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

Regulations

DIN VDE 0100	Regulations for erection of power installations with nominal voltages up to 1000 V
EN 60598	Luminaries – part 1: general requirements and tests
EN 61347-1	Devices for lamps – 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 gear 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

Surface	Solid and smooth surface area for good heat conduction necessary.
Mounting in indoor luminaries	Install according to EN 60598; keep away from heating sources and water
Mounting in outdoor Luminaries	Protection grade of the luminaries against water = 4 necessary (e. g. IP54)
Fastening	Using screws, 4 mm dia.
Heat transfer	The installation in a luminary, must ensure sufficient heat transfer between the control gear and the luminary casing. The control gear should have the maximum possible clearance to heat sources. During operation, the tc point must not exceed the specified value (see temperature stated on the label)
Mounting position	any position is allowed

Additional mounting instructions for build in LED control gear

No additional requirements.

Safety functions

Overheating	The control gear will switch off output current in the event of over-heating; it will restart automatically when the control gear cools down. (Except models 186328, 186329, 186330, 186331, 186386, 186387).
No Load operation	The control gear is protected against no load operation and against accidental short circuit on the output (longer working with short circuited secondary leads will damage the control gear).

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.

Protection against transient mains peaks	Surges between L&N up to 1kV Surges between L, N&PE up to 2kV Burst, Dips & Interrupts according to EN61547

Dimming

Dimming from mains side by phase cutting dimmers is impermissible.

Selection of automatic cut-outs for VS converters

Release reaction

Release reaction of automatic cut-outs in accordance with VDE 0641, part 11 for B-, C-characteristics. The following values are guidelines and may vary depending on the respective circuit breaker system.

No. of converters

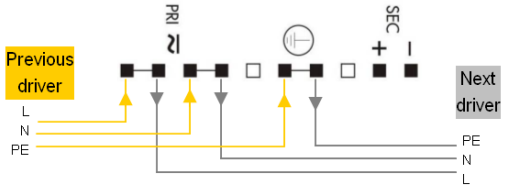
The maximum number of VS converters applies to cases where the devices are switched on simultaneously. Specifications apply to single-poled fuses. The number of permissible ballasts must be reduced by 20 % for multi-pole fuses. The considered circuit impedance equals 400 mΩ (approx. 20 m [1.5 mm²] of conductor from the power supply to the distributor and a further 15 m to the luminary).

Possible number of control gear				
Current source	Type of automatic cut-outs			
	B 10 A	B 16 A	C 10 A	C 16 A
ECXe 700.022	50	80	50	80
ECXe 900.111	35	56	35	56
ECXe 1050.021	32	52	32	52

Through wiring

Pins for L, N, PE are doubled and internally connected about the wiring diagram to allow through wiring.

In case of through wiring, maximum allowed current per wire is 10A. No. of drivers in such installation is the same as for B/C 10A automatic cut-outs from the table above.



Electrical installation

Conductors

Primary and secondary conductor cross section: min. 0.2 mm² and max. 1.5 mm²

model	Cross section	Max. lead length of secondary conductor
ECXe700.022 – 186201,186331 ECXe 900.111 - 186387 ECXe1050.021 – 186199,186329	0,5 mm²	5 m
	0,75 mm²	5 m
	1,0 mm²	5 m
	1,5 mm²	5 m
ECXe700.022 – 186200,186330 ECXe 900.111 - 186386 ECXe1050.021 – 186198,186328	0,5 mm²	1 m
	0,75 mm²	1 m
	1,0 mm²	1 m
	1,5 mm²	1 m

Connections

Push in terminals with release button

Wiring

Primary wires must be as short as possible, and shouldn't cross the secondary wires.

Secondary load

The RFI requirements according EN 55015 for in series connected LED-Modules are fulfilled then the sum of forward voltages of LED-loads isn't below or above the values showed in Table 1 under U_{SEC}.

Parallel connection

Secondary side parallel connection not admissible

Switching on and off

On the secondary side NOT admissible

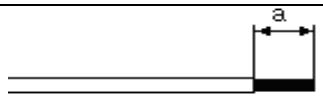
Lead preperation	
a	9-10 mm
	

Table 1

Electronic control gear for LEDs												
Type	Ref. no.	U_{PRI} 0 Hz 50/60 Hz V	Nominal Input current (I_{PRI}) mA	U_{SEC} (with load) V	U_{SEC} (max) V	P_{SEC} max. W	Nominal output current (I_{SEC}) A	Max. tc temp. t_c (°C)	Min/Max. Ambient temperature t_a (°C)	Protection class	Degree of protection	Weight g
ECXe 700.022	186200	176/264 220/240	250/160 200/180	20 – 57	60	40	0,7 ±5%	75	-20/60	I	IP20	210
ECXe 700.022	186201	176/264 220/240	250/160 200/180	20 – 57	60	40	0,7 ±5%	75	-20/60	I	IP20	257
ECXe 700.022	186330	176/264 220/240	250/160 200/180	20 – 57	60	40	0,7 ±5%	75	-20/60	I	IP20	191
ECXe 700.022	186331	176/264 220/240	250/160 200/180	20 – 57	60	40	0,7 ±5%	75	-20/60	I	IP20	238
ECXe 900.111	186386	176/264 220/240	325/210 255/235	20 – 57	60	50	0,9 ±5%	80	-20/60	I	IP20	210
ECXe 900.111	186387	176/264 220/240	325/210 255/235	20 – 57	60	50	0,9 ±5%	80	-20/50	I	IP20	257
ECXe 1050.021	186198	176/264 220/240	391/261 308/286	20 – 58	60	60	1,05 ±5%	80	-20/60	I	IP20	226
ECXe 1050.021	186199	176/264 220/240	391/261 308/286	20 – 58	60	60	1,05 ±5%	80	-20/50	I	IP20	273
ECXe 1050.021	186328	176/264 220/240	391/261 308/286	20 – 58	60	60	1,05 ±5%	80	-20/60	I	IP20	210
ECXe 1050.021	186329	176/264 220/240	391/261 308/286	20 – 58	60	60	1,05 ±5%	80	-20/50	I	IP20	257