P	(see Annex P)	N/A
- (16.2)	Creepage distances		Р
- (16.2.2)	Minimum creepage distances for working voltages		Р
	Creepage distances according to Table 7	(see appended table)	Р
- (16.2.3)	Creepage distances for working voltages with frequencies above 30 kHz		N/A
	Creepage distances according to Table 8	(see appended table)	N/A
- (16.3)	Clearances		Р
- (16.3.2)	Clearances for working voltages		Р
	Clearances distances according to Table 9	(see appended table)	Р
- (16.3.3)	Clearances for ignition voltages and working voltage	ges with higher frequencies	N/A
	Clearances distances for basic or supplementary insulation according to Table 10	(see appended table)	N/A
	Clearances distances for reinforced insulation according to Table 11	(see appended table)	N/A

18 (17)	SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS		
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		Р
(4.11)	Electrical connections		Р
(4.11.1)	Contact pressure		Р
(4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
(4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
(4.11.4)	Material of current-carrying parts		Р
(4.11.5)	No contact to wood or mounting surface		Р
(4.11.6)	Electro-mechanical contact systems		N/A
(4.12)	Mechanical connections and glands		Р
(4.12.1)	Screws not made of soft metal		Р
	Screws of insulating material		N/A
	Torque test: torque (Nm); part:	Fixed enclosure screw: 0,5 Nm	Р
	Torque test: torque (Nm); part:		N/A
	Torque test: torque (Nm); part:		N/A



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IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
		-	
(1 12 2)	Screws with diameter < 3 mm screwed into metal		NI/A

(4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
(4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm)		N/A
	- lampholder; torque (Nm):		N/A
	- push-button switches; torque 0,8 Nm:		N/A
(4.12.5)	Screwed glands; force (Nm)		N/A

19 (18)	RESISTANCE TO HEAT, FIRE AND TRACKING		Р
- (18.1)	Ball-pressure test:	See Test Table 19 (18.1)	Р
- (18.2)	Test of printed boards:	See Test Table 19 (18.2)	N/A
- (18.3)	Glow-wire test:	See Test Table 19 (18.3)	Р
- (18.4)	Needle flame test:	See Test Table 19 (18.4)	Р
- (18.5)	Tracking test	See Test Table 19 (18.5)	N/A

20 (19)	RESISTANCE TO CORROSION	
	- test according 4.18.1 of IEC 60598-1	N/A
	- adequate varnish on the outer surface	N/A

21 (-)	MAXIMUM WORKING VOLTAGE (Uout) IN ANY LOAD CONDITION		
	Not exceed declared maximum working voltage $U_{\rm out}$ in any load condition		Р

14	TABLE: tests of fault conditions	Р
Part	Simulated fault	Hazard
BR1	Short-circuited; no hazards, fuse operated	No
D2	Short-circuited; no working, no abnormal, recoverable when removed the fault	No
D1	Short-circuited; working, no abnormal, recoverable when removed the fault	No
D4 (pin 1&3)	Short-circuited; working, no abnormal, recoverable when removed the fault	No
C3	Short-circuited; no hazards, fuse operated	No
C9	Short-circuited; no working, no abnormal, recoverable when removed the fault	No
C13	Short-circuited; no working, no abnormal, recoverable when removed the fault	No
C15	Short-circuited; no working, no abnormal, recoverable when removed the fault	No
Q1(pin 1 &3)	Short-circuited; no working, no abnormal, recoverable when removed the fault	No
R22	Short-circuited; no working, no abnormal, recoverable when removed the fault	No



Total	Quality.	Assured.
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17 (16)	TABLE:	TABLE: clearance and creepage distance measurements (mm)						
		Applic	able part of IE	EC 61347-1 Ta	ble 7 – 11*			
Distances	Insulation	Measured	Requ	uired	Measured Requ		uired	
	type **	clearance	clearance	*Table	creepage	creepage	*Table	
Distance 1:	R	6,7	3,0	9	6,7	5,0	7	
Working volta	age (V)			:	220-240			
Frequency if	applicable (I	kHz)		······:	—		—	
PTI				······	< 600 🖂	<u>></u> 600 🗌		
Peak value o	f the working	g voltage Û _{or}	_{ıt} if applicable ((kV):				
Pulse voltage if applicable (kV)								
Supplementa	ry informatio	on: Live part a	and accessible	enclosure			-	
Distance 2:	R	6,7	3,0	9	6,7	5,0	7	
Working voltage (V): 220-240				—				
Frequency if	applicable (I	kHz)		······				
PTI				······	< 600 🖂	<u>></u> 600 🗌		
Peak value of the working voltage \hat{U}_{out} if applicable (kV):								
Pulse voltage	e if applicabl	e (kV)		:	_		_	
Supplementa	ry informatio	on: Compone	nt of primary c	ircuit and seco	ondary circuit			
Distance 3:	В			9			7	
Working volta	age (V)			:	Max. 24 V		—	
Frequency if	applicable (l	kHz)		:				
PTI				:	< 600 🖂	<u>></u> 600 🗌		
Peak value o	f the working	g voltage Û _{oເ}	_{ıt} if applicable ((kV):	_			
Pulse voltage	e if applicabl	e (kV)		:	—		—	
Supplementa	ry informatio	on: 1) Short c	ircuit output, N	/A; 2) SELV cir	cuit < 60 V; N//	ł		
Distance 4:	В	3,0	1,5	9	3,0	2,5	7	
Working volta	age (V)			:	220-240		—	
Frequency if applicable (kHz):			:			—		
PTI:			:	< 600 🖂	<u>></u> 600 🗌			
Peak value o	f the working	g voltage Û _{or}	_{it} if applicable ((kV):				
Pulse voltage	e if applicabl	e (kV)		·····:	_			
Supplementa	ry informatio	on: live parts	which are or m	ay become of	different polari	ty by the action of	of a fuse	

** Insulation type: B – Basic; S – Supplementary; R – Reinforced



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19 (18.1)	TABLE: Ball F	ABLE: Ball Pressure Test				
Allowed impression diameter (mm)			Not exceed 2,0 mm			
Object/ Part No	o./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diame	ter (mm)	
Bobbin of T1		Sumitomo Bakelite Co., Ltd.	125	0,6		
Enclosure		Covestro Deutschland AG [PC Resins]	104	1,2		
Supplementary	y information: N	//A	•	•		

19 (18.2)	TABLE: Test of printed boards				N/A
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (s)	Ignition of specified layer Yes/No	Duration of burning (s)	Verdict
N/A					
Supplementar	y information: N/A				

19 (18.3)	TABLE: Glow-wire test			Р	
Glow wire temperature 65			50°C		
Object/ Part No./ Material	Manufacturer/ trademark		Ignition of specified layer Yes/No	Duration of burning (s)	Verdict
Enclosure	Covestro Deutschland AG [PC Resin	s]	No	0	Р
Supplementary information: N/A					

19 (18.4)	TABLE: Needle-flame tes	st			Р
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (s)	Ignition of specified layer Yes/No	Duration of burning (s)	Verdict
Bobbin of T1	Sumitomo Bakelite Co., Ltd.	10	No	0	Р
Supplementary	y information: N/A				

19 (18.5)	TABLE: Proof tracking test		N/A
Test voltage PTI:		175 V	



tal Quality.	Assured.	
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	•				•
	N 1 /				N/ 11 1

Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 dro or	on three specime	on three places	Verdict
N/A					
Supplementary information: N/A					

