

CC LINEAR SIMPLE FIX



EASYLINE SIMPLE FIX L-R7

186712, 186713, 186714, 186715, 186716, 186760

Typical Applications

Built-in in linear luminaires for

- Office lighting
- Weatherproof Luminaires

EasyLine Simple Fix L-R7

■ **LONG SERVICE LIFE:
UP TO 50,000 HRS.**

■ **PRODUCT GUARANTEE: 5 YEARS**



EasyLine Simple Fix L-R7

Product features

- Linear casing shape

Functions

- Predefined output current

Electrical features

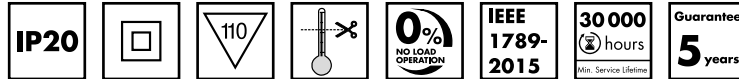
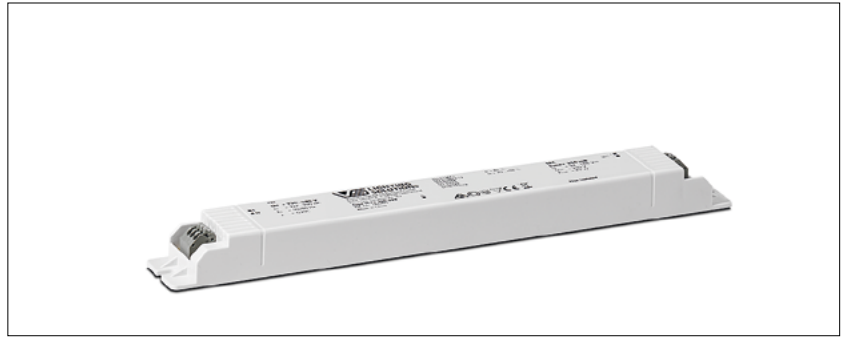
- Mains voltage: 220–240 V $\pm 10\%$
- Mains frequency: 50–60 Hz
- Push-in terminals
primary: 0.5–1.5 mm²,
secondary 0.75–1.5 mm²
- Power factor at full load: > 0.93
- Max. working voltage (U_{OUT}): 250 V
- Secondary side switching of LED modules is not allowed.

Safety features

- Protection against transient main peaks up to 1 kV (between L and N)
- Electronic short-circuit protection
- Overtemperature protection
- Protection against "no load" operation
- Degree of protection: IP20
- Protection class II

Packaging units

Ref. No.	Packaging unit		
	Pieces per box	Boxes per pallet	Weight g
186712	20	120	134
186713	20	120	134
186714	20	120	134
186715	20	120	134
186716	20	120	134
186760	20	120	134

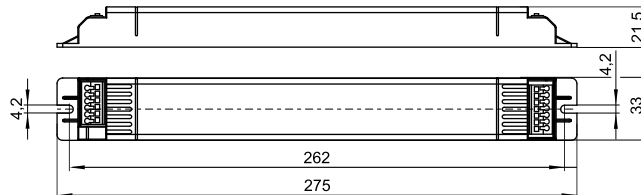


Applied standards

- EN 61347-1
- EN 61347-2-13
- EN 61547
- EN 61000-3-2
- EN 62384
- EN 55015

Dimensions

- Casing: K72
- Length: 275 mm
- Width: 33 mm
- Height: 21.5 mm



Product guarantee

- 5 years for operation at recommended operation temperature (see table for expected service life time on the next page)
- The conditions for the Product Guarantee of the Vossloh-Schwabe Group shall apply as published on our homepage (www.vossloh-schwabe.com). We will be happy to send you these conditions upon request.



