CC COMPACT SIMPLE FIX

COMFORTLINE SIMPLE FIX C-R3

186719, 186720, 186721, 186722, 186723, 186724, 186725, 186726, 186727, 186728

Typical Applications

Built-in in compact luminaires

- Shop lighting
- Downlights

ComfortLine Simple Fix C-R3

- **VERY LOW RIPPLE CURRENT: < 3%**
- **SUITABLE FOR EMERGENCY ESCAPE LIGHTING SYSTEMS ACC. TO EN 50172**
- **WITH INTEGRATED CORD GRIP FOR INDEPENDENT OPERATION**
- **SELV**
- **LONG SERVICE LIFE: UP TO 100,000 HRS.**
- **PRODUCT GUARANTEE: 5 YEARS**

5 YEARS GUARANTEE

LIGHTING SOLUTIONS

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ComfortLine Simple Fix C-R3

Product features
- Compact casing shape
- For independent operation with integrated cord grip
- For built-in without cord grip
- Active power factor corrector

Functions
- Suitable for central battery system for emergency lighting acc. to EN 50172

Electrical features
- Mains voltage: 220–240 V ±10%
- Mains frequency: 50–60 Hz
- DC operation: 176–264 V, 0 Hz
- Push-in terminals for built-in: 0.5–1.5 mm², for independent: 0.75–1.5 mm²
- Power factor at full load: 0.95
- Open circuit voltage ($U_{max.}$): 60 V
- Secondary side switching of LED modules is not allowed.

Safety features
- Protection against transient main peaks
- Electronic short-circuit protection
- Overload protection
- Overtemperature protection
- Protection against "no load" operation
- Degree of protection: IP20
- Protection class I for built-in, protection class II for independent
- SELV

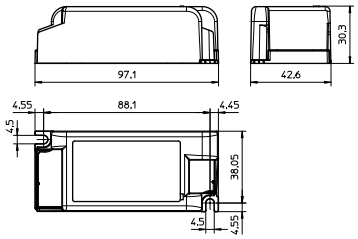
Packaging units

Ref. No.	Packaging unit Pieces per box	Boxes per pallet	Weight g
Built-in drivers			
186720	50	75	96
186722	50	75	96
186724	50	75	96
186726	50	75	102
186728	50	75	103
Independent drivers			
186719	40	75	134
186721	40	75	134
186723	40	75	134
186725	40	75	141
186727	40	75	142

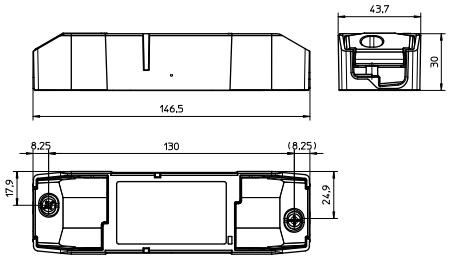
IP20 · SELV · 110 · OVERLOAD PROTECTION · 0% NO LOAD OPERATION · EL

50 000 hours Min. Service Lifetime · Guarantee 5 years

Dimensions built-in drivers
- Casing: K33.2
- Length: 97.1 mm
- Width: 42.6 mm
- Height: 30.3 mm



Dimensions independent drivers
- Casing: K33.2
- Length: 146.5 mm
- Width: 43.5 mm
- Height: 30 mm



Applied standards
- EN 61347-1
- EN 61347-2-13
- EN 61547
- EN 61000-3-2
- EN 61000-3-3
- EN 62384
- EN 55015
- VDE 0710-T14

ENEC 05 · KEMA KEUR · CE

Product guarantee
- 5 years
- 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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Electrical characteristics

Max. output W	Type	Ref. No. independent	Ref. No. built-in	Voltage 50–60 Hz V	Mains current mA	Inrush current A / µs	Current output DC mA (±5%)	Voltage output DC (V)	THD %	Efficiency at full load % (230 V)	Ripple 100 Hz %
16	ECXe 350.278	**186719**	**186720**	220–240	100–91	5 / 50	350	15–46	7.1	> 89	< 3
23	ECXe 500.279	**186721**	**186722**	220–240	130–119	5 / 50	500	15–46	6.6	> 90	< 3
32	ECXe 700.280	**186723**	**186724**	220–240	170–150	5 / 50	700	15–45	7.2	> 91	< 3
38	ECXe 900.281	**186725**	**186726**	220–240	200–183	5 / 50	900	15–42	8.6	> 91	< 3
42	ECXe 1050.282	**186727**	**186728**	220–240	230–210	5 / 50	1050	15–40	9.4	> 90	< 3

Maximum ratings

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

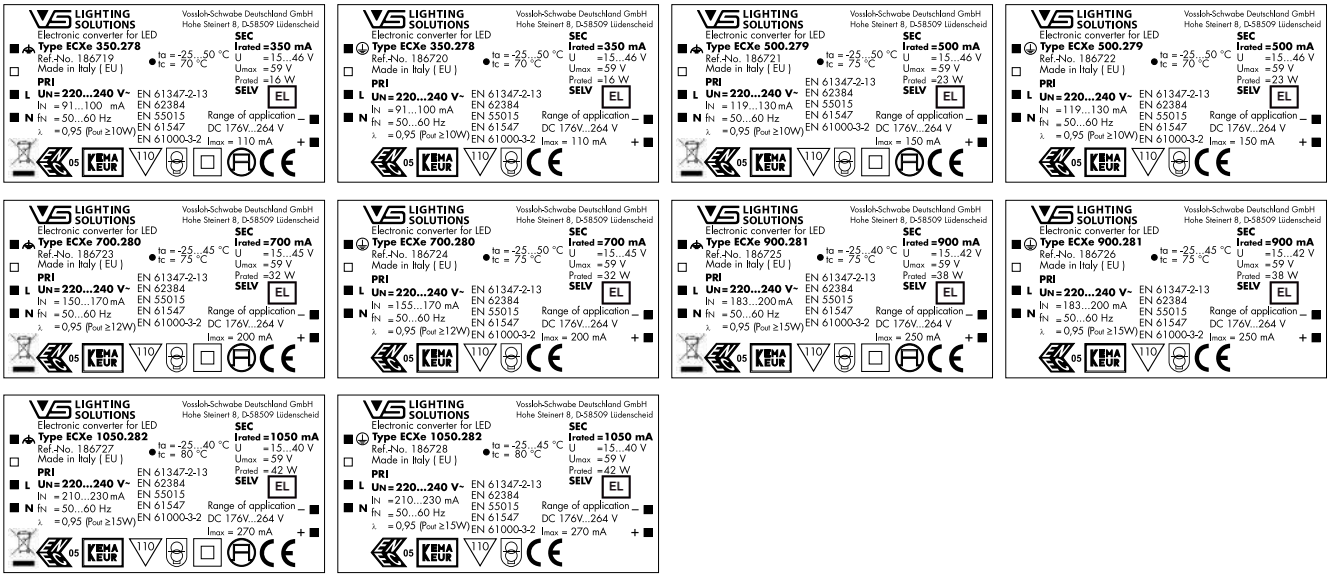
Ref. No.	Ambient temperature range °C min.	Ambient temperature range °C max.	Operation humidity range % min.	Operation humidity range % max.	Storage temperature range °C min.	Storage temperature range °C max.	Storage humidity range % min.	Storage humidity range % max.	Max. operation temperature at t_c point °C	Degree of protection
186719, 186720, 186722	–25	+50	5	80	–30	+80	5	85	+70	IP20
186721, 186724	–25	+50							+75	
186723, 186726	–25	+45							+75	
186725	–25	+40							+75	
186727	–25	+40							+80	
186728	–25	+45							+80	

