CC LINEAR TERMINAL

COMFORTLINE TERMINAL L-R1

186443, 186444, 186486, 186487, 186488, 186491, 186492, 186737

Typical Applications

Built-in in linear luminaires for

- Office lighting

ComfortLine Terminal L-R1

- **SELECTABLE OUTPUT CURRENT VIA CONNECTION TERMINAL**
- **VERY LOW RIPPLE CURRENT: < 1%**
- **LONG SERVICE LIFE: UP TO 100,000 HRS.**
- **PRODUCT GUARANTEE: 5 YEARS**

5 YEARS GUARANTEE

LIGHTING SOLUTIONS

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ComfortLine Terminal L-R1

Product features
- Linear casing shape

Functions
- 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: > 0.97
- 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) and up to 2 kV (between L/N and PE)
- Electronic short-circuit protection
- Overtemperature protection
- Protection against "no load" operation
- Degree of protection: IP20
- Protection class I

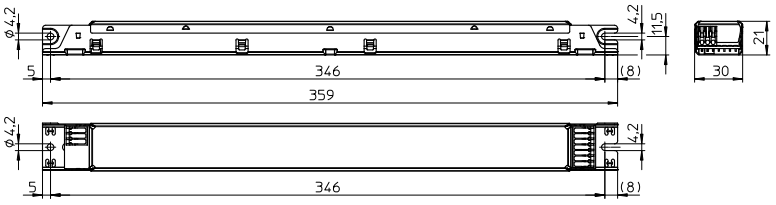
Packaging units

Ref. No.	Packaging unit		
	Pieces per box	Boxes per pallet	Weight g
186443	20	48	250
186444	20	48	227
186486	20	48	250
186487	20	48	250
186488	20	48	250
186491	20	48	250
186492	20	48	250
186737	20	48	235

IP20 · 130 · 0% NO LOAD OPERATION · IEEE 1789-2015 · 50 000 hours Min. Service Lifetime · Guarantee 5 years

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

Dimensions
- Casing: M10
- Length: 359 mm
- Width: 30 mm
- Height: 21 mm



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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CC-ComfortLine-Terminal-LR1_186443-186444-186486-186487-186488-186491-186492-186737_EN – 2/10 – 03/2020

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 %
27.5	ECXe 175.173	**186486**	220–240	150–140	24.4 / 242	125	155–220	< 15	> 90	< 1
33				175–165		150	130–220		> 91	
38.5				200–190		175	110–220		> 92	
40	ECXe 700.148	**186444**	220–240	200–190	25 / 250	350	57–114	< 11.5	> 90	< 1
				205–190		500	40–80		> 89	
				210–195		700	28–57		> 88	
44	ECXe 250.174	**186487**	220–240	220–205	24.4 / 242	200	112–220	< 13	> 93	< 1
47				230–220		225	104–208		> 92	
47				235–220		250	94–188		> 92	
46.8	ECXe 325.175	**186488**	220–240	235–220	24.4 / 242	275	85–170	< 17	> 91	< 1
46.8				235–220		300	78–156		> 91	
46.8				235–220		325	72–144		> 91	
77	ECXe 450.288	**186737**	220–240	390–355	31 / 270	350	100–220	< 14.4	> 94	< 1
84.8				420–385		400	100–212		> 94	
85.5				420–390		450	100–190		> 94	
79	ECXe 700.147	**186443**	220–240	400–370	30 / 285	350	120–225	< 16	> 94	< 1
84				420–390		500	80–170		> 93	
				420–390		700	60–120		> 92	
82.5	ECXe 425.178	**186491**	220–240	410–375	30.5 / 281	375	113–220	< 14.7	> 93	< 1
84.8				420–385		400	105–212		> 94	
85				420–390		425	100–200		> 94	
84.7	ECXe 650.179	**186492**	220–240	420–390	30.5 / 281	550	77–154	< 13.3	> 93	< 1
84.6				420–390		600	71–141		> 93	
85.1				420–390		650	65–131		> 93	

