

Requirements for electronic non-dimmable control gears for fluorescent lamps and LED			Version 14
<b>Manufacturer:</b> <b>OSRAM GmbH</b> <b>Marcel-Breuer-Str. 6</b> <b>D-80807 München</b>	<b>Type / description:</b> <b>ECG-type: OT FIT_60_220-240_350_D_CS_L (4062172285292)</b> <b>Date: 08.05.2023</b>		<b>Manufacturer information</b> <b>Complies: YES/NO</b>
<b>Specifications:</b>	<b>CEAG data:</b>	<b>Explanation:</b>	
Control gear suitable for a DC voltage range:	186V - 260V DC (for Lead-Battery)	Possible voltage range of the battery in emergency mode. (Not for AT-S <sup>+</sup> Systems required)	Yes
Control gear compatible with the switch-over time of the system?	<b>Switch-over time:</b> 180 ms - 450 ms	Typical switch-over time of CEAG systems between mains supply and emergency power supply	No
Starting behavior of the control gear:	<b>Stable current consumption after less than 1.6 sec. maximum.</b>	A stable operation of the control gear after 1.6 seconds of start up is required for the right functionality of the individual monitoring. With max. 20 luminaires for one current circuit: $\Delta I$ in sum < 250 mA are allowed	Yes
Control gear compatible with CEAG STAR-Technology:	<b>Phase-cut telegram (PAT):</b> <b>max. 30 phases (half waves) with max. 60° phase-cuts</b>	During the CEAG STAR switching process, up to 30 half-waves are cut at a maximum of 60°. The control gear must not exhibit any malfunctions such as switching off, flickering	Yes
<u>only for fluorescent lamps:</u> Control gear complies with the standard:	DIN EN 60929	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements	Not relevant
<u>only for fluorescent lamps:</u> Control gear complies with the standard:	DIN EN 61347-2-3 (incl. Attachment J)	Particular requirements for AC and/or DC supplied electronic control gear for fluorescent lamps	Not relevant
<u>only for LED:</u> Control gear complies with the standard:	DIN EN 62384	AC or DC supplied electronic control gear for LED modules - Performance requirements	Yes
<u>only for LED:</u> Control gear complies with the standard:	DIN EN 61347-2-13	Particular requirements for AC or DC supplied electronic control gear for LED modules	Yes
Control gear complies with the standard:	DIN EN 55015 (Measured in AC and DC)	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment	Yes
Control gear complies with the standard:	DIN EN 61000-3-2, Pkt. 7.3 a.)	see *Important note!	Yes
Control gear complies with the standard:	DIN EN 61547	Equipment for general lighting purposes - EMC immunity requirements	Yes
Note: The labeling "according to VDE 0108" is not meaningful, because this is not a control gear standard!			
<b>Specifications:</b>	<b>CEAG data:</b>	<b>Explanation:</b>	<b>Manufacturer information:</b>
<u>Important for functiontest:</u> Voltage-dependent Input current of the control gear incl. LED in DC and AC operation:	V-CG-S2: >9,4 mA or >12,7 mA = OK V-CG-S: >16 mA or >47 mA = OK V-CG-SE: >16 mA or >47 mA = OK V-CG-SUW: >47 mA = OK CG-K: >16 mA or >47 mA = OK	Minimum current of the LED driver with LED module to GOOD detection via the monitoring module. In the voltage range of 189 - 264V AC on AT-S <sup>+</sup> or 186 - 260V DC on ZB-S/LP-STAR the input current must be higher than the specified current values. see *Important note!	AC: see Table (AT-S <sup>+</sup> ) DC: see Table (ZB-S/LP-STAR)
<u>Important for functiontest:</u> Voltage-dependent No-load current of the control gear (without or defect LED module) in DC and AC - operation*:	V-CG-S2: <5,8 mA or <7,9 mA = n.OK V-CG-S: <10 mA or <28 mA = n.OK V-CG-SE: <10 mA or <28 mA = n.OK V-CG-SUW: <28 mA = n.OK CG-K: <10 mA or <28 mA = n.OK	Maximal current of the LED driver with LED module for BAD detection via the monitoring module. In the voltage range of 189 - 264V AC on AT-S <sup>+</sup> or 186 - 260V DC on ZB-S/LP-STAR the input current must be lower than the specified current values. see *Important note!	AC: see Table (AT-S <sup>+</sup> ) DC: see Table (ZB-S/LP-STAR)
Important for the power consumption of addressable ballast:	V-CG-S2 = 30 A V-CG-S = 30 A V-CG-SE = 30 A V-CG-SUW = 80 A CG-K = 30 A	The max. inrush current of each monitoring module has to be considered!	AC: see Table (AT-S <sup>+</sup> ) DC: see Table (ZB-S/LP-STAR)
<b>Note: Important for the planning - Max. no. Of luminaires per circuit</b>			
<u>Important for the contact load SKU:</u> Max. inrush current of each luminaire in AC operation	<b>Max. permitted inrush current per circuit:</b> SKU 2 x 3A (CG) => 120 A SKU 1 x 6A (CG) => 180 A SKU 4 x 1,5A CG-S => 60 A SKU 2 x 3A CG-S => 250 A SKU 1 x 6A CG-S => 250 A SOU CG-S // S <sup>+</sup> => 250 A SU S <sup>+</sup> => 250 A	<b>26.8A/293 us per pcs.</b>  The declaration of the inrush current of the luminaire is important, to calculate the max. possible luminaires on one circuit, to consider the max. contact load limitation of the circuit.	
<b>Luminaires for emergency lighting must comply with DIN EN 60598-2-22</b> <b>(Particular requirements -Luminaires for emergency lighting)</b> <b>*Important note!</b>			
<b>For AT-S<sup>+</sup> systems and for battery systems (ZB-S / LP-STAR) with active preliminary time for AC about 300 seconds (EOL detection of T5 lamps) for the function test, the current consumption must be sinusoidal, t.m. all control gears (&lt;25W as well) must have an active PFC (Power Factor Correction)!</b> <b>See DIN EN 61000-3-2, Pkt. 7.3 a.)</b>			
<b>Note EOL (End of Life) detection (T5 &gt; 14Watt): The AC preliminary time is valid for the complete system (e.g. ZB-S), not possible for individual circuits.</b> The modules of the V-CG-S series monitor the current consumption on the primary side of the control gear for LED modules within the specified limits. Failures of individual LEDs (low-impedance) on the secondary side do not inevitably lead to a modification of current consumption on the primary side, and in such cases cannot be detected as a failure.			