Expected service life time

at operation temperatures at t_c point

Operation current	Ref. No. 186719, 186720, 186722		186721, 186724, 186723, 186726, 186725		186727, 186728	
All	60 °C	70 °C	65 °C	75 °C	70 °C	80 °C
hrs.	100,000	50,000	100,000	50,000	100,000	50,000

Product labels



The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.

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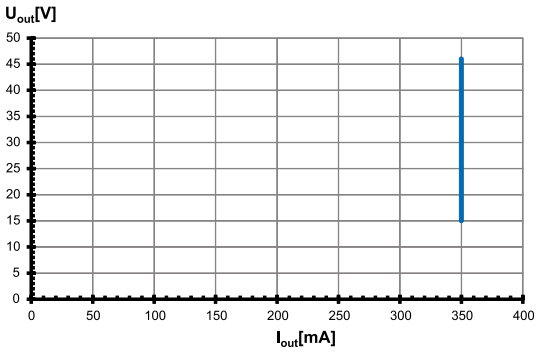
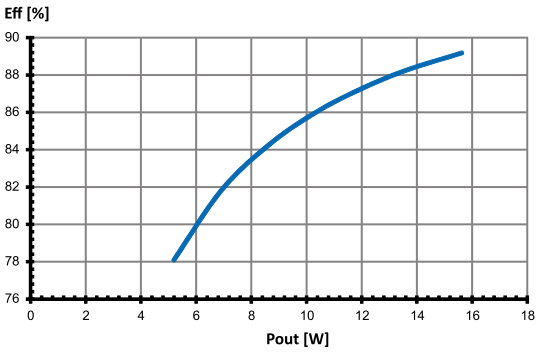
Typ. performance graphs for 186719 and 186720 / Type ECXe 350.278

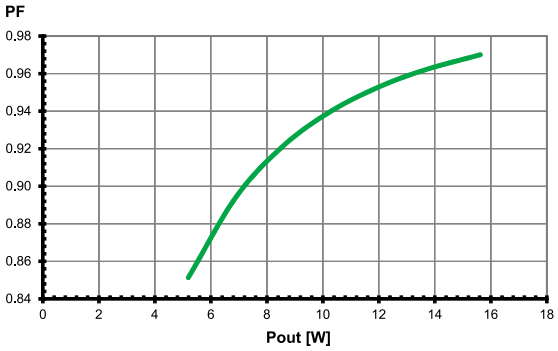
Working area



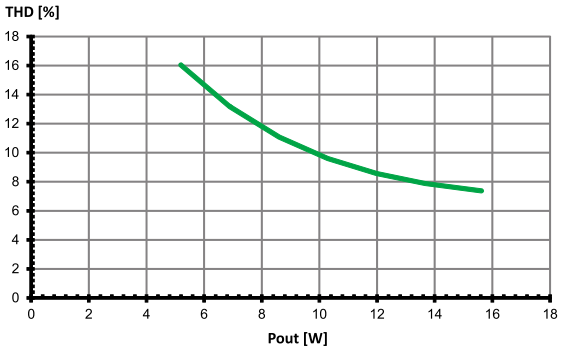
Efficiency



Power factor

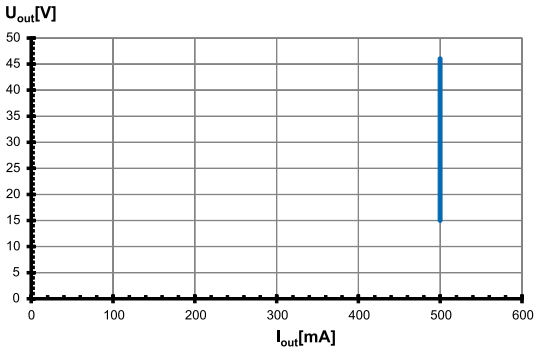


Total harmonic factor (THD)