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	Degree of protection
	°C min.	°C max.	% min.	% max.	°C min.	°C max.	% min.	% max.	°C	
186443	–25	+50	5	60	–40	+85	5	95	+75 (at 350 mA)	IP20
									+75 (at 500 mA)	
									+80 (at 700 mA)	
186444	–25	+60	5	60	–40	+85	5	95	+75 (at 350 mA)	IP20
									+75 (at 500 mA)	
									+80 (at 700 mA)	
186486	–25	+60	5	60	–40	+85	5	95	+70	IP20
186487	–25	+60	5	60	–40	+85	5	95	+70	IP20
186488	–25	+60	20	60	–40	+85	5	95	+75	IP20
186491	–25	+50	5	60	–40	+85	5	95	+65	IP20
186492	–25	+50	5	60	–40	+85	5	95	+65 (at 550 mA)	IP20
									+70 (at 600 mA)	
									+70 (at 650 mA)	
186737	–25	+60	20	60	–40	+85	5	95	+75	IP20

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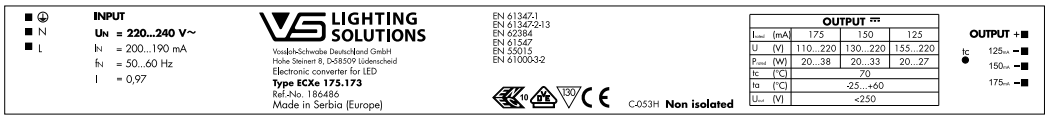
Expected service life time

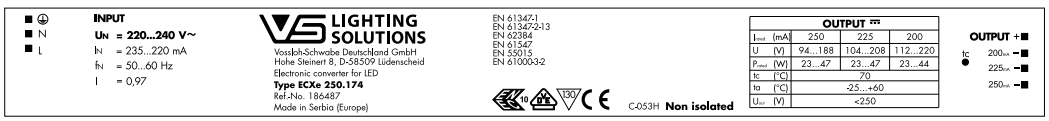
at operation temperatures at t_c point

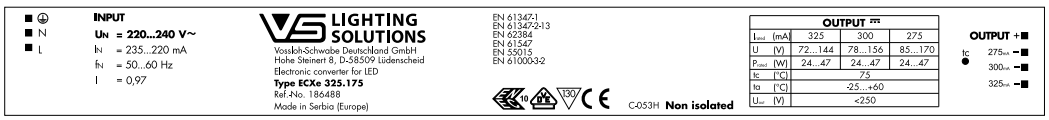
Ref. No.	Operation current (mA)	Temperature	Service life hrs.	Temperature	Service life hrs.
186443	350	60 °C	100,000	70 °C	50,000
	500	65 °C	100,000	75 °C	50,000
	700	70 °C	100,000	80 °C	50,000
186444	350	65 °C	100,000	75 °C	50,000
	500	65 °C	100,000	75 °C	50,000
	700	70 °C	100,000	80 °C	50,000
186486	125	60 °C	100,000	70 °C	50,000
	150	60 °C	100,000	70 °C	50,000
	175	60 °C	100,000	70 °C	50,000
186487	200	60 °C	100,000	70 °C	50,000
	225	60 °C	100,000	70 °C	50,000
	250	60 °C	100,000	70 °C	50,000

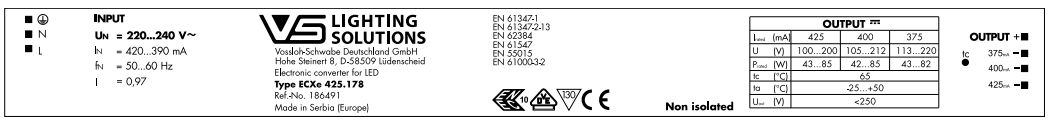
Ref. No.	Operation current (mA)	Temperature	Service life hrs.	Temperature	Service life hrs.
186488	275	65 °C	100,000	75 °C	50,000
	300	65 °C	100,000	75 °C	50,000
	325	65 °C	100,000	75 °C	50,000
186491	375	55 °C	100,000	65 °C	50,000
	400	55 °C	100,000	65 °C	50,000
	425	55 °C	100,000	65 °C	50,000
186492	550	55 °C	100,000	65 °C	50,000
	600	60 °C	100,000	70 °C	50,000
	650	60 °C	100,000	70 °C	50,000
186737	350	65 °C	100,000	75 °C	50,000
	400	65 °C	100,000	75 °C	50,000
	450	65 °C	100,000	75 °C	50,000