(A)	ANNEX A - TEST TO ESTABLISH WHETHER A CONDUCTIVE PART IS A LIVE PART WHICH MAY CAUSE AN ELECTRIC SHOCK	N/A
(A.1)	Comply with A.2 or A.3	N/A
(A.2)	Voltage \leq 35 V peak or \leq 60 V d.c	N/A
(A.3)	If voltage measured according Clause A.2 exceeds the limit value; touch current does not exceed 0,7 mA (peak) or 2 mA d.c.	N/A
	Comply with Annex G.2 of IEC 60598-1	N/A

C (C)	ANNEX C – PARTICULAR REQUIREMENTS FOR ELECTRONIC LAMP CONTROLGEAR WITH MEANS OF PROTECTION AGAINST OVERHEATING		
(C3)	GENERAL REQUIREMENTS		Р
(C3.1)	Thermal protection means integral with the convertor, protected against mechanical damage		Р
	Renewable only by means of a tool		N/A
	If function depending on polarity, for cord- connected equipment protection means in both leads		N/A
	Thermal links comply with IEC 60691		N/A
	Electrical controls comply with IEC 60730-2-3		N/A
(C3.2)	No risk of fire by breaking (clause C7)	Inherently circuit feedback protection	Р
(C5)	CLASSIFICATION		Р
	a) automatic resetting type	No	
	b) manual resetting type	No	
	c) non-renewable, non-resetting type	No	
	d) renewable, non-resetting type	No	
	e) other type of thermal protection; description:	Inherently circuit feedback protection	Р
(C6)	MARKING		Р
(C6.1)	Symbol for temperature declared thermally protected ballasts	110	Р
(C6.2)	Declaration of the type of protection provided	In the user manual	Р



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(C7)	LIMITATION OF HEATING		Р
(C7.1)	Preselection test:		Р
	Test sample placed for at least 12 h in an oven having temperature (t_c - 5) K	80	Р
	No operation of the protection device		Р
(C7.2)	Functioning of protection means:		Р
	Normal operation of the sample in a test enclosure according to Annex D at an ambient temperature such that (t_c +0; -5) °C is obtained		Р
	No operation of the protection device		Р
	Introducing of the most onerous test condition determined during test of clause 14		Р
	Output of windings connected to the mains supply short-circuited, and other part of the convertor operated under normal conditions		N/A
	Increasing of the current through the windings continuously until operation of the protection means		Р
	Continuous measuring of the highest surface temperature		Р
	Ballasts according to C5 a) or C5 e) operated until stable conditions are achieved		Р
	Automatic-resetting thermal protectors working 3 times		N/A
	Ballasts according to C5 b) working 6 times		N/A
	Ballasts according to C5 c) and C5) d) working once		N/A
	Highest temperature does not exceed the marked value		Р
	Any overshoot of 10% over the marked value within 15 min		N/A

(D)	ANNEX D – REQUIREMENTS FOR CARRY OUT THE HEATING TESTS OF THERMALLY PROTECTED LAMP CONTROLGEAR		Р
	Tests in C7 performed in accordance with Annex D, if applicable		Р

(F)	ANNEX F – DRAUGHT-PROOF ENCOSURE		Р
	Draught-proof enclosure in accordance with the description		Р
	Dimensions of the enclosure		Р



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	Other design; description			N/A	

(H)	ANNEX H - TESTS		Ρ
	All tests performed in accordance with the advice given in Annex H, if applicable		Р

I (L)	ANNEX I IN THIS PART 2 – PARTICULAR ADDITIONAL REQUIREMENTS FOR SELV D.C. OR A.C. SUPPLIED ELECTRONIC CONTROLGEARS FOR LED MODULES		
(L.3)	Classification		Р
	Class I	Yes 🗌 No 🖂	
	Class II	Yes 🛛 No 🗌	
	Class III	Yes 🗌 No 🖂	
	non-inherently short circuit proof controlgear	Yes 🗌 No 🖂	
	inherently short circuit proof controlgear	Yes 🛛 No 🗌	
	fail safe controlgear	Yes 🗌 No 🖂	
	non-short-circuit proof controlgear	Yes 🗌 No 🖂	
(L.4)	Marking		Р
	Adequate symbols are used		Р
(L.5)	Protection against electric shock		Р
	Comply with clause 9.2 of IEC 61558-1		Р
(L.6)	Heating		Р
	No excessive temperatures in normal use		Р
	Value if capacitor $t_{\rm c}marked$:	85 °C	
	Winding insulation classified as Class:	Class B	
	Comply with tests of clause 14 of IEC 61558-1 with adjustments		Р
(L.7)	Short-circuit and overload protection	•	Р
	Comply with tests of clause 15 of IEC 61558-1 with adjustments		Р
(L.8)	Insulation resistance and electric strength		Р
(L.8.1)	Conditioned 48 h between 91 % and 95 %		Р
(L.8.2)	Insulation resistance		Р
	Between input- and output circuits not less than 5 $M\Omega$	>100 MΩ	Р
	Between metal parts of class II convertors which are separated from live parts by basic insulation only and the body not less than 5 M Ω		N/A



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	Between metal foil in contact with the inner and outer surfaces of enclosures of insulating material not less than 2 M Ω	>100 MΩ	Р
(L.8.3)	Electric strength		Р
	1) Between live parts of input circuits and live parts of output circuits:	3750 V	Р
	2) Over basic or supplementary insulation between	1:	Р
	a) live parts having different polarity	1875 V	Р
	b) live parts and body if intended to be connected to protective earth:		N/A
	c) accessible metal parts and a metal rod of the same diameter as the flexible cable or cord:	1875 V	Р
	d) live parts and an intermediate metal part:		N/A
	e) intermediate metal parts and the body:		N/A
	f) each input circuit and all other input circuits:		N/A
	3) Over reinforced insulation between the body and live parts:	3750 V	Р
(L.9)	Construction		Р
(L.9.1)	Transformer comply with 19.12 of IEC 61558-1 and 19 of IEC 61558-2-6		Р
	HF transformer comply with 19 of IEC 61558-2-16		Р
(L.10)	Components		Р
	Protective devices comply with 20.6 – 20.11 of IEC 61558-1		Р
(L.11)	Creepage distances, clearances and distances	through insulation	Р
	Creepage distances and clearances not less than in Clause 16		Р
	Distance through insulation according Table L.5 in	IEC 61347-1	Р
	1) Basic distance through insulation		N/A
	Required distance (mm):		—
	Measured (mm)		N/A
	Supplementary information		
	2) Supplementary distance through insulation		N/A
	Required distance (mm)		
	Measured (mm)		N/A
	Supplementary information		
	3) Reinforced distance through insulation		Р



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Required distance (mm):	1)	0,83 mm	
	2)	0,2 mm	
Measured (mm):	1)	1,1 mm	Р
	2)	Thickness: 0,2 mm	
Supplementary information	1)	Plastic enclosure	
	2)	Certificated reinforce insulation winding as secondary winding; three layers insulation tapes	

J (-)	ANNEX J IN THIS PART 2 – PARTICULAR ADDITIONAL SAFETY	N/A
	REQUIREMENTS FOR A.C., A.C./D.C. OR D.C. SUPPLIED ELECTRONIC	
	CONTROLGEAR FOR EMERGENCY LIGHTING	