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Table 1

Values for load range		AC-operation				DC-Operation (For DALI Devices @ default DC Dim level e.g. 15%)			
		189VAC/50Hz Itrms_in ( mA )	230VAC/50Hz Itrms_in ( mA )	240VAC/50Hz Itrms_in ( mA )	264VAC/50Hz Itrms_in ( mA )	186VDC Idc_in ( mA )	216VDC Idc_in ( mA )	240VDC Idc_in ( mA )	260VDC Idc_in ( mA )
Min. Load /mA	Uout= 89.3 V Iout= 103.0 mA	not supported (78.7)	73,0	71,5	71,6	61,0	52,8	47,7	44,4
	P= 9.18 W	PF: 0.768	PF: 0.687	PF:0.674	PF: 0.613	PF: NA	PF: NA	PF: NA	PF: NA
Mid. Load /mA	Uout= 89.3V Iout= 346.6 mA	not supported (185.8)	157,2	151,1	142,4	181,5	156,3	140,4	129,6
	P= 30.8 W	PF:0.961	PF: 0.930	PF:0.926	PF:0.892	PF: NA	PF: NA	PF: NA	PF: NA
Max. Load /mA	Uout= 175.6 V Iout= 349.6 mA	not supported (362.9)	293,4	281,6	257,3	356,0	304,5	272,4	250,6
	P= 61.2 W	PF:0.967	PF: 0.971	PF:0.967	PF:0.959	PF: NA	PF: NA	PF: NA	PF: NA
Short/Open Load		not supported (36.2)	39,0	40,5	42,7	1,2	0,9	0,9	0,9
		PF:0.030	PF: 0.032	PF:0.043	PF:0.033	PF: NA	PF: NA	PF: NA	PF: NA

**Remarks:**

- 1.) This table shows the currents consumption of the driver at three different operating points (Pmax, Pmid, Pmin) for AC and DC operation.
- 2.) This table is intended for rough design decisions . It is not a replacement for individual functional measurements!