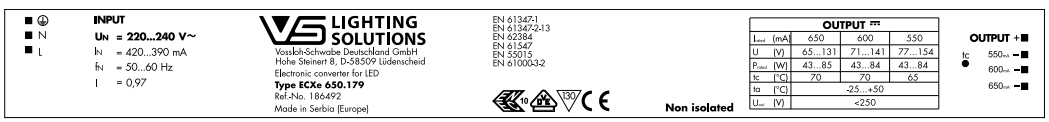
Product labels

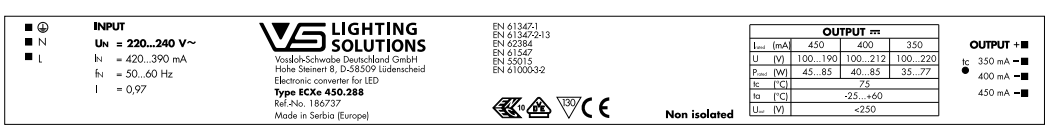












The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.

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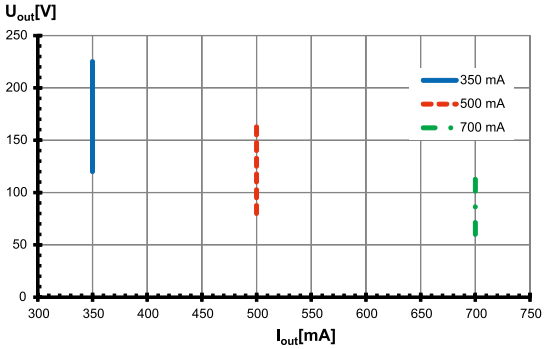
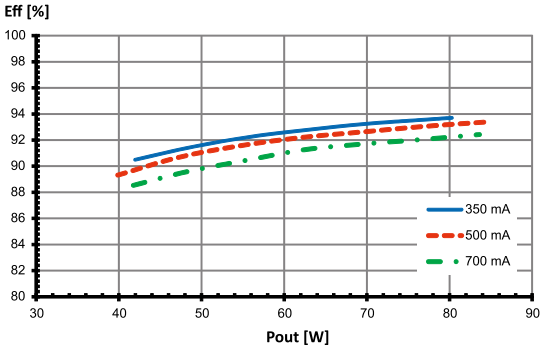
Typ. performance graphs for 186443 / Type ECXe 700.147

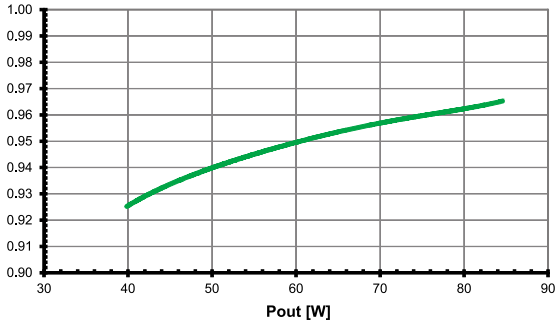
Working area



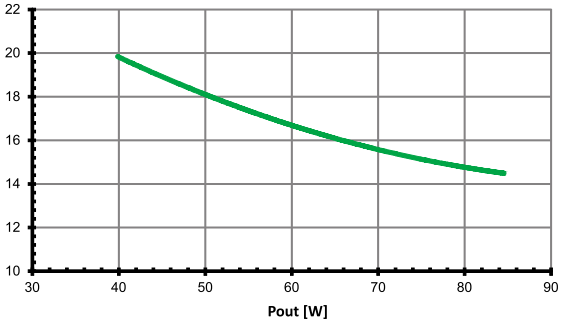
Efficiency



Power factor

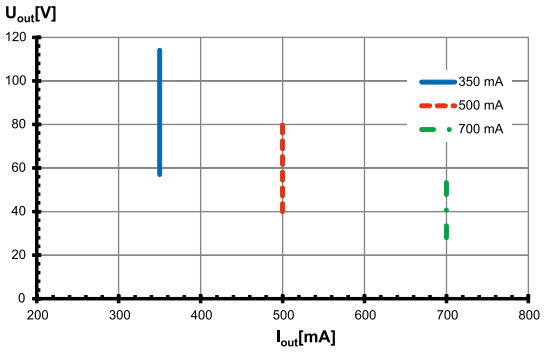


Total harmonic factor (THD)