(N)	ANNEX N: REQUIREMENTS FOR INSULATION MATERIALS USED FOR DOUBLE OR REINFORCED INSULATION	Р
(N.4)	General requirements	Р
(N.4.1)	Material comply with IEC 60085 and IEC 60216 series	Р
(N.4.2)	Solid insulation	N/A
	Electric strength test at least 5 kV or 1,35 x test voltage in Table N.1	N/A
	If not classified according IEC 60085 and IEC 60216 series: Electric strength test increased 10 % of 5,5 kV or 1,5 x test voltage in Table N.1	N/A
(N.4.3)	Thin sheet insulation	Р
(N.4.3.1)	Thickness and composition of thin sheet insulation	Р
	- Inside the ballast and not subjected to handling or abrasion during the production and during maintenance	Р
	- Non-separated layers: Min. 3 layers and fulfil mandrel test of 150N	N/A
	- Separated layers: Min. 2 layers and each layer fulfil mandrel test of 50N	N/A
	- Separated layers (alternative): Min. 3 layers and 2/3 of the layers fulfil mandrel test of 100N	Р
(N.4.3.2)	Mandrel test (electric strength test during mechanical stress)	Р
	Electric strength test after mandrel test:	Р
	- Non-separated layers: min. 5 kV or 1,35 x test voltage in Table N.1	N/A
	- 2/3 of min. 3 separated layers: min. 5 kV or 1,25 x test voltage in Table N.1	Р



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			-	
	- one of 2 separated layers: min. 5 kV or 1,25 x test voltage in Table N.1		N/A	
	No flashover or breakdown occurred		Р	

CONTROLGEAR WITH DOUBLE OR REINFORCED INSULATION
--

(P)	Creepage distances and clearances and distance through isolation (DTI) for	N/A
	lamp controlgear which are protected against pollution by the use of coating	
	or potting	

ANNEX 2	Screw terminals (part of the luminaire)	N/A
(14)	SCREW TERMINALS	N/A

ANNEX 3	Screwless terminals (part of the luminaire)	N/A
(15)	SCREWLESS TERMINALS	N/A

CENELEC COMMON MODIFICATIONS (EN)	Р
No Common modifications	Ρ

Annex 4	EMF	Р
	The Tested product also complies to the requirements of EN 62493: 2015	Р

Additional requirement of DIN 57710-14: 1982 (VDE 0710-14: 1982):

(1)	FIELD OF APPLICATION AND PURPOSE	Р
(2)	DEFINITIONS	Р
(3)	LABELS AND DESIGNATIONS	N/A
(3.1)	Furniture luminaires for discharge lamps with built-in ballast and may be used according to Section 1a)	N/A
(3.2)	Furniture luminaires for discharge lamps with built-in ballast and may be used according to Section 1b)	N/A

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(3.3)	Details of the permissible installation or attachment possibilities shall be given in assembly instructions.		N/A
(3.4)	The manufacturer's documentation shall state that these luminaires are for furniture.		N/A
(4)	CONNECTION OF THE LUMINAIRES TO THE WIRI	NG SYSTEM	Р
(4.1)	The conductor cross-section is		N/A
(4.2)	Suitable strain relief devices shall be provided		Р
(5)	COMPONENTS	I	Р
(5.1)	If the reference to the envisaged lamp equipment is mounted that it is clearly visible when the lamp is changed, the maximum output may less than 40 W	LED driver	N/A
(5.2)	Only temperature limiters or temperature protection devices or safety temperature limiters may be used as temperature-dependent devices		Р
(6)	HEATING		Р
(6.1)	Luminaires shall be mounted in the least favourable position or according to the assembly instructions.	According to the assembly instruction	Р
(6.2)	Luminaires according to Section 1a)	·	N/A
(6.2.1)	The limit temperature of mounting surface in normal operation is 130 °C, in abnormal operation is 180 °C.		N/A
(6.2.2)	Thermal test		N/A
(6.2.3)	The luminaires shall be closed opposite their mounting area.		N/A
(6.2.4)	Lead-in openings shall not be larger than specified in VDE 0710, Part 1/3.69, Section 9, b) 3.1		N/A
(6.2.5)	Larger fixing opening may be present, if they are automatically closed during assembly by covers supplied at the same time.		N/A
(6.2.6)	The number of openings for fixing the luminaires shall be adapted to the size and weight of the luminaires.		N/A
(6.2.7)	Smaller openings shall be limited to the necessary quantity and kept correspondingly small.		N/A
(6.2.8)	Pre-cut sheet-metal lugs can be used for fixing leads, as long as their size does not exceed about 10 mm x 40 mm.		N/A
(6.2.9)	Pre-punched openings closed when the luminaire is new shall likewise be permissible, insofar as they are not within the ballast area.		N/A
(6.2.10)	Opening other than those so far specified may be face the mounting area only if they are closed by covers which can be removed only by a tool.		N/A
(6.3)	Luminaires according to Section 1b), the mounting surface shall not exceed 95 °C		Р
(6.3.1)	The mounting surface shall not exceed 115 °C during normal and abnormal operation with 1,1 Un	74 C	Р



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(6.3.2)	Determination of the temperatures during abnormal operation and in the case of a ballast fault.		Р
(6.3.2.1)	Luminaires without temperature-limiting devices.		N/A
(6.3.2.2)	Luminaires with temperature-limiting devices.		Р
(6.4)	In the case of luminaires in which exceeding of the limit value is prevented by temperature-dependent devices, it shall be proved by the following test that disconnection takes place before or on attainment of the specified limit values. The limit is 180 °C for the luminaires according to 1a), 115 °C for the luminaires according to 1b).	92 C	Ρ
(7)	CORROSION RESISTANCE		N/A
(7.1)	The test according to VDE 0710, Part 1/3.69, Section 19.		N/A
(8)	REPAIR OF LUMINAIRE		N/A
	Only DIN 57701, Part 1/VDE 0701, Part 1 shall apply to the repair of luminaires in VDE 0710, Part 1/3.69, Section 21.		N/A



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ANNEX 5: Summary of requirements and test clauses for independent control gear according to: General requirements and tests of Luminaires IEC 60598-1: 2014; EN 60598-1: 2015

2	CLASSIFICATION		
2.2	Type of protection	Class II	
2.3	Degree of protection	IP20	
2.4	Luminaire suitable for direct mounting on normally flammable surfaces	Yes 🛛 No 🗌	
2.5	Luminaire for normal use	Yes 🛛 No 🗌	—
	Luminaire for rough service	Yes 🗌 No 🖾	

3	MARKING		Р
3.2	Mandatory markings		Р
	Position of the marking		Р
	Format of symbols/text		Р
3.3	Additional information		Р
	Language of instructions		Р
3.3.1	Combination luminaires		N/A
3.3.2	Nominal frequency in Hz	50/ 60 Hz	Р
3.3.3	Operating temperature		Р
3.3.4	Symbol or warning notice		N/A
3.3.5	Wiring diagram		N/A
3.3.9	Power factor and supply current		N/A
3.3.10	Suitability for use indoors		N/A
3.3.11	Luminaires with remote control		N/A
3.3.12	Clip-mounted luminaire – warning		N/A
3.3.13	Specifications of protective shields		N/A
3.3.14	Symbol for nature of supply	AC	N/A
3.3.15	Rated current of socket outlet		N/A
3.3.17	Mounting instruction for type Y, type Z and some type X attachments		N/A
3.3.18	Non-ordinary luminaires with PVC cable		N/A
3.4	Test with water		Р
	Test with hexane		Р



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Legible after test	Р
Label attached	Р

4	CONSTRUCTION		Р
4.2	Components replaceable without difficulty		N/A
4.3	Wireways smooth and free from sharp edges		Р
4.4	Lampholders		N/A
4.5	Starter holders		N/A
4.6	Terminal blocks		N/A
4.7	Terminals and supply connections		Р
4.7.1	Contact to metal parts		Р
4.7.2	Test 8 mm live conductor		Р
	Test 8 mm earth conductor		N/A
4.7.3	Terminals for supply conductors		Р
4.7.3.1	Welded method and material		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.8.2		N/A
	- electrical test according to 15.9		N/A
	- heat test according to 15.9.2.3 and 15.9.2.4		N/A
4.7.4	Terminals other than supply connection		Р
4.7.5	Heat-resistant wiring/sleeves		N/A
4.7.6	Multi-pole plug		N/A
	- test at 30 N		N/A
4.8	Switches		N/A
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
4.9	Insulating lining and sleeves		Р
4.9.1	Retainment		Р
	Method of fixing	Fixed by structure; insulate tape	Р