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LED Drivers – EasyLine Simple Fix L-R7

Electrical characteristics

Max. output W	Type	Ref. No.	Voltage 50–60 Hz V	Mains current mA	Inrush current A / μ s	Current output DC mA (\pm 7.5%)	Voltage output DC (V)	THD at full load % (230 V)	Efficiency at full load % (230 V)	Ripple 100 Hz %
38	ECXe 500.274	186714	220–240	190–175	15 / 170	500	38–76	< 10	> 90	< 7
45	ECXe 350.273	186713	220–240	230–210	15 / 150	350	65–130	< 10	> 90	< 7
45	ECXe 700.275	186715	220–240	225–205	15 / 150	700	33–65	< 10	> 90	< 7
47	ECXe 250.272	186712	220–240	235–215	15 / 170	250	94–188	< 10	> 90	< 7
54	ECXe 700.276	186716	220–240	245–280	15 / 150	700	39–78	< 10	> 90	< 7
65	ECXe 350.298	186760	220–240	290–327	15 / 150	350	94–188	< 10	> 90	< 7

Maximum ratings

Exceeding the maximum ratings can lead to reduction of service life or destruction of the drivers.

Ref. No.	Ambient temperature range		Operation humidity range		Storage temperature range		Storage humidity range		Max. operation temperature at t_c point °C	Degree of protection
	°C min.	°C max.	% min.	% max.	°C min.	°C max.	% min.	% max.		
All types	-20	+55	10	90	-40	+80	5	95	+85	IP20

Expected service life time

at operation temperatures at t_c point

Operation current	Ref. No.	
All	75 °C*	85 °C
hrs.	50,000	30,000

* recommended operation temperature

Product labels

PRI L N 5 1 - 5 0 UN = 220...240 V IN = 230...200 mA fN = 50/60 Hz λ = 0,93C	VSLIGHTING SOLUTIONS Vossloh-Schwabe Deutschland GmbH ● t_c : test point Stuttgarter Straße 61/1, 73614 Schorndorf Electronic converter for LED Type ECXe 250.272 Ref.-No. 186712 Made in China	t_c = 85 °C t_a = -20...+55 °C	SEC Irated = 250 mA U = 94...188 V Uout = 350 V Protetd = 47 W	0,75-1,5 SEC + - Non isolated CK829
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PRI L N 5 1 - 5 0 UN = 220...240 V IN = 236...200 mA fN = 50/60 Hz λ = 0,93C	VSLIGHTING SOLUTIONS Vossloh-Schwabe Deutschland GmbH ● t_c : test point Stuttgarter Straße 61/1, 73614 Schorndorf Electronic converter for LED Type ECXe 350.273 Ref.-No. 186713 Made in china	t_c = 85 °C t_a = -20...+55 °C	SEC Irated = 350 mA U = 65...130 V Uout = 350 V Protetd = 45 W	0,75-1,5 SEC - - Non isolated CK829
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PRI L N 5 1 - 5 0 UN = 220...240 V IN = 195...170 mA fN = 50/60 Hz λ = 0,93C	VSLIGHTING SOLUTIONS Vossloh-Schwabe Deutschland GmbH ● t_c : test point Stuttgarter Straße 61/1, 73614 Schorndorf Electronic converter for LED Type ECXe 500.274 Ref.-No. 186714 Made in China	t_c = 85 °C t_a = -20...+55 °C	SEC Irated = 500 mA U = 38...76 V Uout = 350 V Protetd = 38 W	0,75-1,5 SEC + - Non isolated CK829
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PRI L N 5 1 - 5 0 UN = 220...240 V IN = 240...205 mA fN = 50/60 Hz λ = 0,93C	VSLIGHTING SOLUTIONS Vossloh-Schwabe Deutschland GmbH ● t_c : test point Stuttgarter Straße 61/1, 73614 Schorndorf Electronic converter for LED Type ECXe 700.275 Ref.-No. 186715 Made in China	t_c = 85 °C t_a = -20...+55 °C	SEC Irated = 700 mA U = 33...65 V Uout = 350 V Protetd = 45 W	0,75-1,5 SEC + - Non isolated CK829
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LED Drivers – EasyLine Simple Fix L-R7