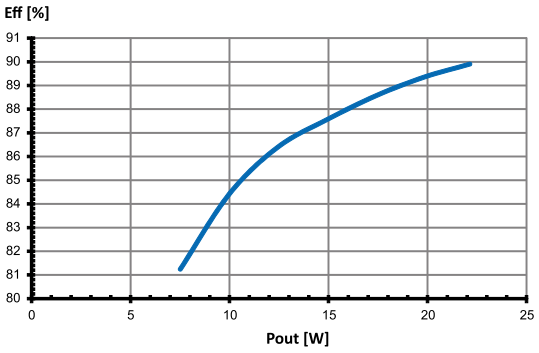


Typ. performance graphs for 186721 and 186722 / Type ECXe 500.279

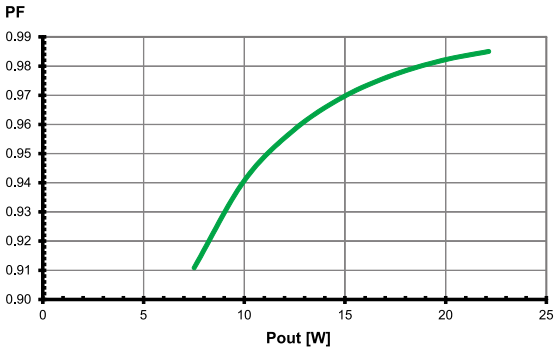
Working area



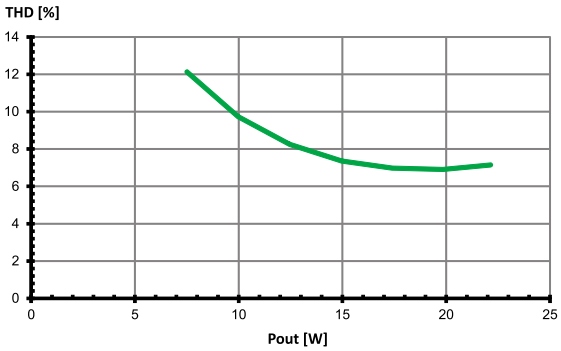
Efficiency



Power factor



Total harmonic factor (THD)



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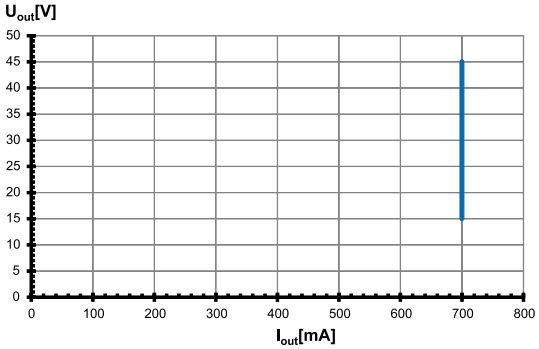
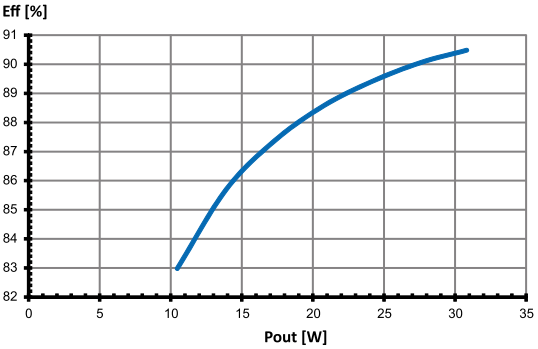
Typ. performance graphs for 186723 and 186724 / Type ECXe 700.280

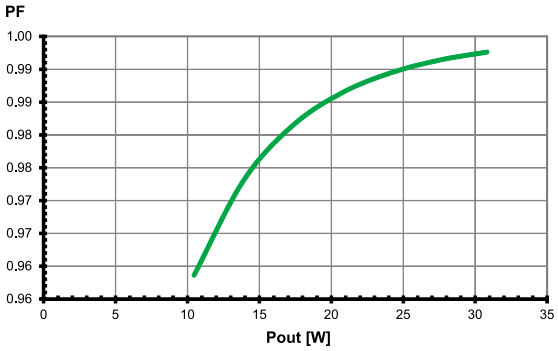
Working area



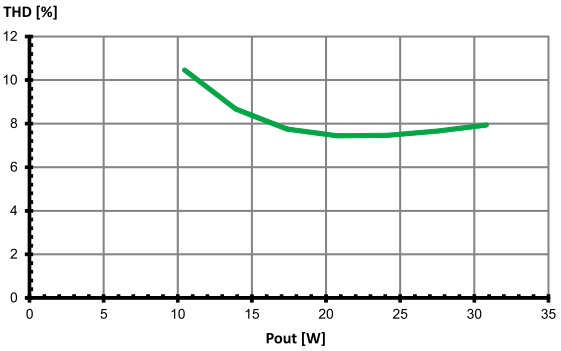
Efficiency



Power factor

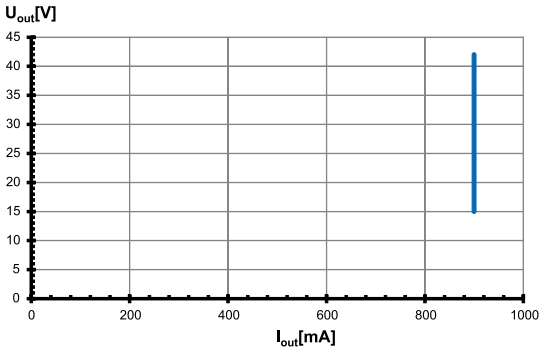


Total harmonic factor (THD)

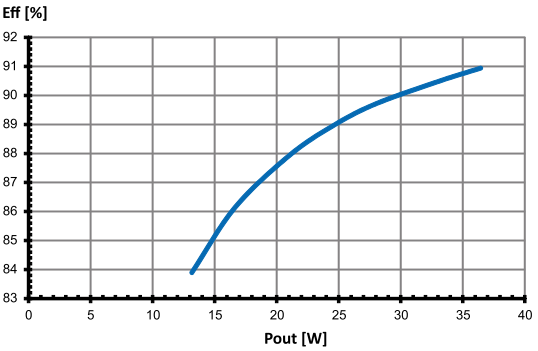


Typ. performance graphs for 186725 and 186726 / Type ECXe 900.281

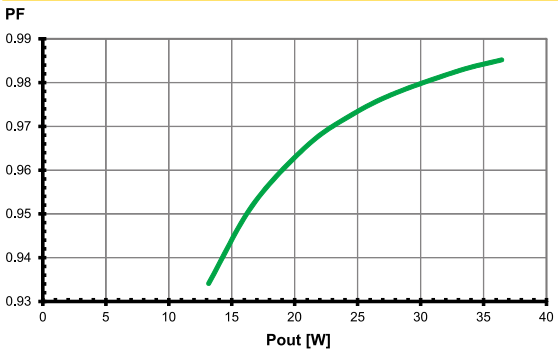
Working area



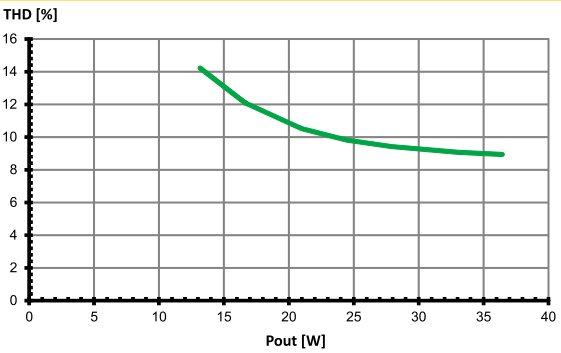
Efficiency



Power factor



Total harmonic factor (THD)