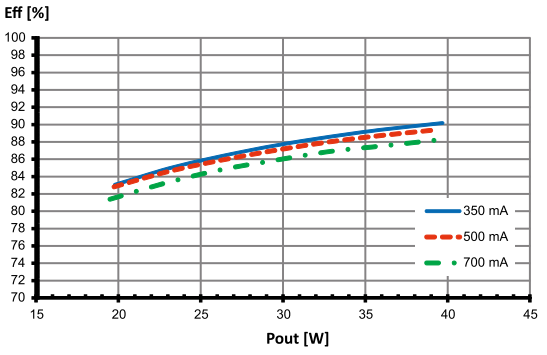


Typ. performance graphs for 186444 / Type ECXe 700.148

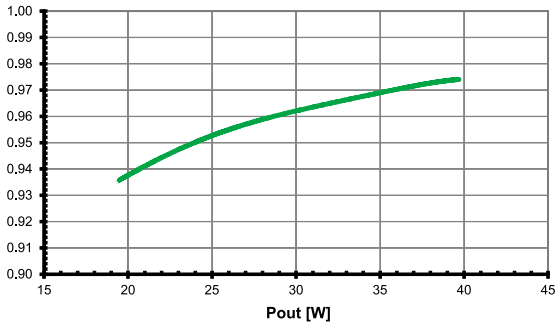
Working area



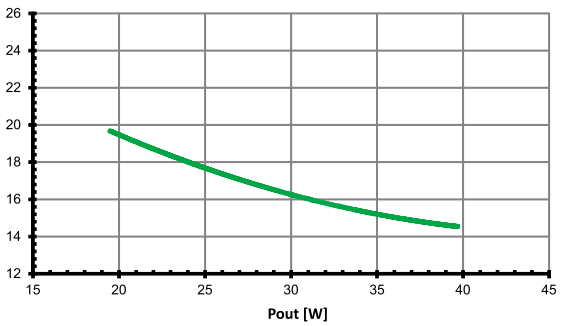
Efficiency



Power factor



Total harmonic factor (THD)



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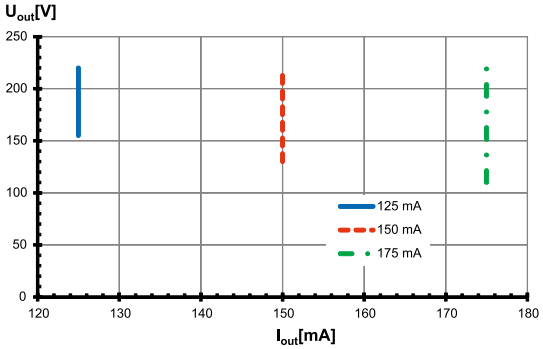
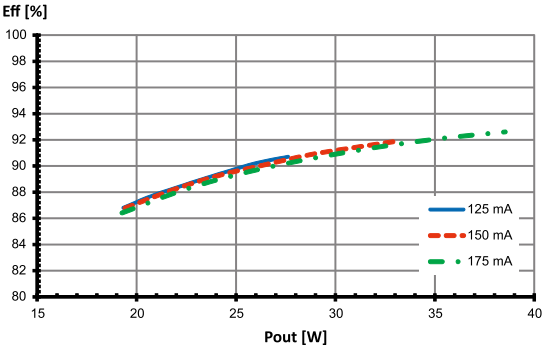
Typ. performance graphs for 186486 / Type ECXe 175.173