Product labels

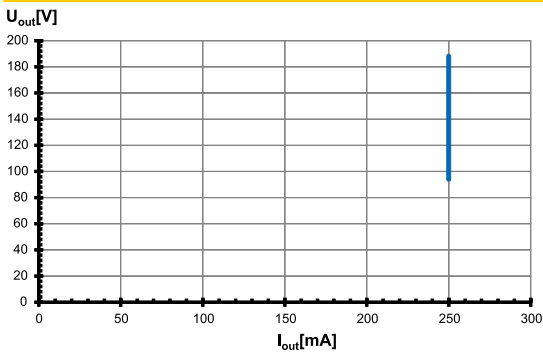
<input checked="" type="checkbox"/> L <input checked="" type="checkbox"/> N <input type="checkbox"/> 51-50	PRI U_N = 220...240 V I_N = 280...245 mA f_N = 50/60 Hz λ = 0,93C	 LIGHTING SOLUTIONS Vossloh-Schwabe Deutschland GmbH Stuttgarter Straße 61/1, 73614 Schorndorf Electronic converter for LED Type ECXe 700.276	tc = 85 °C ta = -20...+55 °C	SEC I_{rated} = 700 mA U = 39...78 V U_{out} = 350 V Prated = 54 W	<input type="checkbox"/> SEC + <input checked="" type="checkbox"/> SEC - 0,745 ± 1,5
		Ref.-No. 186716 Made in China			Non isolated CK829

<input checked="" type="checkbox"/> L <input checked="" type="checkbox"/> N <input type="checkbox"/> 51-50	PRI U_N = 220...240 V I_N = 327...290mA f_N = 50/60 Hz λ = 0,93C	 LIGHTING SOLUTIONS Vossloh-Schwabe Deutschland GmbH Stuttgarter Straße 61/1, 73614 Schorndorf Electronic converter for LED Type ECXe 350.298	tc = 85 °C ta = -20...+55 °C	SEC I_{rated} = 350 mA U = 94...188 V U_{out} = 350 V Prated = 65 W	<input type="checkbox"/> SEC + <input checked="" type="checkbox"/> SEC - 0,745 ± 1,5
		Ref.-No. 186760 Made in China			Non isolated CK911

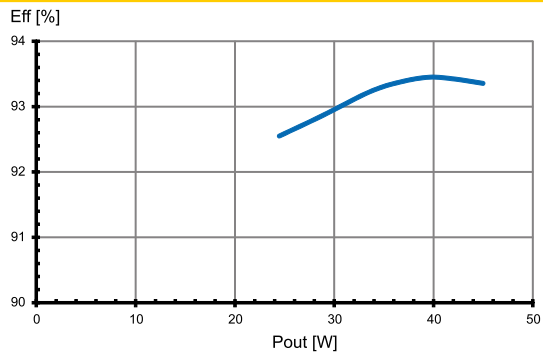
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Typ. performance graphs for 186712 / Type ECXe 250.272