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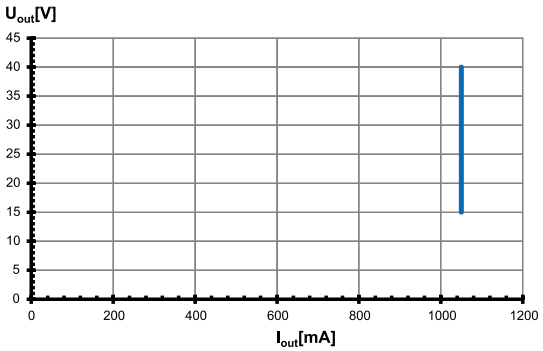
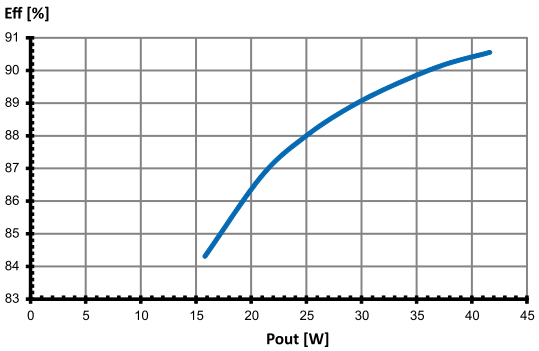
Typ. performance graphs for 186727 and 186728 / Type ECXe 1050.282

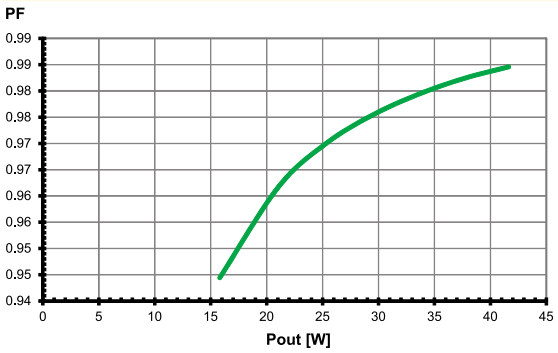
Working area



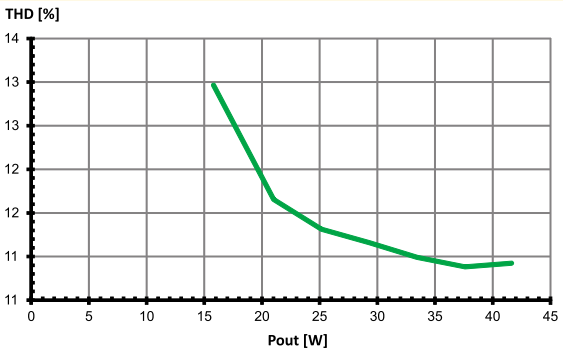
Efficiency



Power factor



Total harmonic factor (THD)



Safety functions

- Transient mains peaks protection:
  Values are in compliance with EN 61547 (interference immunity).
  Surges between L/N–PE: up to 2 kV
- Short-circuit protection:
  The control gear is protected against permanent short-circuit with automatic restart function.
- Overload protection: The control gears have overload protection due to limitation of DC output voltage < 60 V. Please check before switch-on mains power supply that the selected LED load is suitable (see Electrical Characteristics on data sheet).
- Overheating: The control gears have overheating protection. In case of overheating the control gear will shut down. For restart switch of the mains for 1 min. and start again.
  The temperature reduces the output current of the control gear in the event of overheating.
- 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.

DC and emergency lighting operation

The control gears are suitable for direct voltage operation (DC). Reliable DC operation is guaranteed if the specified working area of LED driver is maintained.

- Light level at DC operation (EOFx):
  100 % (not adjustable)
- DC range: 198–276 V
- Reducing to 176 V: With reduced service life time possible
- DC operation: 3 hrs. (acc. to EN 50172)

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

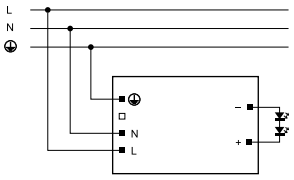
- DIN VDE 0100
- EN 60598-1

Mechanical mounting

- Mounting position: Built-in: Any position inside a luminaire is allowed
  Independent application: Drivers with integrated cord grip are allowed to use for independent applications.
- Mounting location: LED drivers are designed for integration into luminaires or comparable devices.
  Independent LED drivers do not need to be integrated into a casing.
  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 for built-in; 0.75–1.5 mm² for independent
- Stripped length: 9–10 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.
  Max. secondary side lead length for independent drivers: 1 m
- Polarity: Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
- Parallel connection: At secondary side is not allowed.
- Through-wiring: Is not allowed
- Secondary load: The sum of forward voltages of LED loads is within the tolerances which are mentioned in the Electrical Characteristics on the 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).

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Assembly and Safety Information

Selection of automatic cut-outs for VS LED drivers

Type	**Ref. No.**	Automatic cut-out type and possible no. of VS drivers pcs.		
Automatic cut-out type B		B 10 A	B 13 A	B 16 A
ECXe 350.278	**186719, 186720**	32	42	50
ECXe 500.279	**186721, 186722**	32	42	50
ECXe 700.280	**186723, 186724**	32	42	50
ECXe 900.281	**186725, 186726**	32	42	50
ECXe 1050.282	**186727, 186728**	32	42	50
Automatic cut-out type C		C 10 A	C 13 A	C 16 A
ECXe 350.278	**186719, 186720**	52	42	85
ECXe 500.279	**186721, 186722**	52	42	85
ECXe 700.280	**186723, 186724**	52	42	85
ECXe 900.281	**186725, 186726**	52	42	85
ECXe 1050.282	**186727, 186728**	52	42	85

– 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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COMPACT LED DRIVERS

ComfortLine – SELECTABLE CURRENT (OUTPUT TERMINAL)

186651, 186652, 186653, 186654, 186670, 186671

Typical Applications
Built-in in compact luminaires for
- Shop lighting
- Downlights