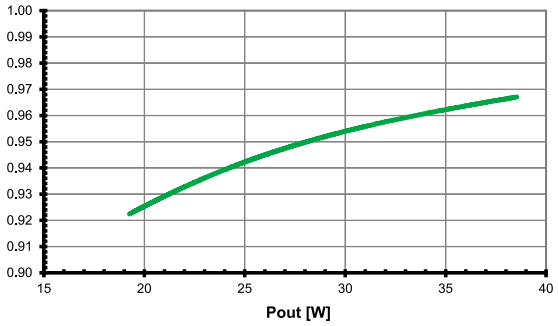
Working area



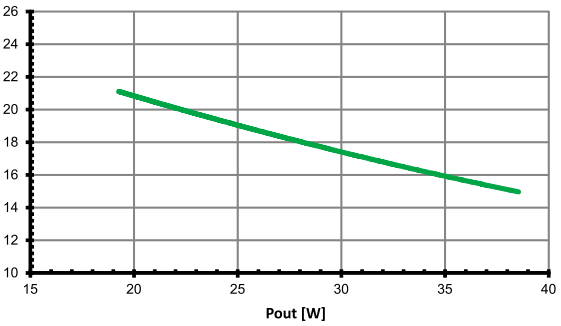
Efficiency



Power factor

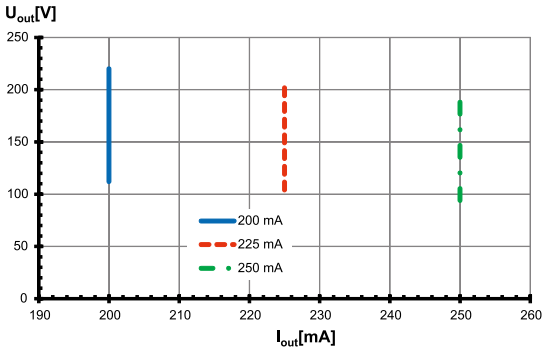


Total harmonic factor (THD)

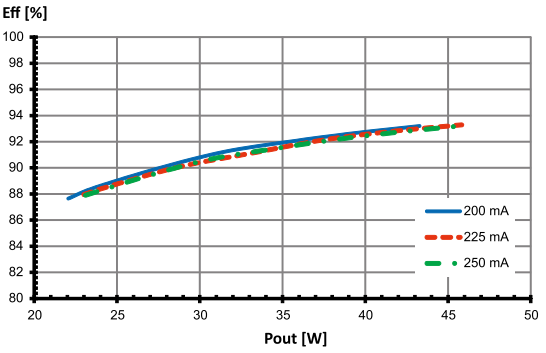


Typ. performance graphs for 186487 / Type ECXe 250.174

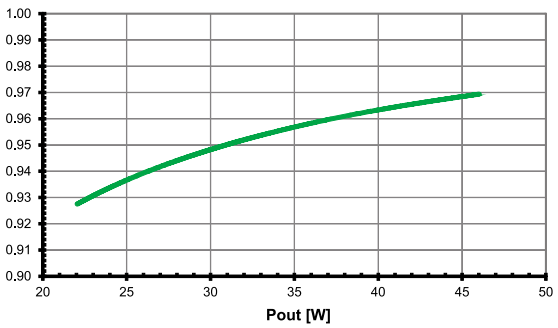
Working area



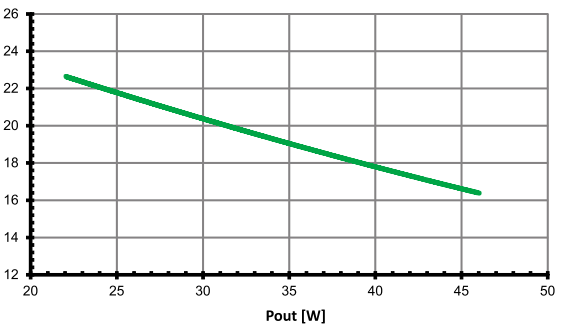
Efficiency



Power factor



Total harmonic factor (THD)