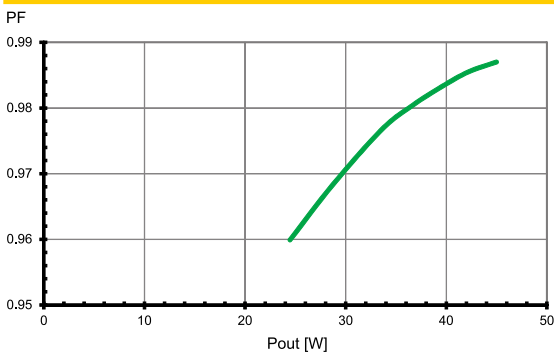
Working area



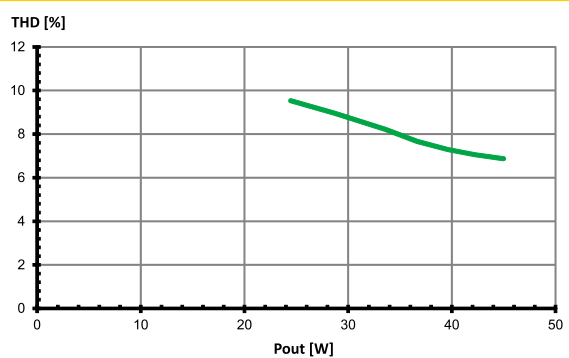
Efficiency



Power factor

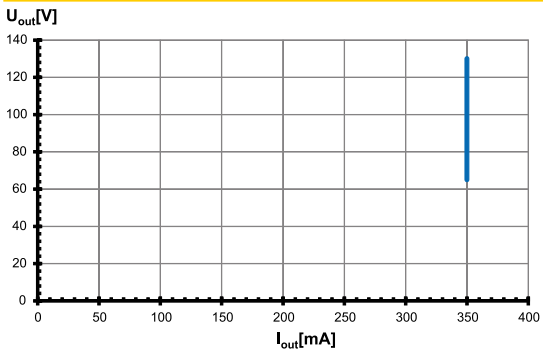


Total harmonic factor (THD)

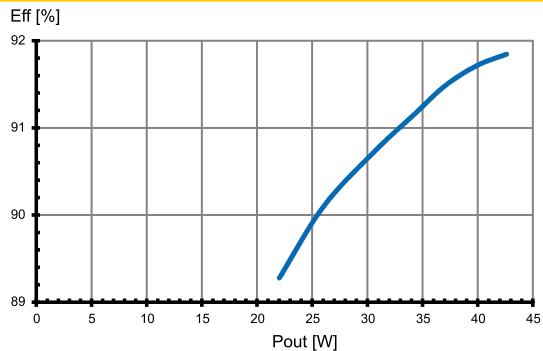


Typ. performance graphs for 186713 / Type ECXe 350.273

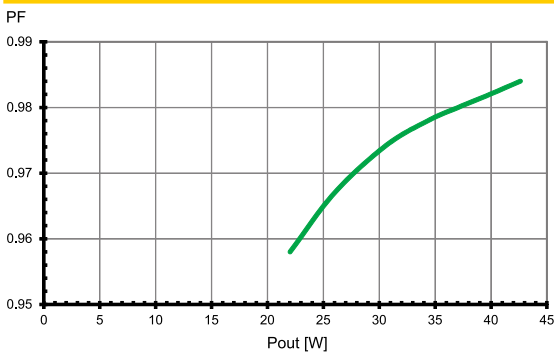
Working area



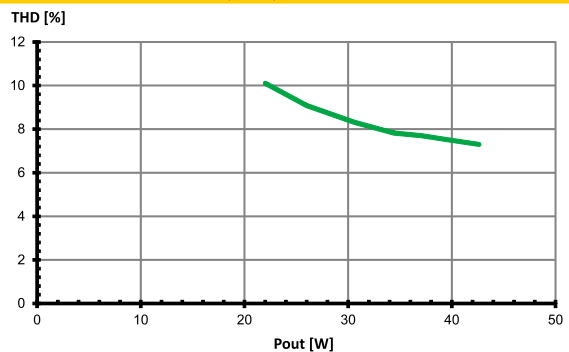
Efficiency



Power factor



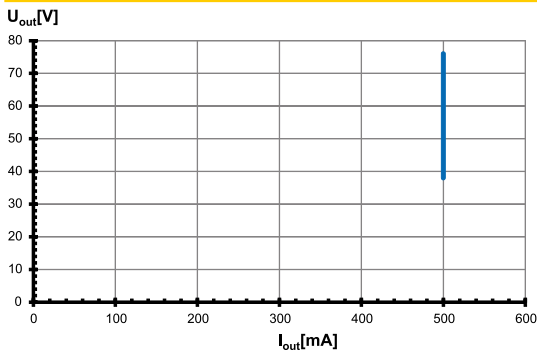
Total harmonic factor (THD)