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4.9.2	Insulated linings and sleeves:	
	Resistant to a temperature > 20 °C to the wire temperature or	N/A
	a) & c) Insulation resistance and electric strength	Р
	b) Ageing test. Temperature (°C)	N/A
4.10	Double or reinforced insulation	Р
4.10.1	No contact, mounting surface – accessible metal parts – wiring of basic insulation	Р
	Safe installation fixed luminaires	N/A
	Capacitors and switches	N/A
	Interference suppression capacitors according to IEC 60384-14	N/A
4.10.2	Assembly gaps:	Р
	- not coincidental	Р
	- no straight access with test probe	Р
4.10.3	Retainment of insulation:	Р
	- fixed	Р
	- unable to be replaced; luminaire inoperative	Р
	- sleeves retained in position	Р
	- lining in lampholder	N/A
4.11	Electrical connections and current-carrying parts	Р
4.11.1	Contact pressure	Р
4.11.2	Screws:	N/A
	- self-tapping screws	N/A
	- thread-cutting screws	N/A
4.11.3	Screw locking:	N/A
	- spring washer	N/A
	- rivets	N/A
4.11.4	Material of current-carrying parts	Р
4.11.5	No contact to wood or mounting surface	Р
4.11.6	Electro-mechanical contact systems	N/A
4.12	Screws and connections (mechanical) and glands	
4.12.1	Screws not made of soft metal	Р
	Screws of insulating material	N/A
	Torque test: torque (Nm); part Fixed enclosure screw: 0,5 Nm	Р
	Torque test: torque (Nm); part	N/A
4.12.2	Screws with diameter < 3 mm screwed into metal	N/A



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4.12.4	Locked connections:		N/A
4.12.5	Screwed glands; force (Nm)		N/A
4.13	Mechanical strength		Р
4.13.1	Impact tests:		Р
	- fragile parts; energy (Nm)		N/A
	- other parts; energy (Nm)	Enclosure: 0,5 Nm	Р
	1) live parts		Р
	2) linings		N/A
	3) protection		Р
	4) covers		Р
4.13.3	Straight test finger		Р
4.13.4	Rough service luminaires		N/A
4.13.6	Tumbling barrel		N/A
4.14	Suspensions, fixings and means of adjusting		N/A
4.14.1	Mechanical load:		N/A
4.14.2	Load to flexible cables		N/A
4.14.3	Adjusting devices:		N/A
4.14.4	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
4.14.5	Guide pulleys		N/A
4.14.6	Strain on socket-outlets		N/A
4.15	Flammable materials		Р
	- glow-wire test 650°C	See Test Table 1.15 (13.3.2)	Р
	- spacing ≥30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		Р
	- thermal protection		N/A
	- electronic circuits exempted		N/A
4.15.2	Luminaires made of thermoplastic material with lamp control gear		N/A
4.16	Luminaires for mounting on normally flammable s	surfaces	Р
	No lamp control gear	(compliance with Section 12)	Р
4.17	Drain holes		N/A
	Clearance at least 5 mm		N/A
4.18	Resistance to corrosion		Р

intertek	
Total Quality Assured	

	IEC 61347-2-13		
Clause	Requirement + Test	Result - Remark	Verdict
4.18.1	- rust-resistance		N/A
4.18.2	- season cracking in copper		Р
4.18.3	- corrosion of aluminium		N/A
4.19	Igniters compatible with ballast		N/A
4.20	Rough service vibration		N/A
4.21	Protective shield		N/A
4.24	Photobiological hazards		N/A
4.25	Mechanical hazard		Р
	No sharp point or edges		Р
4.26	Short-circuit protection		N/A
4.27	Terminal blocks with integrated screwless earthin	ng contacts	N/A
4.28	Fixing of thermal sensing control		N/A
4.29	Luminaires with non-replaceable light source		N/A
4.30	Luminaires with non-user replaceable light source		N/A
4.31	Insulation between circuits		Р
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		Р
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A
4.31.1	SELV circuits	1	Р
	Used SELV source		N/A
	Voltage ≤ ELV		Р
	Insulating of SELV circuits from LV supply		Р
	Insulating of SELV circuits from other non SELV circuits		N/A
	Insulating of SELV circuits from FELV		N/A
	Insulating of SELV circuits from other SELV circuits		N/A
	SELV circuits insulated from accessible parts according Table X.1		Р
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets does not have protective conductor contact		N/A
4.31.2	FELV circuits		N/A

N/A

Used FELV source



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Clause Requirement + Test	Result - Remark	Verdict

	Voltage ≤ ELV	N/A
	Insulating of FELV circuits from LV supply	N/A
	FELV circuits insulated from accessible parts according Table X.1	N/A
	Plugs not able to enter socket-outlets of other voltage systems	N/A
	Socket outlets does not admit plugs of other voltage systems	N/A
	Socket-outlets does not have protective conductor contact	N/A
4.31.3	Other circuits	N/A
	Other circuits insulated from accessible parts according Table X.1	N/A
	Class II construction with equipotential bonding for protection against indire contacts with live parts:	ect N/A
	- conductive parts are connected together	N/A
	- test according 7.2.3 of above	N/A
	- conductive part not cause an electric shock in case of an insulation fault	N/A
	- equipotential bonding in master/slave applications	N/A
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires	N/A
	- slave luminaire constructed as class I	N/A
4.32	Overvoltage protective devices	N/A
	Comply with IEC 61643-11	N/A
	External to control gear and connected to earth:	N/A
	- only in fixed luminaires	N/A
	- only connected to protective earth	N/A

5	EXTERNAL AND INTERNAL WIRING		Р
5.2	Supply connection and external wiring		Р
5.2.1	Means of connection	Terminal block	Р
	Outdoor luminaire has not PVC insulated external wiring if not class III or SELV ≤ 25 V a.c./60 V d.c. or protected from outdoor environment	Indoor use	N/A
5.2.2	Type of cable		N/A
	Nominal cross-sectional area (mm ²)		N/A
	Cables equal to IEC 60227 or IEC 60245		N/A
5.2.3	Type of attachment, X, Y or Z		N/A



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Clause	Requirement + Test	Result - Remark	Verdict

