

Requirements for electronic non-dimmable control gears for fluorescent lamps and LED			Version 14
Manufacturer: 		Type / Description: Control gear: <u>LEDTUBE T5 AC HE28 P 1149 16W 8XX LEDV</u>	Manufacturer information Complies: YES/NO
Specifications:	CEAG data:	Explanation:	
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 ⁺ Systems required)	YES ☒ NO ☐
Control gear compatible with the switch-over time of the system?	Switch-over time: 180 ms - 450 ms	Typical switch-over time of CEAG systems between mains supply and emergency power supply	YES ☒ NO ☐
Starting behavior of the control gear:	Stable current consumption after less than 1.6 sec. maximum.	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; ΔI in sum < 250 mA are allowed	YES ☒ NO ☐
Control gear compatible with CEAG STAR-Technology:	Phase-cut telegram (PAT): max. 30 phases (half waves) with max. 60° phase-cuts	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 ☒ NO ☐
only for fluorescent lamps: Control gear complies with the standard:	DIN EN 60929	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements	YES ☐ NO ☒
only for fluorescent lamps: 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	YES ☐ NO ☒
only for LED: Control gear complies with the standard:	DIN EN 62384	AC or DC supplied electronic control gear for LED modules - Performance requirements	YES ☒ NO ☐
only for LED: 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 ☒ NO ☐
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 ☒ NO ☐
Control gear complies with the standard:	DIN EN 61000-3-2, Pkt. 7.3 a.)	see *Important note!	YES ☒ NO ☐
Control gear complies with the standard:	DIN EN 61547	Equipment for general lighting purposes - EMC immunity requirements	YES ☒ NO ☐
Note: The labeling "according to VDE 0108" is not meaningful, because this is not a control gear standard!			
Specifications:	CEAG data:	Explanation:	Manufacturer information:
Important for functiontest: 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 ⁺ or 186 - 260V DC on ZB-S/LP-STAR the input current must be higher than the specified current values. see *Important note!	AC: <u>27mA</u> (AT-S ⁺) DC: <u>25 mA</u> (ZB-S/LP-STAR)
Important for functiontest: 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 ⁺ or 186 - 260V DC on ZB-S/LP-STAR the input current must be lower than the specified current values. see *Important note!	AC: <u>5 mA</u> (AT-S ⁺) DC: <u>2mA</u> (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: <u>5.36 A</u> (AT-S ⁺) DC: <u>5.36 A</u> (ZB-S/LP-STAR)
Note: Important for the planning - Max. no. Of luminaires per circuit			
Important for the contact load SKU: Max. inrush current of each luminaire in AC operation	Max. permitted inrush current per circuit: 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 ⁺ => 250 A SU S ⁺ => 250 A	The declaration of the inrush current of the luminaire above is important, to calculate the max. possible luminaires on one circuit, to consider the max. contact load limitation of the circuit.	
Luminaires for emergency lighting must comply with DIN EN 60598-2-22 (Particular requirements -Luminaires for emergency lighting) *Important note! For AT-S ⁺ 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 (<25W as well) must have an active PFC (Power Factor Correction)! See DIN EN 61000-3-2, Pkt. 7.3 a.) Note EOL (End of Life) detection (T5 > 14Watt): The AC preliminary time is valid for the complete system (e.g. ZB-S), not possible for individual circuits. 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.			