ComfortLine – with selectable current

- **SELECTABLE OUTPUT CURRENT**
- **VERY COMPACT SHAPE**
- **VERY LOW RIPPLE (< 1 %)**
- **LONG SERVICE LIFETIME: UP TO 100,000 HRS.**
- **PRODUCT GARANTUEE: 5 YEARS**

5 YEARS GUARANTEE

LIGHTING SOLUTIONS

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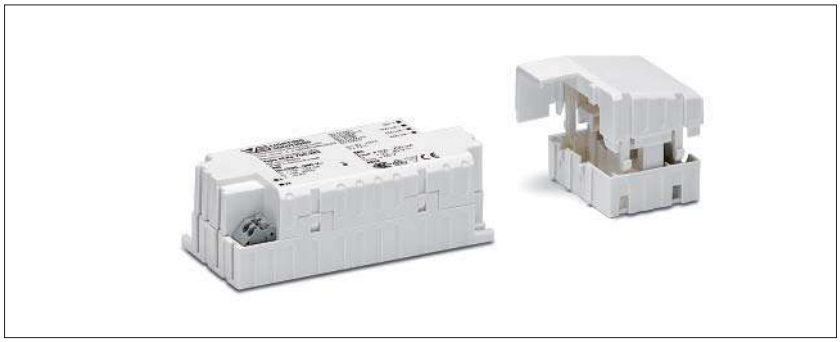
ComfortLine LED Drivers – with Selectable Current



Product features
- Compact casing shape

Functions
- Selectable current output by secondary side terminal.
- The required current output can be chosen by selecting the respective pin at the output terminal.

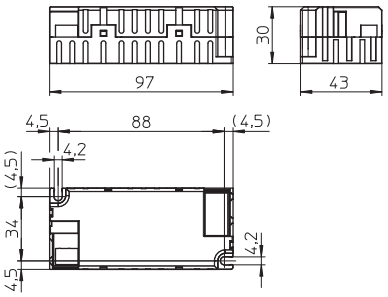
Electrical features
- Mains voltage: 220–240 V ±10%
- Mains frequency: 50–60 Hz
- Push-in terminals: 0.2–1.5 mm²
- Power factor at full load: > 0.95
- Secondary side switching of LED modules is not allowed.

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

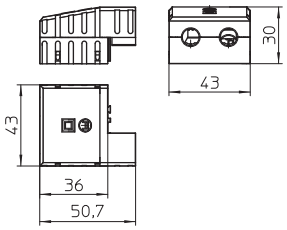
Packaging units

Ref. No.	Packaging unit		
	Pieces per box	Boxes per pallet	Weight g
186651	18	75	120
186652	18	75	120
186653	18	75	120
186654	18	75	124
186670	18	75	120
186671	18	75	120

Dimensions
- Casing: K33.1
- Length: 97 mm
- Width: 43 mm
- Height: 30 mm



Cord grip for K33.1
Available for independent operation
Contains two cord grips
Ref. No.: 186690



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

186654

IEEE1789-2015

Product guarantee
- 5 years
- 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

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Electrical characteristics

Max. output W	Type	Ref. No.	Voltage 50–60 Hz V	Mains current mA	Inrush current A / µs	Current output DC mA (± 5%)	Voltage output DC (V)	THD at full load % (230 V)	Efficiency at full load % (230 V)	Ripple 100 Hz %
17	ECXe 500.242	**186651**	220–240	93–86	19 / 270	400	25–43	15	> 86	< 1
19				104–96		450			> 87	
22				113–105		500			> 88	
22	ECXe 600.255	**186671**	220–240	113–105	19 / 270	500	25–43	14	> 88	< 1
24				125–115		550			> 88	
26				132–125		600			> 88	
26	ECXe 700.243	**186652**	220–240	132–125	19 / 270	600	25–43	12	> 89	< 1
28				147–135		650			> 89	
30				156–143		700			> 89	
30	ECXe 800.254	**186670**	220–240	156–143	19 / 270	700	25–43	12	> 89	< 1
32				166–153		750			> 89	
34				175–163		800			> 89	
34	ECXe 900.244	**186653**	220–240	175–163	19 / 270	800	25–43	11	> 89	< 1
37				187–172		850			> 90	
39				198–182		900			> 90	
41	ECXe 1050.245	**186654**	220–240	209–193	25 / 225	950	25–43	10.5	> 89	< 1
43				219–202		1000			> 89	
45				230–211		1050			> 89	

Maximum ratings

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

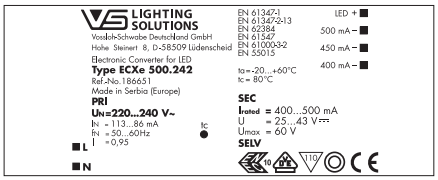
Ref. No.	Ambient temperature range °C min.	°C max.	Operation humidity range % min.	% max.	Storage temperature range °C min.	°C max.	Storage humidity range % min.	% max.	Max. operation temperature at t_c point °C max.	Degree of protection
186651,186671, 186652	–20	+60	5	95	–40	+80	5	95	+80	IP20
186670	–20	+55								
186653, 186654	–20	+50								

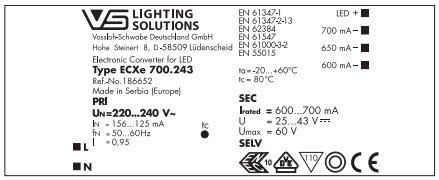
Expected service life time

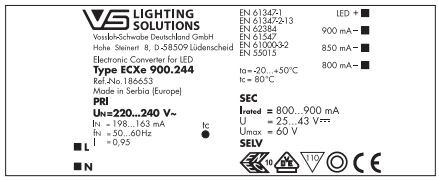
at operation temperatures at t_c point

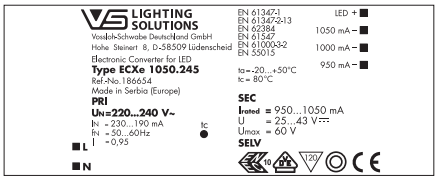
Operation current	Ref. No. all types	
all	70 °C	80 °C
hrs.	100.000	50.000

