

61347-2-13	61347-1	Requirement – Test	Results – Remarks	Verdict
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6		Classification		
		Lamp controlgear is classified, according to the method of installation, as		P
	-	built-in;		N/A
	-	independent;		P
	-	integral		N/A
-		SELV-equivalent or isolating controlgear		N/A
-		auto-wound controlgear;		N/A
-		independent SELV controlgear.		P
7	7	Marking		
7.1		Mandatory marking		
	a)	Mark of origin	Provided	P
	b)	model number, type reference	Provided	P
	c)	Symbol for independent lamp controlgear (if applicable)	Provided	P
	d)	correlation between interchangeable parts and controlgear marked		N/A
	e)	Rated supply voltage	240VAC	P
	f)	earthing symbol	Provided	P
	k)	Wiring diagram	In Compliance	P
	l)	Value of tc.	75°C	P
	m)	symbol for declared temperature		
-		for constant voltage types: rated output voltage	36-42 VDC	P
-		for constant current types: rated output current and maximum output voltage;	36-42 VDC	P
-		if applicable: an indication that the control gear is suitable for operation with LED modules only.	Provided	P
7.2	7.1	Information to be provided if applicable		
	h)	Indication that the lamp controlgear does not rely upon the luminaire enclosure for Protection against accidental contact with live parts.	In Compliance	P

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	i)	Indication of the cross-section of conductors for which the terminals, if any, are suitable.	In Compliance	P
	j)	number, type and wattage of lamp(s)		P
-		mention whether the controlgear has mains-connected windings,	In Compliance	P
-		SELV-equivalent controlgear, if applicable	Provided	P
8	10	Protection against accidental contact with live parts		
	10.1	Lamp controlgear which do not rely upon the luminaire enclosure for protection against electric shock shall be sufficiently protected against accidental contact with live parts		P
8.1		For SELV-equivalent controlgear, the accessible parts shall be insulated from live parts by double or reinforced insulation. Subclauses 8.6 and 13.1 of IEC 60065 apply.		P
8.2		Output circuits of SELV- or SELV equivalent control gear may have exposed terminals if	SELV equivalent	P
-		the rated output voltage for constant voltage control gear or maximum output voltage for constant current control gear under load does not exceed 25 V r.m.s.;	Output Voltage is greater.	P
-		the no-load output voltage does not exceed 33 V r.m.s. and the peak does not exceed $33\sqrt{2}$ V.	36-42 VDC	P
-		Controlgear with a rated output voltage above 25 V shall have insulated terminals	In Compliance	P
9	8	Terminals		
		Screw terminals: compliance with Section 14 of IEC 60598-1		P
		Screwless terminals shall comply with Clause 15 of IEC 60598-1.		P
10	9	Provisions for protective earthing		
		Earthing terminals shall comply with the requirements of Clause 8.	Class I	P
		The electrical connection/ clamping means shall be adequately locked against loosening, and it shall not be possible to loosen the electrical connection/clamping means by hand without the use of a tool.		P

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		For screwless terminals, it shall not be possible to loosen the clamping means/electrical connection unintentionally.		P
		However, if a lamp controlgear has an earthing terminal, this terminal shall only be used for earthing the lamp controlgear		P
		The screw and the other parts of the earthing terminal shall be made of brass or other metal no less resistant to corrosion, or material with a non-rusting surface and at least one of the contact surfaces shall be bare metal.		P
		Lamp controlgear with conductors for protective earthing provided by tracks on printed circuit boards shall be tested with 25A current for 1 min		P
		between the earthing terminal or earthing contact via the track on the printed board and each of the accessible metal parts in turn.		P
		The voltage drop between the earthing terminal or earthing contact and the accessible metal part shall be measured and the resistance calculated from the current and the voltage drop. In no case shall the resistance exceed 0,5 Ω .		P
11	11	Moisture resistance and insulation		
		Lamp controlgear shall be moisture-resistant. They shall not show any appreciable damage after being subjected to humidity treatment for 48h at t between 20°C & 30°C and 91% to 95%.		P
		Immediately after the moisture treatment, the insulation resistance shall be measured with a d.c. voltage of approximately 500 V, 1 min after application of the voltage		P

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		Insulation resistance shall be not less than 2 MΩ for basic insulation		P
		4 MΩ for reinforced insulation between live parts and the body.		N/A
		With double or reinforced insulation, the resistance shall be not less than 4 MΩ.		N/A
12	12	Electric strength		
		Lamp controlgear shall have adequate electric strength.		P
		Immediately after the measurement of the insulation resistance, the lamp controlgear shall withstand an electric strength test for 1 min		P
		Working voltage 42V test voltage 500V		N/A
		Working voltage: > 42 V up to and including 1 000 V		N/A
		Basic insulation 2 U + 1 000	In Compliance	P
		Supplementary insulation, 2U + 1750 V		N/A
		Double or reinforced insulation, 4U + 2750 V		N/A
		No flashover or breakdown shall occur during the test.		P
		Insulation conditions of windings of separating transformers in SELV-equivalent control gear shall apply according to 14.3.2 of IEC 60065.		N/A
13		Thermal endurance test for windings of ballasts		N/A
14	14	Fault conditions		P
		Lamp controlgear shall be so designed that, when operated under fault conditions		P
		there shall be no emission of flames or molten material or production of flammable gases		p
		The protection against accidental contact in accordance with 10.1 shall not be impaired.		