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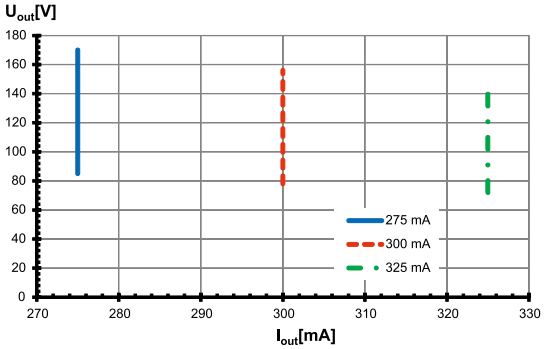
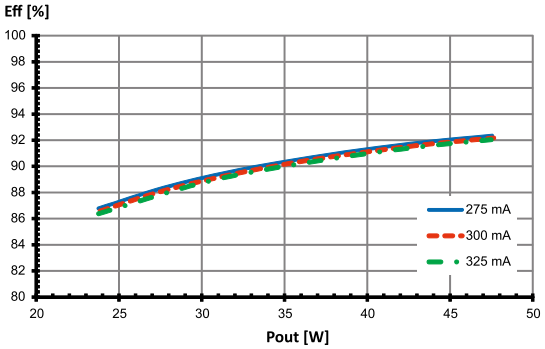
Typ. performance graphs for 186488 / Type ECXe 325.175

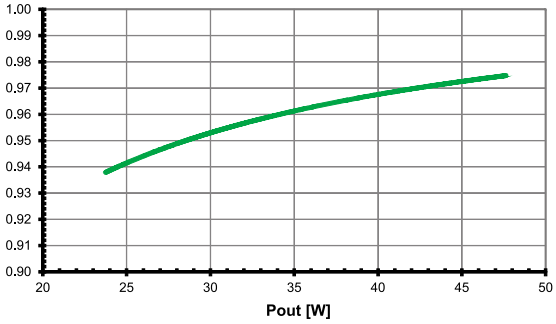
Working area



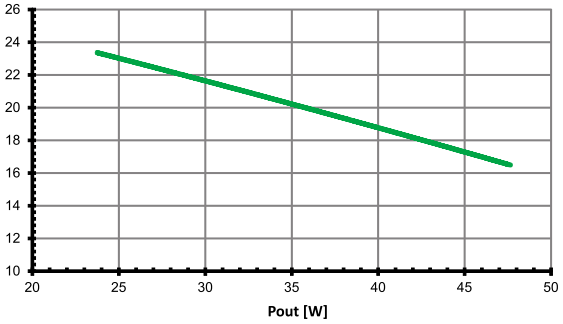
Efficiency



Power factor

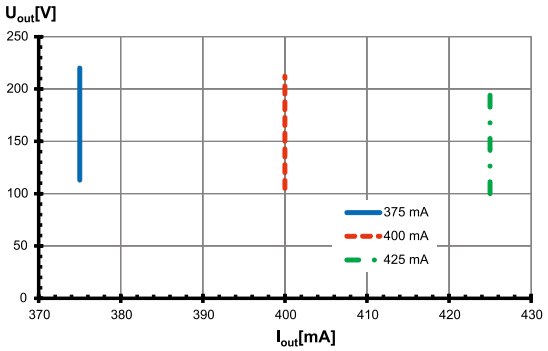


Total harmonic factor (THD)