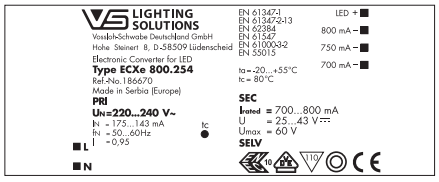
Product lables

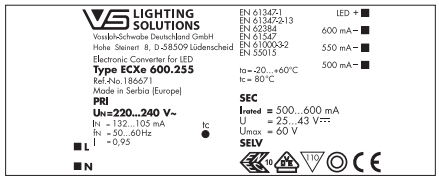








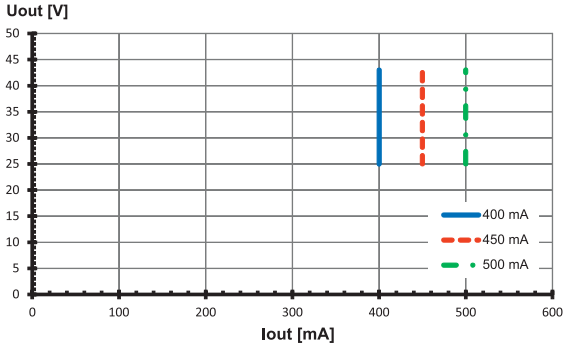




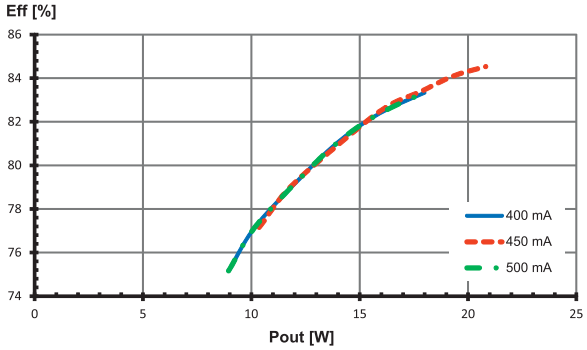
The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.

Typ. performance graphs for 186651 / Type ECXe 500.242

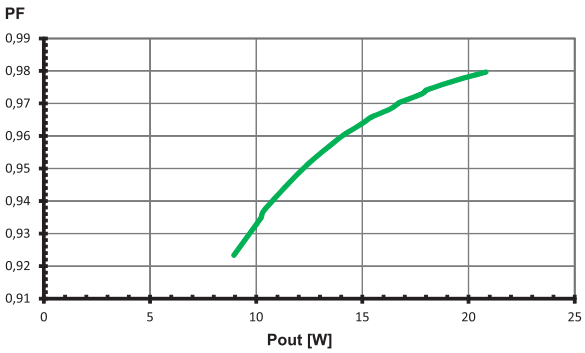
Working area



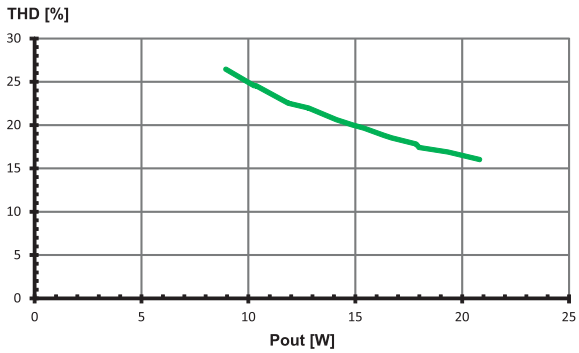
Efficiency



Power factor

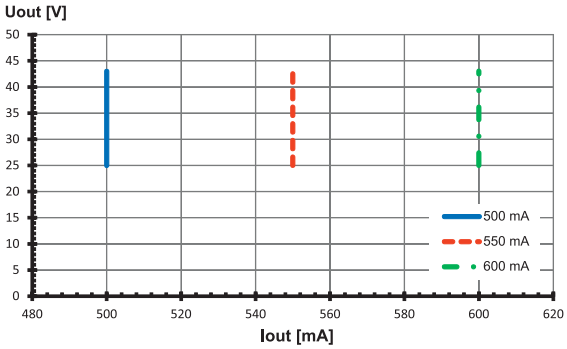


Total harmonic factor (THD)

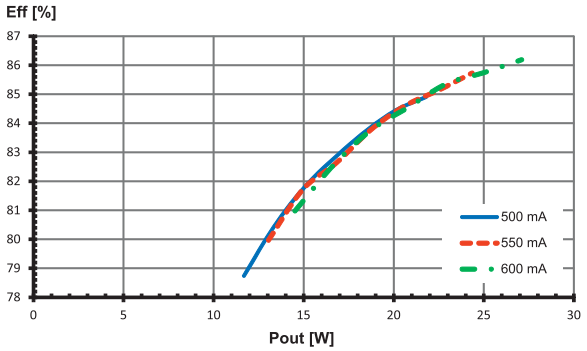


Typ. performance graphs for 186671 / Type ECXe 600.255

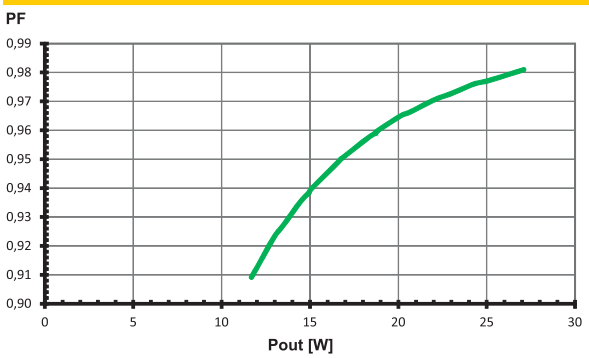
Working area



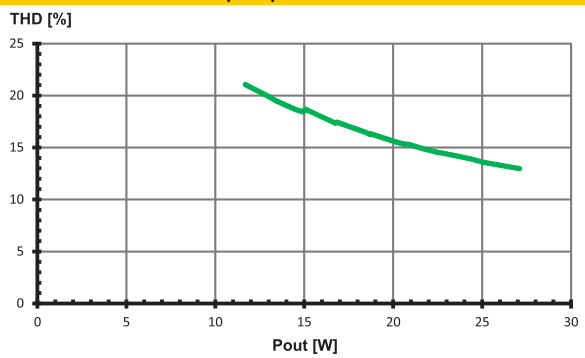
Efficiency



Power factor



Total harmonic factor (THD)



