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 62386	Digital addressable lighting interface (Only for DALI model)
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
Build in version	do not use ⏚ terminal for electrical grounding Remark: earthing of the luminaire or other control gears with build in device is permitten under any condition
Independent version	Please use the terminal ⏚ for electrical grounding of the luminaire

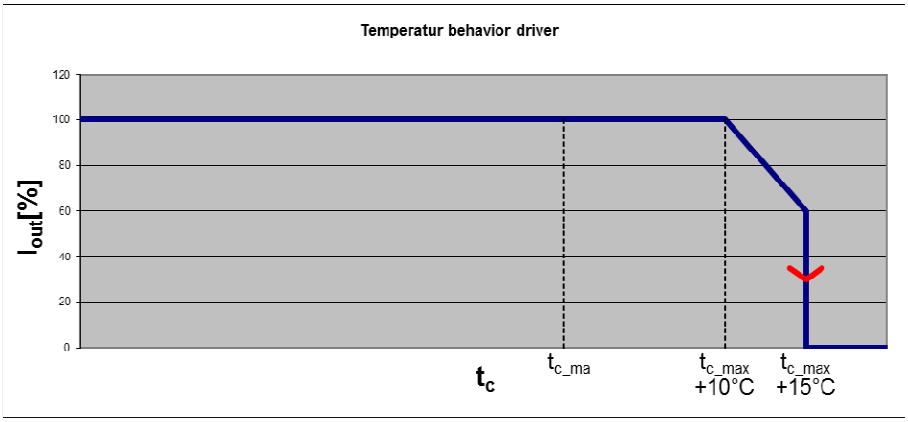
Additional mounting instructions for build in LED control gear

No additional requirements.

Safety functions

Overheating

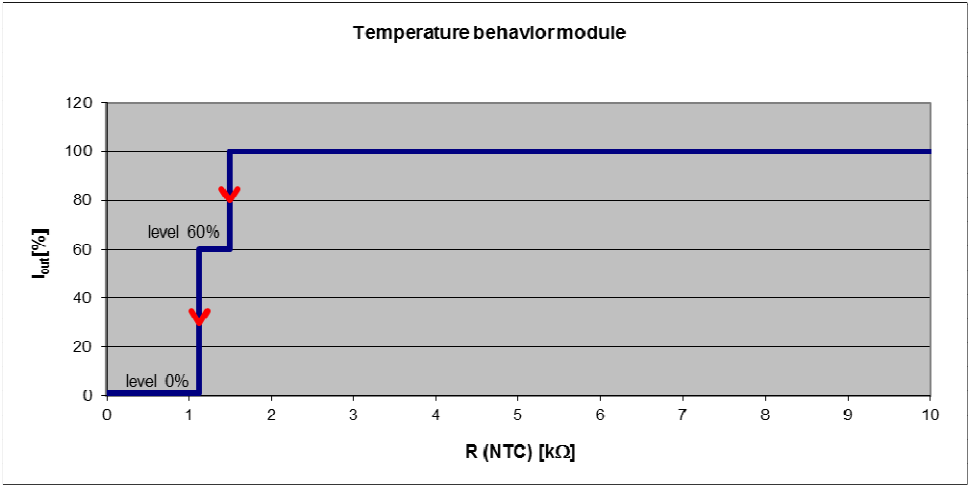
The control gear will reduce and switch off output current in the event of over-heating of the driver; After switching off, it will restart by disconnecting main power and reconnecting main power to the devices. (DALI models 186299, 186300, 186303, 186304 here is it also possible with DALI commands (off or reset)



No Load / Short circuit — 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).

NTC function — The control gear will reduce and switch off output current in the event of over-heating of LED module; After reducing or switching off, it will restart by disconnecting main power and reconnecting main power to the devices.
(DALI models 186299, 186300, 186303, 186304 here is it also possible with DALI commands (off or reset)

NTC of LED module 10kΩ	
R (kΩ) Typical Value	*Output current (%)*
>=1,49	*100%*
<1,49	*60%*
<1,13	*0%*



NTC control function is not intended for safety protection against a failure mode of luminaire. The luminaire manufacturer is responsible for its own luminaire safety design in case of fault conditions such as NTC function failure or cooling fan failure

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.