5.2.6 Cable entries: P - suitable for introduction Image: Suitable for introduction P - adequate degree of protection Image: Suitable for introduction P 5.2.7 Cable entries through rigid material have rounded edges P 5.2.8 Insulating bushings: N/A - suitably fixed Image: Suitable for introduction N/A - exitable of insulating material Image: Suitable for insulating material N/A - material not likely to deteriorate Image: Suitable for insulating material N/A 5.2.9 Locking of screwed bushings Image: Suitable for insulating material N/A 5.2.10 Cord anchorage: P P - covering protected from abrasion Image: Suitable for insulating material or lining P - no mechanical or themal stress Image: Suitable for insulating material or lining P 5.2.10.2 Adequate cord anchorage for type Y and type Z Image: Suitable for N/A N/A 5.2.10.2 Adequate cord anchorage for type Y and type Z Image: Suitable for N/A N/A 5.2.10.2 Adequate cord anchorage for type Y and type Z Image: Suitable for N/A N/A	5.2.5	Type Z not connected to screws		N/A
Image: subtable for introductionImage: subtable for i	5.2.6	Cable entries:		Р
- adequate degree of protectionP5.2.7Cable entries through rigid material have rounded edgesP5.2.8Insulating bushings:N/A- suitably fixedN/A- suitably fixedN/A- material in bushingsN/A- material not likely to deteriorateN/A- tubes or guards made of insulating materialN/A5.2.9Locking of screwed bushingsN/A5.2.10Cord anchorage:P- covering protected from abrasionP- covering protected from abrasionP- no mechanical or thermal stressP- no tying of cables into knots etc.P- no tying of cables into knots etc.P- insulating material or liningN/A5.2.10.2Adequate cord anchorage for type X attachment:N/A5.2.10.3Tests:P- impossible to push cable; unsafeP- pull test: 25 times; pull (N)Input H03VVH2-F; 2 X 0,5=0,75 mm²; 60 NP- ord quards cord anchorage for type Y and type Z attachmentP- inpossible to push cable; unsafeP- pull test: 25 times; pull (N)Input H03VVH2-F; 2 X 0,5=0,75 mm²; 60 NP- no movement of conductorsInput H03VVH2-F; 2 X 0,5=0,75 mm²; 0,15 Nm; 0,15 Nm; <td></td> <td>- suitable for introduction</td> <td></td> <td>Р</td>		- suitable for introduction		Р
5.2.7 Cable entries through rigid material have rounded edges P 5.2.8 Insulating bushings: N/A - suitably fixed N/A - naterial in bushings N/A - naterial not likely to deteriorate N/A - tubes or guards made of insulating material N/A 5.2.9 Locking of screwed bushings N/A 5.2.10 Cord anchorage: P - covering protected from abrasion P - clear how to be effective P - no mechanical or thermal stress P - no tying of cables into knots etc. P - insulating material or lining P 5.2.10.1 Cord anchorage for type X attachment: N/A 5.2.10.2 Adequate cord anchorage for type Y and type Z attachment N/A 5.2.10.3 Tests: P - impossible to push cable; unsafe P - pull test: 25 times; pull (N)		- adequate degree of protection		Р
5.2.8 Insulating bushings: N/A - suitably fixed N/A - material in bushings N/A - material not likely to deteriorate N/A - tubes or guards made of insulating material N/A 5.2.9 Locking of screwed bushings N/A 5.2.10 Cord anchorage: P - covering protected from abrasion P - clear how to be effective P - no tying of cables into knots etc. P - no tying of cables into knots etc. P - insulating material or lining P 5.2.10.1 Cord anchorage for type X attachment: N/A 5.2.10.2 Adequate cord anchorage for type Y and type Z attachment N/A 5.2.10.3 Tests: P - impossible to push cable; unsafe P - pull test: 25 times; pull (N)	5.2.7	Cable entries through rigid material have rounded edges		Р
Image: set it all it is a set it all	5.2.8	Insulating bushings:		N/A
- material in bushings N/A - material not likely to deteriorate N/A - tubes or guards made of insulating material N/A 5.2.9 Locking of screwed bushings N/A 5.2.10 Cord anchorage: P - covering protected from abrasion P - covering protected from abrasion P - clear how to be effective P - no mechanical or thermal stress P - no tying of cables into knots etc. P - insulating material or lining P 5.2.10.1 Cord anchorage for type X attachment: N/A 5.2.10.2 Adequate cord anchorage for type Y and type Z attachment P - impossible to push cable; unsafe P P - insposible to push cable; unsafe P P - pull test: 25 times; pull (N) Input: H03VVH2-F; 2 X 0, 5–0,75 mm², 00 N; 0, 5–0,75 mm², 01 N; 0, 5–0,75 mm², 0,15 Nm; 0, 50–70; 0,15 Nm; 0, 50–		- suitably fixed		N/A
- material not likely to deteriorate N/A - tubes or guards made of insulating material N/A 5.2.9 Locking of screwed bushings N/A 5.2.10 Cord anchorage: P - covering protected from abrasion P - clear how to be effective P - no mechanical or thermal stress Implement - no tying of cables into knots etc. P - insulating material or lining P 5.2.10.1 Cord anchorage for type X attachment: N/A 5.2.10.2 Adequate cord anchorage for type Y and type Z attachment N/A 5.2.10.3 Tests: P - impossible to push cable; unsafe P - inplement So_5-0,75 mm ² ; 60 N; ON; Output: H03VVH2-F; 2 X O, 5-0,75 mm ² ; 60 N; ON; Output: H03VVH2-F; 2 X O, 5-0,75 mm ² ; 0,15 Nm; Output: H03VVH2-F; 2 X O, 5-0,75 mm ² ; 0,15 Nm; Output: H03VVH2-F; 2 X O, 5-0,75 mm ² ; 0,15 Nm; Output: H03VVH2-F; 2 X O, 5-0,75 mm ² ; 0,15 Nm; Output: H03VVH2-F; 2 X O, 5-0,75 mm ² ; 0,15 Nm; Output: H03VVH2-F; 2 X O, 5-0,75 mm ² ; 0,15 Nm; Output: H03VVH2-F; 2 X O, 5-0,75 mm ² ; 0,15 Nm; Output: H03VVH2-F; 2 X O, 5-0,75 mm ² ; 0,15 Nm; Output: H03VVH2-F; 2 X O, 5-0,75 mm ² ; 0,15 Nm; Output: H03VVH2-F; 2 X O, 5-0,75 mm ² ; 0,15 Nm; Output: H03VVH2-F; 2 X O, 5-0,75 mm ² ; 0,15 Nm; Output: H03VVH2-F; 2 X O, 5-0,75 mm ² ; 0,15 Nm; Output: H03VVH2-F; 2 X O, 5-0,75 mm ² ; 0,15 Nm; Output: H03VVH2-F; 2 X O, 5-0,75 mm ² ; 0,15 Nm		- material in bushings		N/A
- tubes or guards made of insulating materialN/A5.2.9Locking of screwed bushingsN/A5.2.10Cord anchorage:P- covering protected from abrasionP- clear how to be effectiveP- no mechanical or thermal stressP- no tying of cables into knots etc.P- insulating material or liningP5.2.10.1Cord anchorage for type X attachment:N/A5.2.10.2Adequate cord anchorage for type Y and type Z attachmentN/A5.2.10.3Tests:P- impossible to push cable; unsafeP- pull test: 25 times; pull (N)Input: H03VVH2-F; 2 X 0,5~0,75 mm ² ; 60 N; Output: H03VVH2-F; 2 X 		- material not likely to deteriorate		N/A
5.2.9Locking of screwed bushingsN/A5.2.10Cord anchorage:P- covering protected from abrasionP- clear how to be effectiveP- no mechanical or thermal stressP- no tying of cables into knots etc.P- insulating material or liningP5.2.10.1Cord anchorage for type X attachment:N/A5.2.10.2Adequate cord anchorage for type Y and type Z attachmentN/A5.2.10.3Tests:P- impossible to push cable; unsafeP- pull test: 25 times; pull (N)Input: H03VVH2-F; 2 X 0,5~0,75 mm ² ; 60 N; Output: H03VVH2-F; 2 X 0,5~0,75 mm ² ; 0,15 Nm; Output: H03VVH2-F; 2		- tubes or guards made of insulating material		N/A
5.2.10Cord anchorage:P- covering protected from abrasionP- clear how to be effectiveP- no mechanical or thermal stressP- no tying of cables into knots etc.P- insulating material or liningP5.2.10.1Cord anchorage for type X attachment:N/A5.2.10.2Adequate cord anchorage for type Y and type ZN/A5.2.10.3Tests:P- impossible to push cable; unsafeP- pull test: 25 times; pull (N)Input: H03VVH2-F; 2 X 0,5~0,75 mm ² ; 60 N; Output: H03VVH2-F; 2 X 0,5~0,75 mm ² ; 0,15 Nm; Output: H03VVH2-F; 2 X 0,5~0,75 mm ² ; 0,15 Nm;P- torque test: torque (Nm)Input: H03VVH2-F; 2 X 0,5~0,75 mm ² ; 0,15 Nm; Output: H03VVH2-F; 2 X 0,5~0,75 mm ² ; 0,15 Nm;P- displacement ≤ 2 mmP- no movement of conductorsP- no damage of cable or cordP- function independent of electrical connectionP5.2.11External wiring passing into luminaireN/A5.2.12Looping-in terminalsN/A	5.2.9	Locking of screwed bushings		N/A
- covering protected from abrasionP- clear how to be effectiveP- no mechanical or thermal stressP- no tying of cables into knots etc.P- insulating material or liningP5.2.10.1Cord anchorage for type X attachment:N/A5.2.10.2Adequate cord anchorage for type Y and type Z attachmentN/A5.2.10.3Tests:P- impossible to push cable; unsafeP- pull test: 25 times; pull (N)Input: H03VVH2-F; 2 X 0,5~0,75 mm²; 60 N; Output: H03VVH2-F; 2 X 0,5~0,75 mm²; 0,6 N; Output: H03VVH2-F; 2 X 0,5~0,75 mm²; 0,15 Nm; Output: H03VH2-F; 2 X 0,5~0,75 mm²; 0	5.2.10	Cord anchorage:		Р
