



## 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	<p>Built in application: - Any position inside a luminaire is allowed</p> <p>Independent application: - Drivers are not allowed to use for independent applications without separate cable clamp, VS part no's for cable clamp part: 601533 (for LED driver 186524/186525) 601534 (for LED Driver 186523)</p>
Clearance	Min. of 0.1 m from walls, ceiling's, insulation materials
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)

**Safety functions**

Overheating	The control gear has overheating protection with automatic restart function after temperature cool down.
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	The control gear has overload protection due to limitation of DC output voltage <60V Please check before switch on main power supply that the selected LED load is suitable (see Electrical information's at page 3)
Protection against transient mains peaks	Values are in compliance with EN61547 (interference immunity) Surges between L/N up to 1kV Surges between L/N/PE not applicated

**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 mm<sup>2</sup>] 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 700.194	67	87	108	67	87	108
ECXe 700.195	46	59	73	46	59	73
ECXe1050.196	31	40	49	31	40	49

**Through wiring** Through wiring is not allowed / not possible

**Conductor** Primary and secondary conductor cross section: min. 0.5 mm<sup>2</sup> and max. 1.5 mm<sup>2</sup>

Type	Cross section	Max. lead length of secondary conductor
ECXe 700.194 ECXe 700.195 ECXe1050.196	0,5 mm <sup>2</sup>	2 m
	0,75 mm <sup>2</sup>	2 m
	1,0 mm <sup>2</sup>	2 m
	1,5 mm <sup>2</sup>	2 m

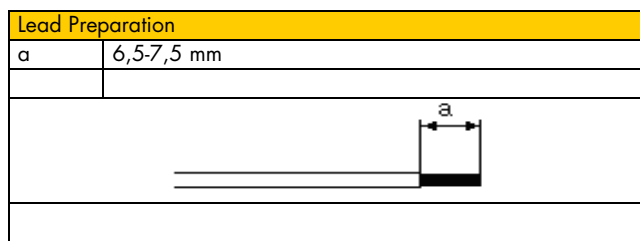
**Connections** Push in terminals with release button

**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 U.

**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





Electronic control gear for LED's												
Type	Ref. no.	U <sub>PR1</sub>	Nominal Input current (I <sub>PR1</sub> , depends on selected current)	U (with load, depends on selected current)	U <sub>out</sub> without load	Prated (depends on selected output current)	I <sub>rated</sub> Nominal output current	t <sub>c</sub> max. (depends on selected output current)	t <sub>a</sub> Min/Max-Ambient temperature	Protection class	Degree of protection	Weight
		(V)	(mA)	(V)	(V)	(W)	(mA)	(°C)	(°C)			(g)
ECXe 700.194	<b>186523</b>	220 – 240	43 – 92	18 – 36	<50	9 – 18	500 ±5%	80	-20...+50°C	II	IP20	90
			52 – 114			11 – 22	600 ±5%					
			61 – 127			13 – 25	700 ±5%					
ECXe 700.195	<b>186524</b>	220 – 240	63 – 136	27 – 54	<60	14 – 27	500 ±5%	75	-25...+55°C	II	IP20	162
			75 – 162	27 – 54		16 – 32	600 ±5%					
			88 – 175	27 – 50		19 – 35	700 ±5%		-25...+50°C			
			88 – 187	27 – 54		19 – 37	700 ±5%					
			104 – 219	27 – 54		22 – 43	800 ±5%					
ECXe 1050.196	<b>186525</b>	220 – 240	117 – 249	27 – 54	<60	25 – 50	925 ±5%	85	-25...+50°C	II	IP20	183
			132 – 252	27 – 48		28 – 50	1050 ±5%					
			132 – 291	27 – 54		28 – 56	1050 ±5%		-25...+45°C			