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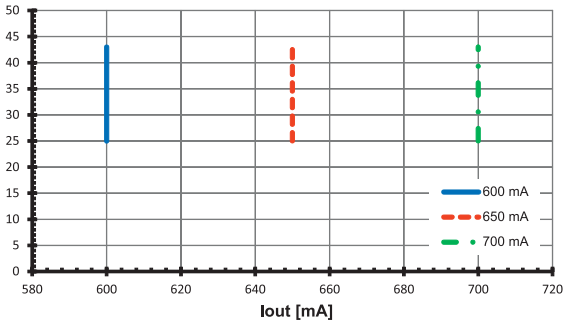
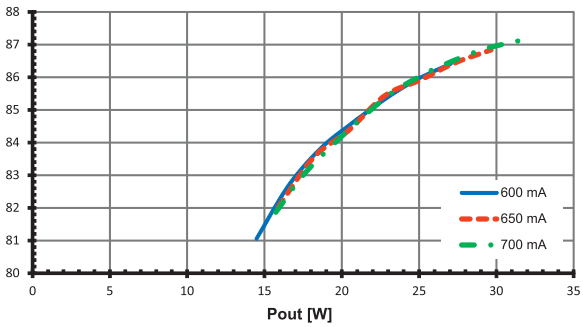
Typ. performance graphs for 186652 / Type ECXe 700.243

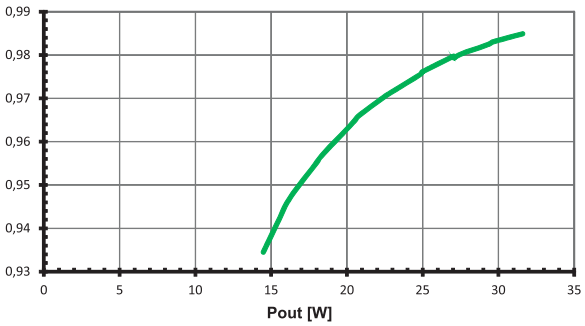
Working area



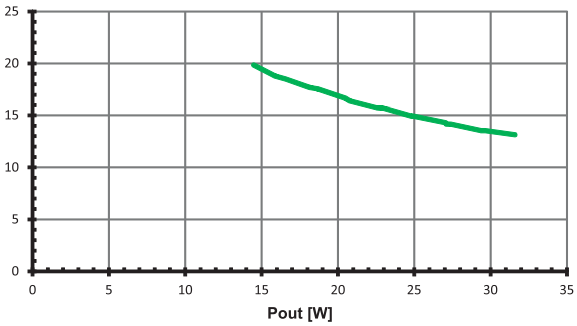
Efficiency



Power factor

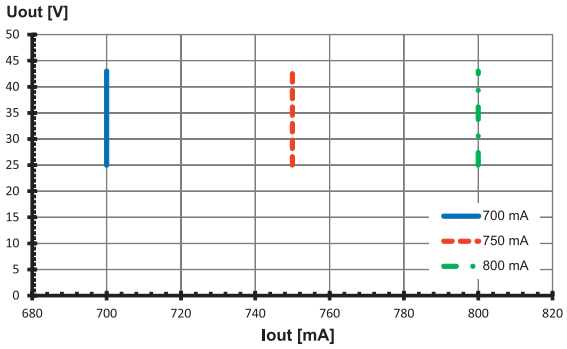


Total harmonic factor (THD)

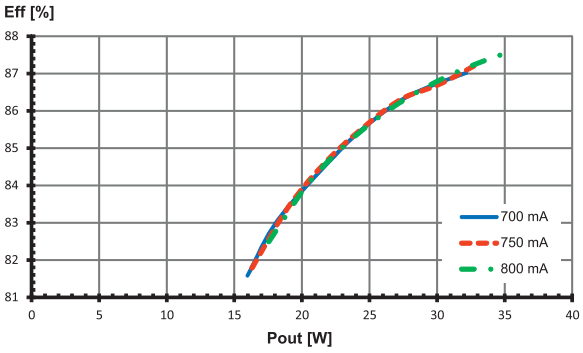


Typ. performance graphs for 186670 / Type ECXe 800.254

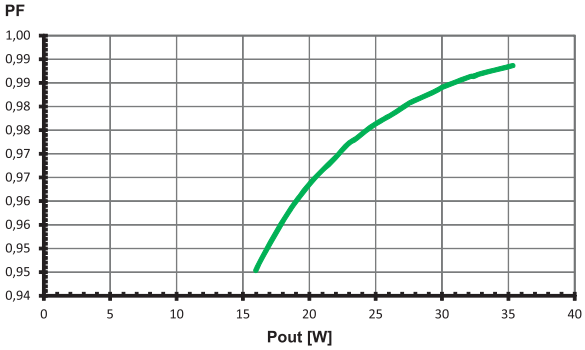
Working area



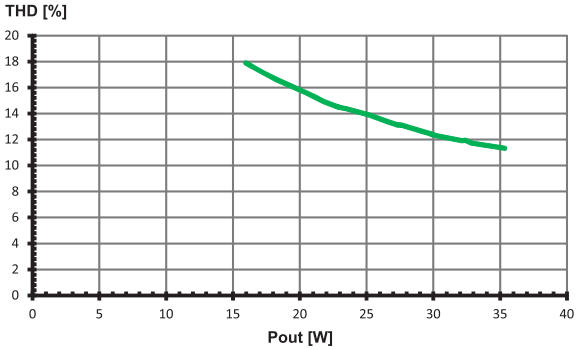
Efficiency



Power factor



Total harmonic factor (THD)



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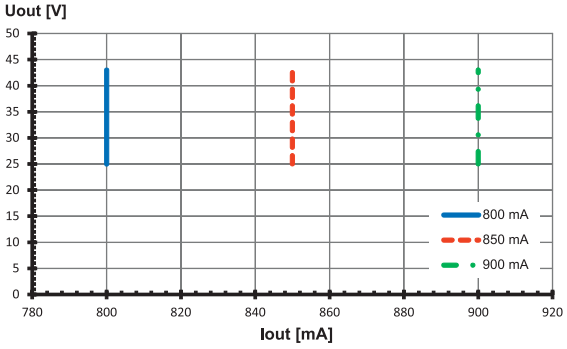
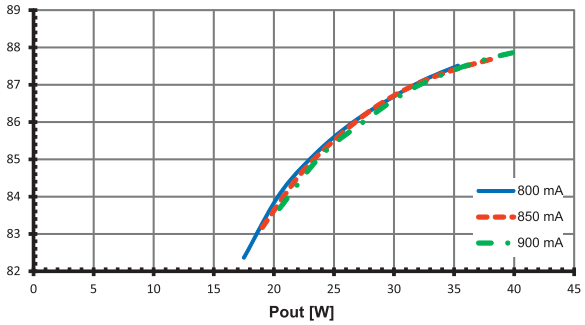
Typ. performance graphs for 186653 / Type ECXe 900.244