- clear how to be effectiveP- no mechanical or thermal stressP- no tying of cables into knots etc.P- insulating material or liningP5.2.10.1Cord anchorage for type X attachment:N/A5.2.10.2Adequate cord anchorage for type Y and type Z attachmentN/A5.2.10.3Tests:P- impossible to push cable; unsafeP- pull test: 25 times; pull (N)Input: H03VVH2-F; 2 X 0,5~0,75 mm ² ; 60 N; Output: H03VVH2-F; 2 X 0,5~0,75 mm ² ; 60 NP- torque test: torque (Nm)Input: H03VVH2-F; 2 X 0,5~0,75 mm ² ; 0,15 Nm; Output: H03VVH2-F; 2 X 0,5~0,75 mm ² ; 0,15 Nm;P- displacement ≤ 2 mmP- no movement of conductorsP- no damage of cable or cordP- function independent of electrical connectionP5.2.11External wiring passing into luminaireN/A5.2.12Looping-in terminalsN/A		- covering protected from abrasion		Р
- no mechanical or thermal stressP- no tying of cables into knots etc.P- insulating material or liningP5.2.10.1Cord anchorage for type X attachment:N/A5.2.10.2Adequate cord anchorage for type Y and type Z attachmentN/A5.2.10.3Tests:P- impossible to push cable; unsafeP- pull test: 25 times; pull (N)Input: H03VVH2-F; 2 X 0,5-0,75 mm²; 60 N; Output: H03VVH2-F; 2 X 0,5-0,75 mm²; 60 NP- torque test: torque (Nm)Input: H03VVH2-F; 2 X 0,5-0,75 mm²; 0,15 Nm; Output: H03VVH2-F; 2 X 0,5-0,75 mm²; 0,15 Nm;P- displacement ≤ 2 mmP- no movement of conductorsP- no damage of cable or cordP- function independent of electrical connectionP5.2.11External wiring passing into luminaireN/A5.2.13Wire ends not tinnedN/A		- clear how to be effective		Р
- no tying of cables into knots etc.P- insulating material or liningP5.2.10.1Cord anchorage for type X attachment:N/A5.2.10.2Adequate cord anchorage for type Y and type Z attachmentN/A5.2.10.3Tests:P- impossible to push cable; unsafeP- impossible to push cable; unsafeP- pull test: 25 times; pull (N)Input: H03VVH2-F; 2 X 0,5~0,75 mm²; 60 N; Output: H03VVH2-F; 2 X 0,5~0,75 mm²; 0,15 Nm;P- torque test: torque (Nm)Input: H03VVH2-F; 2 X 0,5~0,75 mm²; 0,15 Nm;P- displacement ≤ 2 mmP- no damage of cable or cordP- no damage of cable or cordP- function independent of electrical connectionP5.2.11External wiring passing into luminaireN/A5.2.12Looping-in terminalsN/A		- no mechanical or thermal stress		Р
- insulating material or liningP5.2.10.1Cord anchorage for type X attachment:N/A5.2.10.2Adequate cord anchorage for type Y and type Z attachmentN/A5.2.10.3Tests:P- impossible to push cable; unsafeP- pull test: 25 times; pull (N)Input: H03VVH2-F; 2 X $0,5\sim0,75 mm^2; 60 N;$ Output: H03VVH2-F; 2 X $0,5\sim0,75 mm^2; 0,15 Nm;$ P- torque test: torque (Nm)Input: H03VVH2-F; 2 X $0,5\sim0,75 mm^2; 0,15 Nm;$ Output: H03VVH2-F; 2 X $0,5\sim0,75 mm^2; 0,15 Nm;$ P- displacement $\leq 2 mm$ P- no movement of conductorsP- no damage of cable or cordP- function independent of electrical connectionP5.2.11External wiring passing into luminaireN/A5.2.13Wire ends not tinnedN/A		- no tying of cables into knots etc.		Р
5.2.10.1Cord anchorage for type X attachment:N/A5.2.10.2Adequate cord anchorage for type Y and type Z attachmentN/A5.2.10.3Tests:P- impossible to push cable; unsafeP- pull test: 25 times; pull (N)Input: H03VVH2-F; 2 X $0,5~0,75 mm^2; 60 N;$ Output: H03VVH2-F; 2 X $0,5~0,75 mm^2; 0 N;$ P- torque test: torque (Nm)Input: H03VVH2-F; 2 X $0,5~0,75 mm^2; 0,15 Nm;$ Output: H03VVH2-F; 2 X $0,5~0,75 mm^2; 0,15 Nm;$ P- displacement $\leq 2 mm$ P- no movement of conductorsP- function independent of electrical connectionP5.2.11External wiring passing into luminaireN/A5.2.13Wire ends not tinnedN/A		- insulating material or lining		Р
5.2.10.2Adequate cord anchorage for type Y and type Z attachmentN/A5.2.10.3Tests:P- impossible to push cable; unsafeP- pull test: 25 times; pull (N)Input: H03VVH2-F; 2 X $0,5~0,75 mm^2; 60 N;$ Output: H03VVH2-F; 2 X $0,5~0,75 mm^2; 60 N;$ P- torque test: torque (Nm)Input: H03VVH2-F; 2 X $0,5~0,75 mm^2; 015 Nm;$ Output: H03VVH2-F; 2 X $0,5~0,75 mm^2; 0,15 Nm;$ P- displacement $\leq 2 mm$ P- no movement of conductorsP- no damage of cable or cordP- function independent of electrical connectionP5.2.11External wiring passing into luminaireN/A5.2.13Wire ends not tinnedN/A	5.2.10.1	Cord anchorage for type X attachment:		N/A
5.2.10.3Tests:P- impossible to push cable; unsafeP- pull test: 25 times; pull (N)Input: H03VVH2-F; 2 X 0,5~0,75 mm²; 60 N; Output: H03VVH2-F; 2 X 0,5~0,75 mm²; 60 NP- torque test: torque (Nm)Input: H03VVH2-F; 2 X 0,5~0,75 mm²; 0,15 Nm; Output: H03VVH2-F; 2 X 0,5~0,75 mm²; 0,15 Nm; Output: H03VVH2-F; 2 X 0,5~0,75 mm²; 0,15 Nm; Output: H03VVH2-F; 2 X 0,5~0,75 mm²; 0,15 Nm;P- displacement ≤ 2 mmP- no movement of conductorsP- no damage of cable or cordP- function independent of electrical connectionP5.2.11External wiring passing into luminaireN/A5.2.12Looping-in terminalsN/A	5.2.10.2	Adequate cord anchorage for type Y and type Z attachment		N/A
- impossible to push cable; unsafeP- pull test: 25 times; pull (N)Input: H03VVH2-F; 2 X $0,5~0,75 mm^2; 60 N;$ Output: H03VVH2-F; 2 X $0,5~0,75 mm^2; 60 N$ P- torque test: torque (Nm)Input: H03VVH2-F; 2 X $0,5~0,75 mm^2; 0,15 Nm;$ P- torque test: torque (Nm)Input: H03VVH2-F; 2 X $0,5~0,75 mm^2; 0,15 Nm;$ P- displacement $\leq 2 mm$ P- no movement of conductorsP- no damage of cable or cordP- function independent of electrical connectionP5.2.11External wiring passing into luminaireN/A5.2.12Looping-in terminalsN/A5.2.13Wire ends not tinnedN/A	5.2.10.3	Tests:		Р
- pull test: 25 times; pull (N)Input: H03VVH2-F; 2 X 0,5~0,75 mm²; 60 N; Output: H03VVH2-F; 2 X 0,5~0,75 mm²; 60 NP- torque test: torque (Nm)Input: H03VVH2-F; 2 X 0,5~0,75 mm²; 0,15 Nm; Output: H03VVH2-F; 2 X 0,5~0,75 mm²; 0,15 Nm; Output: H03VVH2-F; 2 X 0,5~0,75 mm²; 0,15 Nm;P- displacement ≤ 2 mmP- no movement of conductorsP- no damage of cable or cordP- function independent of electrical connectionP5.2.11External wiring passing into luminaireN/A5.2.12Looping-in terminalsN/A5.2.13Wire ends not tinnedN/A		- impossible to push cable; unsafe		Р
- torque test: torque (Nm)Input: H03VVH2-F; 2 X $0,5~0,75 mm^2$; 0,15 Nm; Output: H03VVH2-F; 2 X $0,5~0,75 mm^2$; 0,15 Nm;P- displacement $\leq 2 mm$ P- no movement of conductorsP- no damage of cable or cordP- function independent of electrical connectionP5.2.11External wiring passing into luminaireN/A5.2.12Looping-in terminalsN/A		- pull test: 25 times; pull (N)	Input: H03VVH2-F; 2 X 0,5~0,75 mm ² ; 60 N; Output: H03VVH2-F; 2 X 0,5~0,75 mm ² ; 60 N	Р
- displacement ≤ 2 mmP- no movement of conductorsP- no damage of cable or cordP- no damage of cable or cordP- function independent of electrical connectionP5.2.11External wiring passing into luminaireN/A5.2.12Looping-in terminalsN/A5.2.13Wire ends not tinnedN/A		- torque test: torque (Nm):	Input: H03VVH2-F; 2 X 0,5~0,75 mm ² ; 0,15 Nm; Output: H03VVH2-F; 2 X 0,5~0,75 mm ² ; 0,15 Nm;	Р
- no movement of conductorsP- no damage of cable or cordP- function independent of electrical connectionP5.2.11External wiring passing into luminaireN/A5.2.12Looping-in terminalsN/A5.2.13Wire ends not tinnedN/A		- displacement ≤ 2 mm		Р
- no damage of cable or cordP- function independent of electrical connectionP5.2.11External wiring passing into luminaireN/A5.2.12Looping-in terminalsN/A5.2.13Wire ends not tinnedN/A		- no movement of conductors		Р
- function independent of electrical connectionP5.2.11External wiring passing into luminaireN/A5.2.12Looping-in terminalsN/A5.2.13Wire ends not tinnedN/A		- no damage of cable or cord		Р
5.2.11External wiring passing into luminaireN/A5.2.12Looping-in terminalsN/A5.2.13Wire ends not tinnedN/A		- function independent of electrical connection		Р
5.2.12 Looping-in terminals N/A 5.2.13 Wire ends not tinned N/A	5.2.11	External wiring passing into luminaire		N/A
5.2.13 Wire ends not tinned N/A	5.2.12	Looping-in terminals		N/A
	5.2.13	Wire ends not tinned		N/A