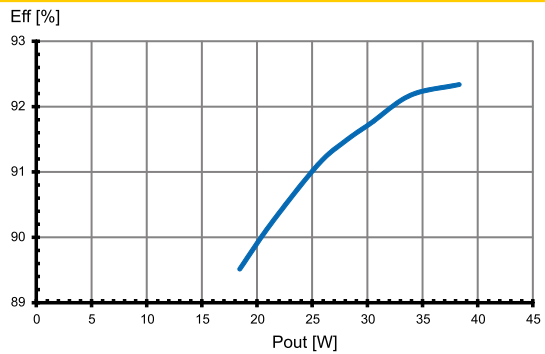
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Typ. performance graphs for 186714 / Type ECXe 500.274

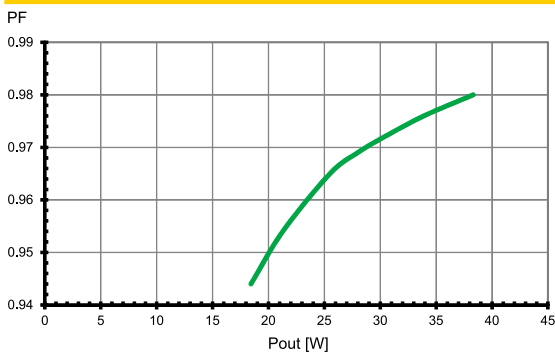
Working area



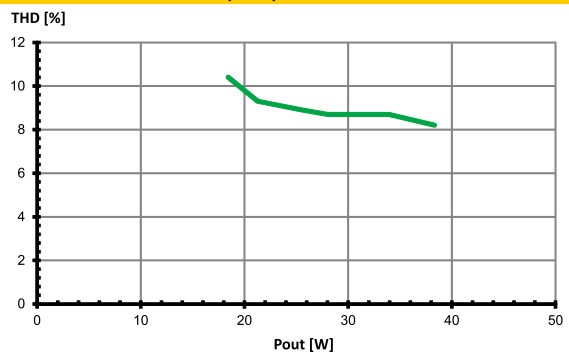
Efficiency



Power factor

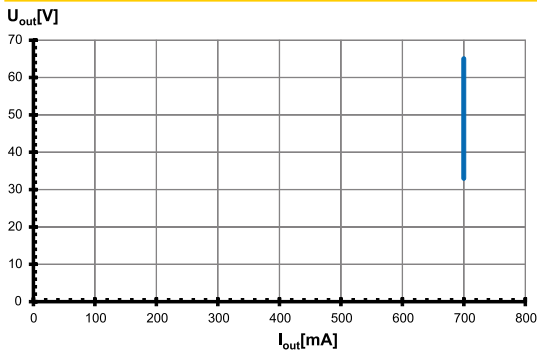


Total harmonic factor (THD)