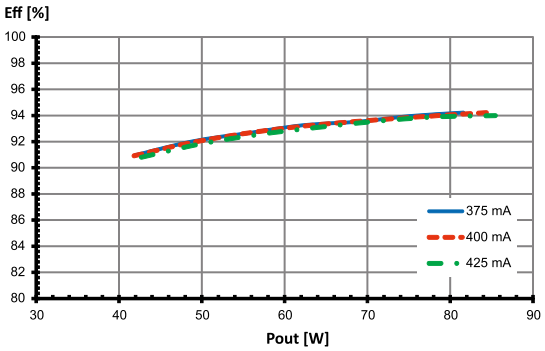


Typ. performance graphs for 186491 / Type ECXe 425.178

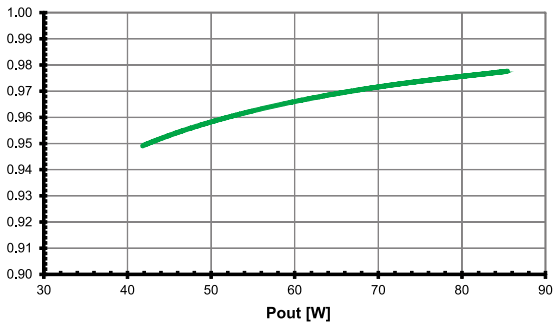
Working area



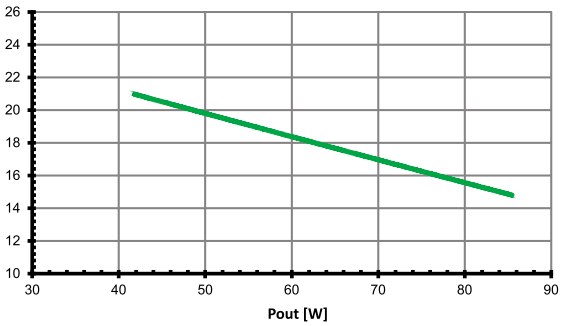
Efficiency



Power factor



Total harmonic factor (THD)



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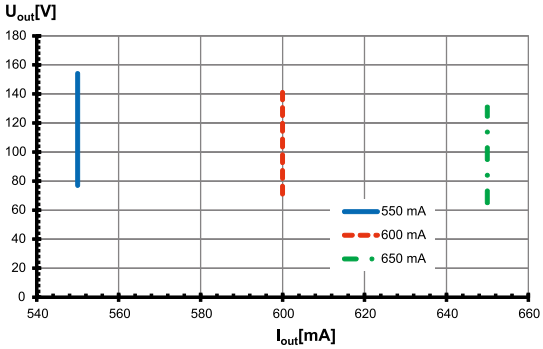
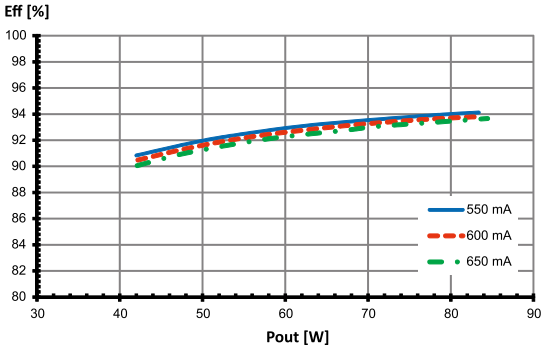
Typ. performance graphs for 186492 / Type ECXe 650.179

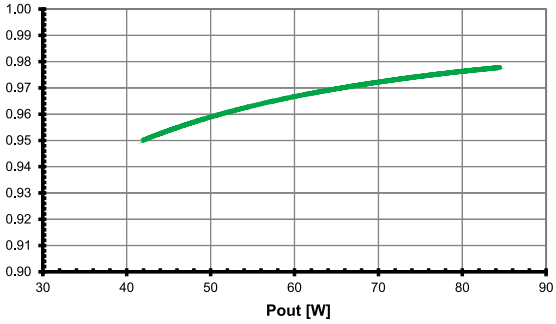
Working area



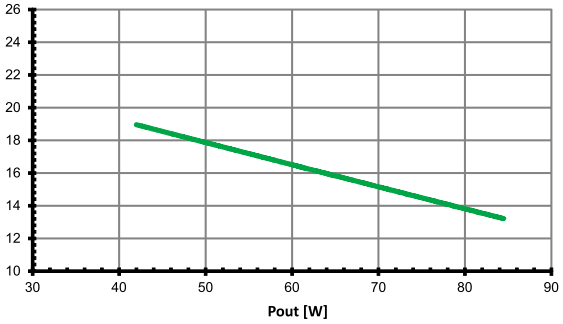
Efficiency



Power factor

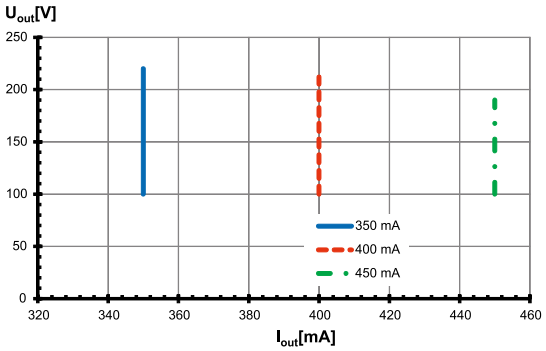


Total harmonic factor (THD)