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Ρ

No twisting over 360°



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5.3.3	Insulating bushings:		N/A
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
5.3.4	Joints and junctions effectively insulated		N/A
5.3.5	Strain on internal wiring		N/A
5.3.6	Wire carriers		N/A
5.3.7	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		Р

8	PROTECTION AGAINST ELECTRIC SHOCK		Р		
8.2.1	Live parts not accessible		Р		
	Basic insulated parts not used on the outer surface without appropriate protection		Р		
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		Р		
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires				
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements				
	Basic insulation only accessible under lamp or starter replacement		N/A		
	Protection in any position				
	Double-ended tungsten filament lamp		N/A		
	Insulation lacquer not reliable		N/A		
	Double-ended high pressure discharge lamp		N/A		
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A		
8.2.2	Portable luminaire adjusted in most unfavourable position		Р		
8.2.3.a	Class II luminaire:		Р		
	 basic insulated metal parts not accessible during starter or lamp replacement 		N/A		
	 basic insulation not accessible other than during starter or lamp replacement 		N/A		
	- glass protective shields not used as supplementary insulation		N/A		



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8.2.3.b	BC lampholder of metal in class I luminaires shall be earthed					
8.2.3.c	SELV circuits with exposed current carrying parts:		N/A			
	Ordinary luminaire:		N/A			
	- touch current		N/A			
	- no-load voltage					
	Other than ordinary luminaire:		N/A			
	- nominal voltage		N/A			
8.2.4	Portable luminaire have protection independent of supporting surface		Р			
8.2.5	Compliance with the standard test finger or relevant probe		Р			
8.2.6	Covers reliably secured		Р			
8.2.7	Discharging of capacitors \geq 0,5 μF	Max. 0,222 μF Measured max. 5,7 V peak discharged voltage after 1s disconnection	Р			
	Portable plug connected luminaire with capacitor		N/A			
	Other plug connected luminaire with capacitor		Р			
	Discharge device on or within capacitor		Р			
	Discharge device mounted separately		N/A			

9	RESISTANCE TO DUST, SOLID OBJECTS AND MC	DISTURE	Р		
9.2	Tests for ingress of dust, solid objects and moisture:				
	- classification according to IP	IP20			
	- mounting position during test As normal use				
	- fixing screws tightened; torque (Nm) 0,33 Nm				
	- tests according to clauses cl.9.2.0				
	- electric strength test afterwards		Р		
	a) no deposit in dust-proof luminaire		N/A		
	b) no talcum in dust-tight luminaire		N/A		
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		N/A		
	d) i) For luminaires without drain holes – no water entry		N/A		
	d) ii) For luminaires with drain holes – no hazardous water entry		N/A		
	e) no water in watertight luminaire		N/A		



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	f) no contact with live parts (IP 2X)		Р
	f) no entry into enclosure (IP 3X and IP 4X)		N/A
	f) no contact with live parts (IP3X and IP4X)		N/A
	g) no trace of water on part of lamp requiring protection from splashing water		N/A
	h) no damage of protective shield or glass envelope		N/A
9.3	Humidity test 48 h	25 °C; 93% Rh	Р