Pease always disconnect the main power supply before starting with work on the driver side or secondary side of the LED drivers(drivers are without galvanic isolation, risk for electrical shock)

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

Push — Dimmable with usual push key

DALI — Complete implementation of the DALI – standard according to EN 62386 102 (control gear), EN 62386 207 (LED modules), addressable, memory store for scenes and groups, bidirectional communication

Dimming frequency — 1 kHz (Typ.) PWM dimming

Dimming range — from 3 … 100%

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 700.057	*9*	*14*	*15*	*24*
ECXe 1050.059	*9*	*14*	*14*	*22*
ECXd 700.058	*9*	*14*	*15*	*24*
ECXd 1050.060	*9*	*14*	*14*	*22*

Through wiring — Pins for PE are doubled and internally connected about the wiring to allow through wiring of PE connection for independent devices.

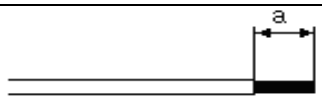
Electrical installation

Conductors — Primary and secondary conductor cross section: min. 0.2 mm^2 and max. 1.5 mm^2

model	Cross section	Max. lead length of secondary conductor
ECXe700.057 - 186298 ECXd700.058 - 186300 ECXe1050.059 - 186302 ECXd1050.060 - 186304	0,2 mm² - 1,5 mm²	2,0 m
ECXe700.057 - 186297 ECXd700.058 - 186299 ECXe1050.059 - 186301 ECXd1050.060 - 186303	0,2 mm² - 1,5 mm²	0,8 m

Wire preparation

Lead preperation	
a	9-10 mm



Connections — Push in terminals with release button

Wiring — Secondary wires must be as short as possible, and shouldn't cross the primary 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 is not admissible

Switching on and off — Switching on the secondary side is not admissible

External supply — 12Vdc +/-10%, max 2W peak

Table 1

Electronic control gear for LEDs												
Type	**Ref. no.**	Nominal U_{PRI} 50/60 Hz V 1)	Nominal Input current (I_{PRI}) mA	U_{SEC} (with load) V	U_{SEC} (max) V 2)	P_{SEC} max. W	Nominal output current (I_{SEC}) A	Max. tc temp. t_c (℃)	Min/Max. Ambient temperature t_a (℃)	Protection class	Degree of protection	Weight g
Built-in												
ECXe 700.057	**186297**	220/240	550/510	85 – 160	<450	112	0,7 +5%,-10%	70	-25…+50	I	IP20	288
ECXd 700.058	**186299**	220/240	550/510	85 – 160	<450	112	0,7 +5%,-10%	70	-25…+50	I	IP20	288
ECXe 1050.059	**186301**	220/240	630/590	85 – 120	<450	126	1,05 +5%,-10%	75	-25…+50	I	IP20	288
ECXd 1050.060	**186303**	220/240	630/590	85 – 120	<450	126	1,05 +5%,-10%	75	-25…+50	I	IP20	288
Independent with cord grip												
ECXe 700.057	**186298**	220/240	550/510	85 – 160	<450	112	0,7 +5%,-10%	80	-25…+50	I	IP20	335
ECXd 700.058	**186300**	220/240	550/510	85 – 160	<450	112	0,7 +5%,-10%	80	-25…+50	I	IP20	335
ECXe 1050.059	**186302**	220/240	630/590	85 – 120	<450	126	1,05 +5%,-10%	90	-25…+50	I	IP20	335
ECXd 1050.060	**186304**	220/240	630/590	85 – 120	<450	126	1,05 +5%,-10%	90	-25…+50	I	IP20	335

1) DC voltage operation:198...264V (DC voltage can be reduced to 176V for 2 hours)
2) Maximun working voltage: 350V