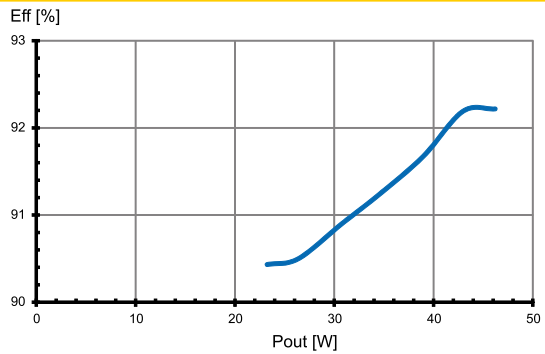


Typ. performance graphs for 186715 / Type ECXe 700.275

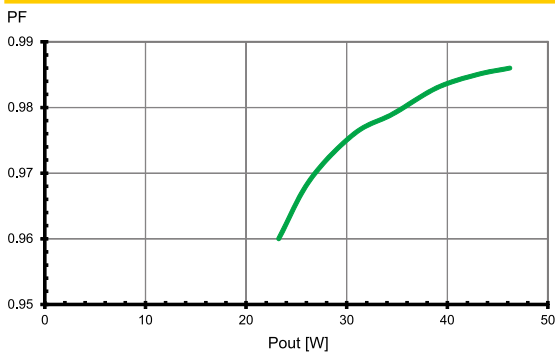
Working area



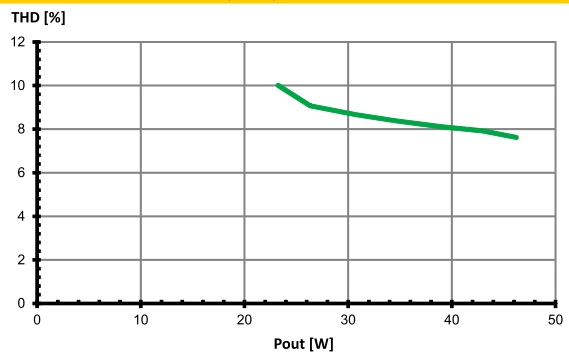
Efficiency



Power factor



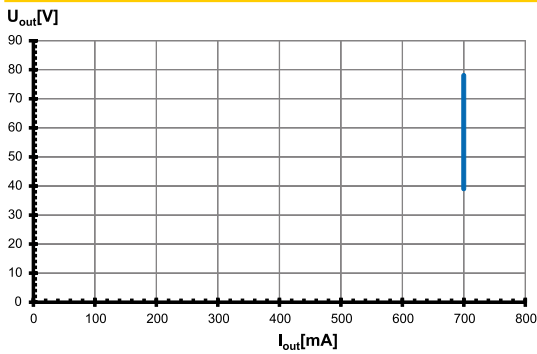
Total harmonic factor (THD)



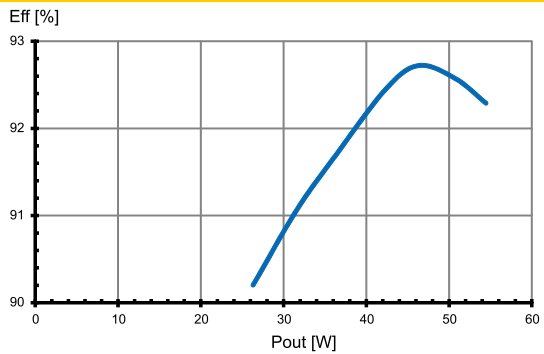
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Typ. performance graphs for 186716 / Type ECXe 700.276

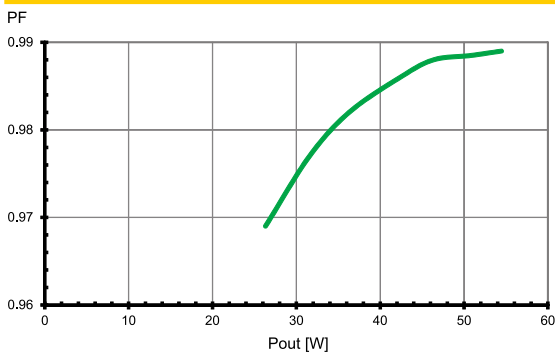
Working area



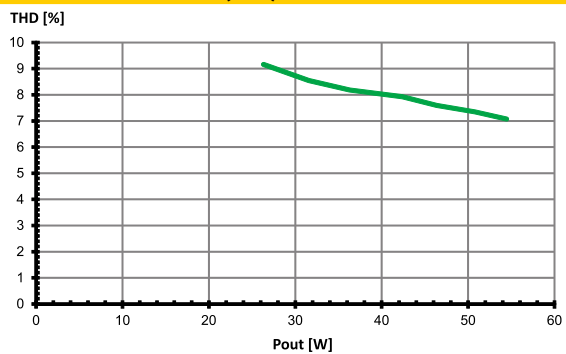
Efficiency



Power factor

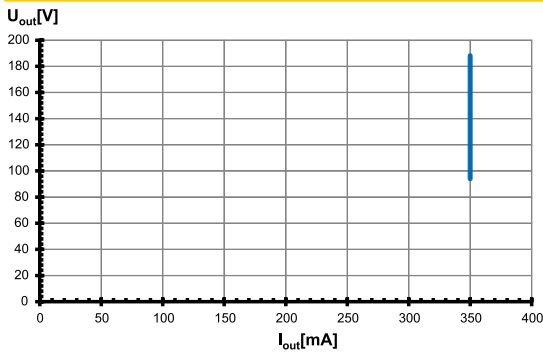


Total harmonic factor (THD)