10	INSULATION RESISTANCE AND ELECTRIC STRENGTH				
10.2.1	Insulation resistance test		Р		
	Cable or cord covered by metal foil or replaced by a metal rod of mm \varnothing		_		
	Insulation resistance (MΩ)		_		
	SELV		Р		
	- between current-carrying parts of different polarity:		N/A		
	- between current-carrying parts and mounting surface	>100 MΩ (Limit: 1 MΩ)	Р		
	- between current-carrying parts and metal parts of the luminaire	>100 MΩ (Limit: 1 MΩ)	Р		
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts	>100 MΩ (Limit: 1 MΩ)	Р		
	- Insulation bushings as described in Section 5:		N/A		
	Other than SELV	-	Р		
	- between live parts of different polarity	>100 MΩ (Limit: 2 MΩ)	Р		
	- between live parts and mounting surface	>100 MΩ (Limit: 4 MΩ)	Р		
	- between live parts and metal parts	>100 MΩ (Limit: 4 MΩ)	Р		
	- between live parts of different polarity through action of a switch		N/A		
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts	>100 MΩ (Limit: 2 MΩ)	Р		
	- Insulation bushings as described in Section 5 :		N/A		
10.2.2	Electric strength test		Р		
	Dummy lamp		N/A		
	Luminaires with ignitors after 24 h test		N/A		
	Luminaires with manual ignitors		N/A		
	Test voltage (V)		N/A		
	SELV		Р		



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	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface	500 V	Р
	- between current-carrying parts and metal parts of the luminaire	500 V	Р
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts	500 V	Р
	- Insulation bushings as described in Section 5:		N/A
	Other than SELV		Р
	- between live parts of different polarity	1480 V	Р
	- between live parts and mounting surface	2960 V	Р
	- between live parts and metal parts	2960 V	Р
	- between live parts of different polarity through action of a switch		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts	1480 V	Р
	- Insulation bushings as described in Section 5:		N/A
10.3	Touch current or protective conductor current (mA).:	Max. 0,079 mA peak (limit: 0,7 mA peak)	Р

11	CREEPAGE DISTANCES AND CLEARANCES					
11.2	Creepage distances and clearances	nd clearances See Table 1.7 (11.2)				
	Working voltage (V)	Primary: 220-240 V;	_			
		Secondary: max. 24 VDC				
	Rated pulse voltage (kV)					
	Voltage form	Sinusoidal 🛛	_			
		Non-sinusoidal				
	PTI	< 600 ⊠ ≥ 600 □				
	Impulse withstand category (Normal category II) (Category III Annex U)	Category II 🛛 Category III 🗌				

12	ENDURANCE TEST AND THERMAL TEST			
12.3	Endurance test:			
	- mounting-position	Place as normal use	_	
	- test temperature (°C)	60 °C		
	- total duration (h)	240 h		
	- supply voltage: Un factor; calculated voltage (V):	1,1 Un: 264 V	_	



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	- lamp used: Simulated resistance			
12.3.2	After endurance test:			
	- no part unserviceable			
	- luminaire not unsafe			
	- no damage to track system		N/A	
	- marking legible		Р	
	no cracks, deformation etc.		Р	
12.4	Thermal test (normal operation)	(see Annex 2)	Р	
12.5	Thermal test (abnormal operation) (see Annex 2)		Р	
12.6	Thermal test (failed lamp control gear condition):		N/A	
12.7	Thermal test (failed lamp control gear in plastic luminaires):		N/A	



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11.2	TABLE: Clear	rance and	creepage c	distance me	asurements	3		Р
Class of luminaire			Class I	Class I 🗌 Class II 🖾 Class III 🗌				
Impulse with	stand category	:	Category		Catego	ry III 🗌		
Clearance creepage at/of/betwee	(cl) and distance (cr) n:	Insulatio n type	U peak (V)	U r.m.s. (V)	Required cl (mm)	Measured cl (mm)	Required cr (mm)	Measured cr (mm)
Current-carr different pola circuit	ying parts of arity in primary	В		240	1,5	3,0	2,5	3,0
Current-carr accessible p	ying parts and arts	R	_	240	3,0	6,7	5,0	6,7
Current-carrying parts and outer accessible surface of insulating parts		_	240	3,0	6,7	5,0	6,7	
Parts becom breakdown o insulation ar	ing live due to of basic id metal parts	S		240	1,5	>2,0	2,5	>3,3
Outer surfac where it is cl metal parts	e of cable amped and	S	_	240	1,5	>2,0	2,5	>3,3
Current-carr supporting s	ying parts and urface	R	_	240	3,0	6,7	5,0	6,7
Current-carrying parts in primary circuit and R secondary circuit			240	3,0	6,7	5,0	6,7	
Supplementary information: B – Basic; S – Supplementary; R – Reinforced Primary circuit: 220-240 VAC; Approved terminal block; Secondary: Max. 24 VDC; N/A.								



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ANNEX 2 TABLE: Temperature measurements, thermal tests of Section 12

Ρ

Type reference	EIP030V0120U1				
Lamp used	Simulated resistor	—			
Lamp control gear used	EIP030V0120U1	—			
Mounting position of luminaire	as normal use in oven				
Supply wattage (W)	35,3 W				
Supply current (A)	0,151 A				
Calculated power factor	0,917	—			
Table: measured temperatures corrected for ta = 50 °C:					
- abnormal operating mode	Short circuited output	—			
- test 1: rated voltage	240 V	—			
- test 2: 1,06 times rated voltage or 1,05 times rated wattage	1,06 x 240 = 254,4 V				
- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage					
- test 4: 1,1 times rated voltage or 1,05 times rated wattage	1,1 x 240=264 V				
Through wiring or looping-in wiring loaded by a current of A during the test					

Temperature measurements, (°C)								
Port	Ambient	Clause 12.4 – normal				Clause 12.5 – abnormal		
rait	Ambient	test 1	test 2	test 3	limit	test 4 ^	limit	
PVC insulation of wiring (input)	50	_	52		75			
PVC insulation of wiring (output)	50		55		75	_		
Terminal block (output)	50		57	_	T110			
External enclosure (side, near D4)	50	74	74		T85	_	_	
External enclosure (near heat sink of thermal link KW)	50	67	67		T85	_	_	
tc point (top near TR1)	50	70	70		T85			
Supports near TR1	50		75		90		130	
X2 capacitor (C1)	50		62		T100		110	
Varistor (VR1)	50		57		T85			
Electrolyte capacitor (C14)	50		68		T105		115	



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Temperature measurements, (°C)							
Port	Ambiont	Clause 12.4 – normal				Clause 12.5 – abnormal	
rait	Ambient	test 1	test 2	test 3	limit	test 4 ^	limit
Y1 capacitor (CY1)	50	_	82		T125		135
Electrolyte capacitor (C13)	50		80		T105	—	115
Primary winding of transformer (TR1)	50		84		120	_	175
Secondary winding of transformer (TR1)	50		88		120		175
Bobbin of transformer (TR1)	50		89		Ref.		
Inner surface of enclosure (near TR1)	50		79		Ref.		
PCB bottom near TR1	50	_	81		T130		
Thermal link	50		95		T120		175

Supplementary information:

Remark: As the tested LED driver was protected when LED driver's output terminal was short circuit, and the measured consumed power is less than 0,4 W, after a long and sufficient testing time, the temperature of all the required position for test sample which was mentioned in this clause will be decreased to ambient temperature and would be steady in ambient temperature.



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Appendix 1: product photos



Front view for all models

Remark: marking shown on photos is only for position reference, detail of the marking contents refer to "Copy of marking plate".



Bottom view for all models



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Appendix 1: product photos



Cord anchorage view for all models



Internal view I for all models (model EIP030V0240U1 for example)