



Assembly instructions for mounting and installing of electronic control-gear for LEDs

Regulations

DIN VDE 0100	Regulations for erection of low voltage installations with nominal voltages up to 1000 V
EN 60598-1	Luminaires – part 1: General requirements and tests
EN 61347-1	Lamp control gear – part 1: General and safety requirements
EN 61347-2-13	Lamp control gear - Part 2-13: Particular requirements for DC or AC supplied electronic control gears for LED modules
EN 62384	DC or AC supplied electronic control gear for LED modules – Performance requirements
EN 61000-3-2	Electromagnetic Compatibility (EMC) – part 3: maximum values – main section part 2: maximum values for mains harmonics (device input current up to and including 16 A per conductor)
EN 55015	Maximum values and methods of measurement for RFI suppression in electrical lighting installations and similar electrical appliances
EN 61547	Installations for general lighting purposes – EMC immunity requirements

Mechanical mounting of LED-control gears

Mounting	Built in application: - Any position inside a luminaire is allowed Independent application: - Drivers are suitable to use for independent applications
Clearance	Min. of 0.10 m from walls, ceiling's, insulation materials Min. of 0,25 m from sources of heat (lamp)
Surface	Solid and smooth surface area for good heat dissipation required
Mounting In indoor Luminaires	Install according to EN 60598; keep away from heating sources and water.
Mounting In outdoor Luminaires	Degree of protection for the luminaires against water = 4 necessary (e. g. IP54)
Fastening	Using M4 screws for fastening in the designated holes
Heat transfer	Installation in a luminaire must ensure sufficient heat transfer between the control gear and the lamp housing. The control gear should have the maximum possible clearance to heat sources. During operation, the temperature measured at the tc point of the driver must not exceed the specified value (see temperature stated on the label or Electrical information at page 4)
Mounting position	any position is allowed



Additional mounting instructions for LED control gear

Safety functions

Overheating The control gear has overheating protection. To start normal operation after in case of over temperature protection, the power supply needs to be disconnected for min. 1 min. (cooling down of the LED driver), for finding the root cause to fix the issue and connect / switch on power supply.

No Load operation The control gear is protected against no load operation (open load)

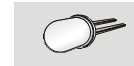
Short circuit protection The control gear is protected against permanent short circuit with automatic restart function normal operation if the short circuit is fixed.

If any of the above-mentioned safety functions will be triggered, disconnect the control gear from the power supply then find and eliminate the cause of the problem.

Overload protection Control gear will reduce input and output power in case of overload.

Protection against transient mains peaks Values are in compliance with EN61547 (interference immunity)
Surges between L/N up to 0,7 kV
Surges between L/N/PE not applicated

Dimming Dimming by phase-cutting (leading or trailing edge dimmer) is impermissible



Electrical installations

Selection of automatic Cut-outs

Release reaction Release reaction of automatic cut-outs comply with VDE 0641, part 11 for B-, C-characteristics. The number of control gear in below table is recommended values as guidelines and can be varied depending on the respective circuit breaker system.

No. of control gears Maximum number of VS control gears apply in such cases where the devices are switched on simultaneously. Specifications apply to single-poled fuses. The number of permissible ballasts must be reduced by 20 % for multi-pole fuses. The considered circuit impedance equals 400 mΩ (approx. 20 m [1.5 mm²] of conductor from the power supply to the distributor and a further 15 m to the luminaire).

LED Driver	Possible number of control gear					
	B 10 A	B 13 A	B 16 A	Type of automatic cut-off		
				C10	C 13 A	C 16 A
ECXe 350.009	55	72	88	92	120	147
ECXe 500.010	37	48	59	61	80	98
ECXe 700.011	30	39	48	50	65	80
ECXe 1050.012	30	39	48	50	65	80

Through wiring Through wiring is not allowed / not possible

Conductor Primary conductor cross section: min. 0.75 mm² and max. 2.5 mm²
Secondary conductor cross section: min. 0.50 mm² and max. 2.5 mm²

Type	Cross section	Max. lead length of secondary conductor
ECXe 350.009	0,5 mm ²	5 m
ECXe 500.010	0,75 mm ²	5 m
ECXe 700.011	0,1 mm ²	5 m
ECXe 1050.012	1,5 mm ²	5 m
	2,5 mm ²	5 m

Connections Screw terminals with screw fixing

Wiring Primary wires must be as short as possible, and need to be separated between primary and secondary wiring.

Secondary load The sum of forward voltages of LED-loads are within the tolerance which is highlighted in Electrical information under USEC.

Parallel connection connecting LED's in parallel at secondary side is not allowed

Switching on and off Switching on/off at secondary side is not allowed

Secondary Wiring Min 0,25 m (clearance to lamp) max 5 m (RFI-protection)
Min 0,10 m clearance from the mains (RFI protection)



Lead preparation	
a / mm	3-6
b / mm	Max. 16
Type of lead: H03-WH2-F 2X0,75 H05-WH2-F 2X0,75 H03-W-F 2X0,75 H05-W-F 2X0,75	

Electrical information

Electronic control gear for LED's												
Type	Ref. no.	UPRI DC AC (V)	Nominal Input current (IPRI, depends on selected current) (mA)	USEC (with load, depends on selected current) (V)	USEC max. without load (V)	PSEC max. (depends on selected output current) (W)	ISEC Nominal output current (mA)	tc max. (depends on selected output current) (°C)	ta Min/Max- Ambient temperature (°C)	Protec- tion class	Degree of protec- tion	Weight (g)
ECXe 350.009	186424	198 – 264 220 – 240	64 – 48 107 – 100	2 – 32	34	11,2	350 ±5%	70	-20...+50°C	II	IP20	79
ECXe 500.010	186425	198 – 264 220 – 240	90 – 67 155 – 141	2 – 32	34	16,0	500 ±5%	75	-20...+50°C	II	IP20	79
ECXe 700.011	186426	198 – 264 220 – 240	102 – 77 160 – 151	2 – 25	34	17,5	700 ±5%	75	-20...+50°C	II	IP20	79
ECXe 1050.012	186427	198 – 264 220 – 240	119 – 89 190 – 176	2 – 19	34	20,0	1050 ±5%	75	-20...+45°C	II	IP20	79