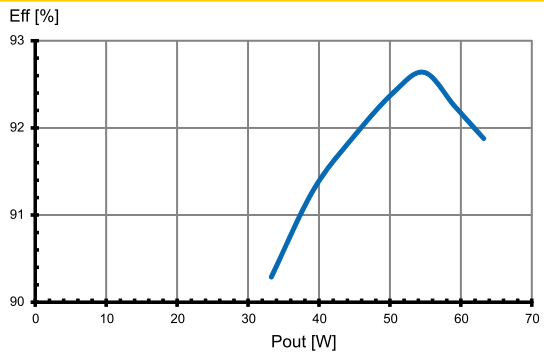


Typ. performance graphs for 186760 / Type ECXe 350.298

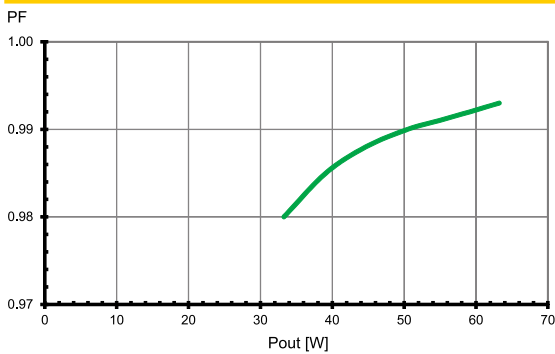
Working area



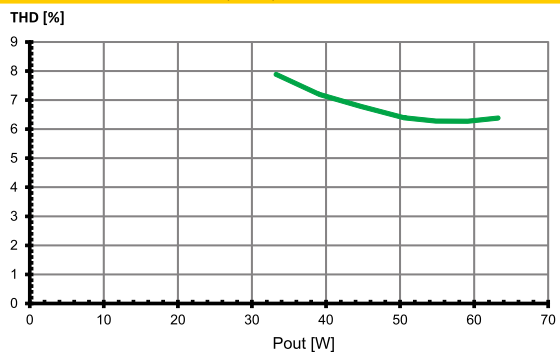
Efficiency



Power factor



Total harmonic factor (THD)



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Safety functions

- Transient mains peaks protection:
Values are in compliance with EN 61547 (interference immunity).
Surges between L-N: up to 1 kV
- Short-circuit protection: The control gear is protected against permanent short-circuit with automatic restart function.
- Overload protection: The control gear only works in range of rated output power and voltage problemfree.
Please check before switch-on mains power supply that the selected LED load is suitable (see Electrical Characteristics on data sheet).
- Overheating: The control gear has overheating protection. In case of overheating the control gear will shut down. For restart switch of the mains for 1 min. and start again.
- No load operation: The control gear is protected against no load operation (open load).
- 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.

Output voltage (U_{OUT})

According to EN 61347-1, U_{OUT} indicates which voltage can occur at the output terminals directly or between the output terminals and the PE terminal of the LED driver. This value is given for non-insulated drivers. The used LED module must have an insulation voltage that is at least as high as the specified U_{OUT} voltage of the driver.

Leakage current

Leakage currents are present in all electronic converters or luminaires with PE connection and must be observed especially when using non-insulated LED drivers.

The PCB surfaces of LED modules form a capacitance with grounded LED aluminum circuit boards, heat sinks or mounting plates. This leads to capacitive leakage currents between the connection poles of the LED (+ and –) and the PE terminal. These capacitances should be kept as small as possible, since they are responsible for a possible glowing or flickering of the LEDs in standby mode. In extreme cases, the maximum permissible leakage current of the luminaire according to EN 60598 paragraph 10.3 may be exceeded. The leakage current is also relevant when using RCD circuit breakers.