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		For lamp controlgear marked with , the lamp controlgear case temperature at any place shall not exceed the marked value.		P
-		In the case of controlgear provided with the marking, the requirements specified in Annex C shall be fulfilled.		P
	14.1	Short circuit across creepage distances and clearances, if less than the values specified in Clause 16,		P
	14.2	Short circuit across or, if applicable, interruption of semi-conductor devices.		N/A
	14.3	Short circuit across insulation consisting of covering of lacquer, enamel or textile.		N/A
	14.4	Short circuit across electrolytic capacitors		P
	14.5	After the tests, when the lamp controlgear has returned to ambient temperature, the insulation resistance measured at approximately 500 V d.c. shall be not less than 1 M Ω		P
15		Transformer heating		
		In SELV-equivalent controlgear, windings of separating transformers shall be tested according to 7.1 and 11.2 of IEC 60065.		N/A
15.1		Normal operation		
		For normal operation, the values in the second column of Table 3 of IEC 60065 shall apply.		P
16		Abnormal conditions		P
		The controlgear shall not impair safety when operated under abnormal conditions.		
16.1		Controlgear which are of the constant voltage output type		N/A
		Compliance is checked by the following test at any voltage between 90 % and 110 % of the rated supply voltage.		P
		Each of the following conditions shall be applied with the controlgear operating according to the manufacturer's instructions (including heatsinks, if specified) for 1 h.		N/A
a)		No LED module is inserted.		N/A

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		b) Double the LED modules or equivalent load for which the controlgear is designed, connected in parallel to the output terminals.		P
		c) The output terminals of the controlgear shall be short-circuited.		P
		During and at the end of the tests specified under a) to c), the controlgear shall show no defect impairing safety, nor shall any smoke or flammable gases be produced.		N/A
16.2		Controlgear which are of the constant current output type		P
		The maximum output voltage shall not be exceeded.		P
		Compliance is checked by the following test at any voltage between 90 % and 110 % of the rated supply voltage.		p
		Each of the following conditions shall be applied with the controlgear operating according to the manufacturer's instructions (including heatsinks, if specified) for 1 h.		P
		a) No LED modules are connected.		P
		b) <i>Double the LED modules or equivalent load for which the controlgear is designed, connected in series to the output terminals.</i>	(Single output terminal)	N/A
		c) The output terminals of the controlgear shall be short-circuited.		N/A
		During and at the end of the tests specified under a) to c), the controlgear shall show no defect impairing safety, nor shall any smoke or flammable gases be produced	No smoke or flammable gases produced.	P
17	15	Construction		P
	15.1	Wood, cotton, silk, paper and similar fibrous material shall not be used as insulation, unless impregnated.		P
	15.2	Printed circuits		
		Printed circuits are permitted for internal connections.		P
18	16	Creepage distances and clearances		
		Creepage distances and clearances shall be not less than the values given in Tables 3 and 4,	In Compliance	P

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19	17	Screws, current-carrying parts and connections		
		Screws, current-carrying parts and mechanical connections, the failure of which might cause the lamp controlgear to become unsafe, shall withstand the mechanical stresses occurring in normal use	Compliance with mechanical Stress	P
		(Clauses refer to 4.11 and 4.12 of Clause 4 of IEC 60598-1)		N/A
20	18	Resistance to heat, fire and tracking		P
	18.1	Parts of insulating material either retaining live parts in position or providing protection against electric shock shall be sufficiently resistant to heat		N/A
		Ball pressure test		N/A
		At 125°C when parts retaining current carrying parts or SELV parts		N/A
		75 °C for other parts.		N/A
	18.2	External parts of insulating material providing protection against electric shock and parts of insulating material retaining live parts in position shall be sufficiently resistant to flame and ignition/fire		N/A
		Printed circuit boards in accordance with 8.7 of IEC 61189-2 and the relevant parts of IEC 61249-2.		N/A
	18.3	External parts of insulating material providing protection against electric shock shall be subjected for 30 s to the glow-wire test at 650°C.		N/A
	18.4	Parts of insulating material retaining live parts in position shall be subjected to the needle-flame test for 10s		N/A
	-	any self-sustaining flame shall extinguish within 30 s		N/A
	-	flaming drops shall not ignite a piece of tissue paper		N/A
	18.5	Tracking test according to Section 13 of IEC 60598-1.		N/A
19		Resistance to corrosion		
		Ferrous parts, the rusting of which might cause the lamp controlgear to become unsafe, shall be adequately protected against rusting.	No Ferrous part present.	N/A
		Test according to 4.18.1 of Clause 4 of IEC 60598-1.		N/A

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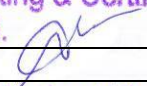
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20		No-load output voltage		
		When the ballast is connected at rated supply voltage and rated frequency with no-load on the output, the output voltage shall not differ from the rated value of the no-load output voltage by more than 10%	Measured value 56.5V Rated 48 V	F

Table 1			
Clearances			
RMS working voltage not exceeding 250V	Minimum Value (mm)	Measured Value (mm)	Verdict
- Basic insulation	>1.7mm	>1.7mm	P
Creepage			
RMS working voltage not exceeding 250V	Minimum Value (mm)	Measured Value (mm)	Verdict
- Basic insulation PTI ≥ 600	1.7mm	>1.7mm	P

Table 2				
Sr. No.	Conducted Test	Test Conditions	Test requirements	Result
1	Insulation Resistance Test	Test Voltage: 500V D.C Time : 1 min Test part: Between live part and metal covered	Shall not be Less than 2 MΩ	P (>9900mΩ)
2	Dielectric Strength test	Test voltage:1480V Test Duration: 1 min. Ramp time: 10sec Test Part: Between live part and metal covered	Shall withstand without breakdown	P

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