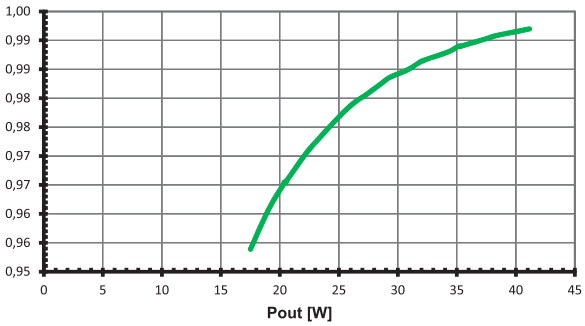
Working area



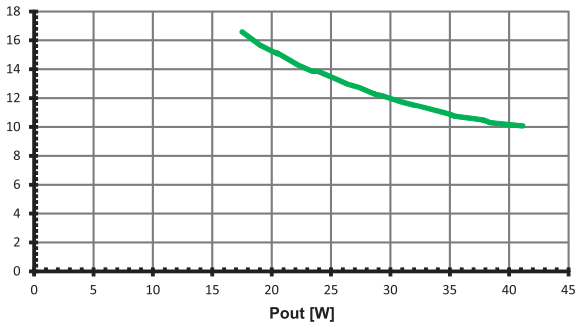
Efficiency



Power factor

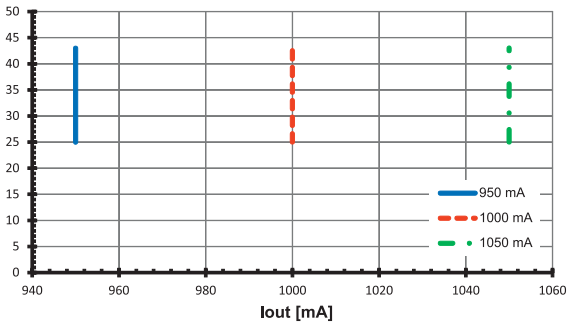


Total harmonic factor (THD)

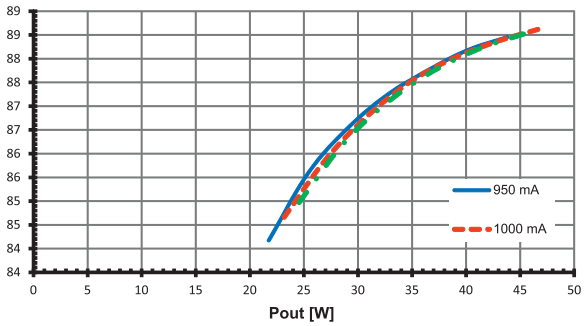


Typ. performance graphs for 186654 / Type ECXe 1050.245

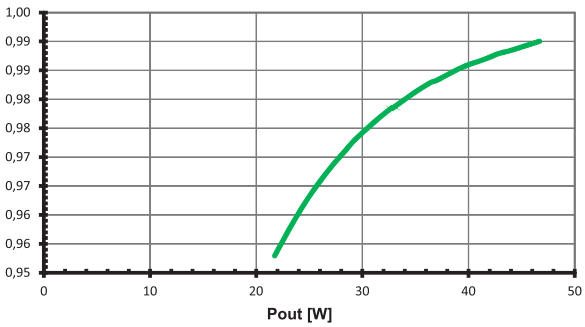
Working area



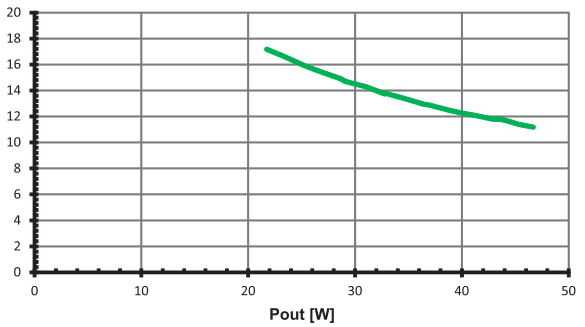
Efficiency



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 (< 60 V DC).
  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 output current of the control gear will be reduced. After the temperature will drop below the critical temperature value, the output current rises again to the previously set value.
- 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.

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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

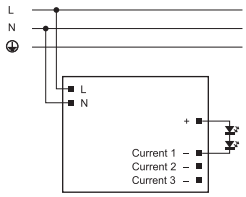
- DIN VDE 0100
- EN 60598-1

Mechanical mounting

- Mounting position: Built-in: Any position inside a luminaire is allowed
  Independent application: Drivers are allowed to use for independent applications with separate cord grip (Ref. No.: 186690).
- Mounting location: LED drivers are designed for integration into luminaires or comparable devices.
  Independent LED drivers do not need to be integrated into a casing.
  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 0.2–1.5 mm²
- 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.
  Max. secondary side lead length: 0.8 m
- 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 is within the tolerances which are mentioned in the Electrical Characteristics on the data sheet.
- Parallel wiring: Parallel connection of LED loads is not allowed.
- 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. of VS drivers pcs.					
Automatic cut-out type		B 10 A	B 13 A	B 16 A	C 10 A	C 13 A	C 16 A
ECXe 500.242	**186651**	14	18	23	24	31	38
ECXe 600.255	**186671**	14	18	22	23	31	38
ECXe 700.243	**186652**	14	18	22	23	31	38
ECXe 800.254	**186670**	14	18	22	23	31	38
ECXe 900.244	**186653**	13	18	22	23	30	37
ECXe 1050.245	**186654**	14	18	23	24	31	38

– 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-6K (Ref. No.: 149820) or ESB-16HS (Ref. No.: 149821) inrush current limiters.

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