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Assembly and Safety Information

Installation must be carried out under observation of the relevant regulations and standards. Installation must be carried out in a voltage-free state (i.e. disconnection from the mains). The following advices must be observed; non-observance can result in the destruction of the LED drivers, fire and/or other hazards.

Mandatory regulations

- DIN VDE 0100
- EN 60598-1

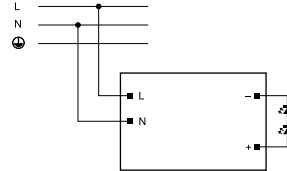
Mechanical mounting

- Mounting position: Built-in: Any position inside a luminaire is allowed
Independent application: Drivers are not allowed to use for independent applications
- Mounting location: LED drivers are designed for integration into luminaires or comparable devices.
Installation in outdoor luminaires: degree of protection for luminaire with water protection rate ≥ 4 (e.g. IP54 required).
- Degree of protection: IP20
- Clearance: Min. 0.10 m from walls, ceilings and insulation
- Surface: Solid and plane surface for optimum heat dissipation required.
- Heat transfer: If the driver is destined for installation in a luminaire, sufficient heat transfer must be ensured between the driver and the luminaire casing.
LED drivers should be mounted with the greatest possible clearance to heat sources.
During operation, the temperature measure at the driver's t_c point must not exceed the specified maximum value.
- Fastening: Using M4 screws in the designated holes
- Tightening torque: 0.2 Nm

Electrical installation

- Connection terminals: Push-in terminals for rigid or flexible conductors with a section of 0.5–1.5 mm² primary and 0.75–1.5 mm² secondary
- Stripped length: 8.5–10 mm
- Wiring: The mains conductor within the luminaire must be kept short (to reduce the induction of interference).
Mains and lamp conductors must be kept separate and if possible should not be laid in parallel to one another.
- Polarity: Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
- Through-wiring: Is not allowed.

- Secondary load: The sum of forward voltages of LED loads has to be within the tolerances which are mentioned in the table "Electrical Characteristics" in this data sheet.
- Wiring diagram:



Selection of automatic cut-outs for VS LED drivers

- Dimensioning automatic cut-outs
High transient currents occur when an LED driver is switched on because the capacitors have to load. Ignition of LED modules occurs almost simultaneously. This also causes a simultaneous high demand for power. These high currents when the system is switched on put a strain on the automatic conductor cut-outs, which must be selected and dimensioned to suit.
- Release reaction
The release reaction of the automatic conductor cut-outs comply with VDE 0641, part 11, for B, C characteristics. The values shown in the following tables are for guidance purposes only and are subject to system-dependent change.
- No. of LED drivers
The maximum number of VS LED drivers applies to cases where the devices are switched on simultaneously. Specifications apply to single-pole fuses. The number of permissible drivers must be reduced by 20% for multi-pole fuses. The considered circuit impedance equals 400 mΩ (approx. 20 m [2.5 mm²] of conductor from the power supply to the distributor and a further 15 m to the luminaire).

Type	Ref.-No.	Automatic cut-out type and possible no. VS drivers pcs.		
Automatic cut-out type B				
		B 10 A	B 13 A	B 16 A
ECXe 250.272	186712	32	42	51
ECXe 350.273	186713	37	48	59
ECXe 500.274	186714	32	42	51
ECXe 700.275	186715	37	48	59
ECXe 700.276	186716	32	41	51
ECXe 350.298	186760	27	35	44
Automatic cut-out type C				
		C 10 A	C 13 A	C 16 A
ECXe 250.272	186712	37	49	60
ECXe 350.273	186713	39	50	62
ECXe 500.274	186714	47	61	76
ECXe 700.275	186715	40	52	64
ECXe 700.276	186716	32	41	51
ECXe 350.298	186760	27	35	44

- To limit capacitive inrush currents the current carrying capacity of each circuit breaker (fuse) can be increased by a factor of 2.5 with the help of our ESB (Ref. No.: 149820, 149821, 149822) inrush current limiters.

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