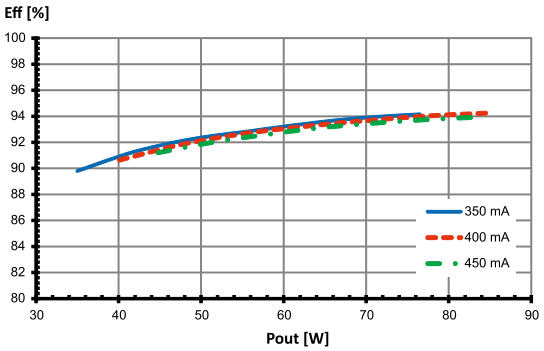


Typ. performance graphs for 186737 / Type ECXe 450.288

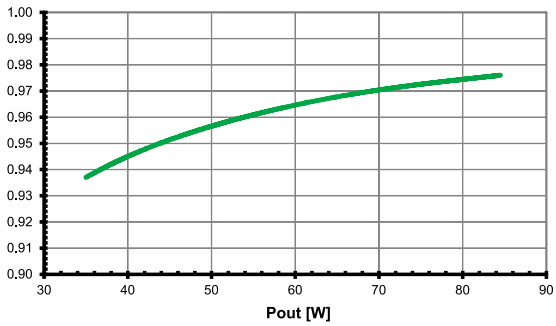
Working area



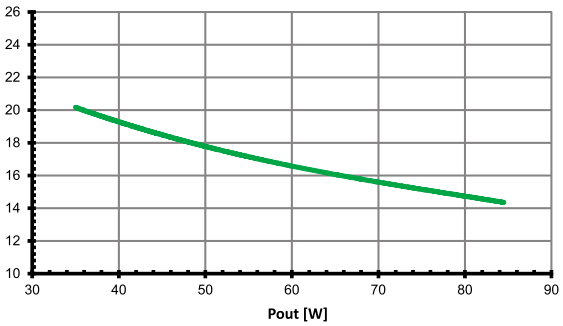
Efficiency



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
  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 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 acc. to IEC 61347-1 C 5e). 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.

CC-ComfortLine-Terminal-LR1_186443-186444-186486-186487-186488-186491-186492-186737_EN – 9/10 – 03/2020

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

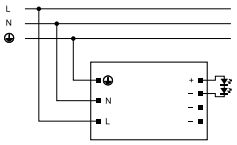
Mechanical mounting

- 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

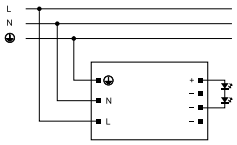
Electrical installation

- Connection terminals: Push-in terminals for rigid or flexible conductors with a section of 0.2–1.5 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.
- 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.

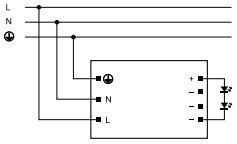
- Wiring diagram:



Terminal 1



Terminal 2



Terminal 3

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.					
		Cut-out type B			**Cut-out type C**		
		B 10 A	B 13 A	B 16 A	C 10 A	C 13 A	C 16 A
ECXe 700.147	**186443**	9	12	15	15	20	24
ECXe 700.148	**186444**	12	16	20	21	28	34
ECXe 175.173	**186486**	12	16	20	21	28	34
ECXe 250.174	**186487**	12	16	20	21	28	34
ECXe 325.175	**186488**	12	16	20	21	28	34
ECXe 425.178	**186491**	9	12	15	15	20	24
ECXe 650.179	**186492**	9	12	15	15	20	24
ECXe 450.288	**186737**	9	12	15	16	20	25

– 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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