

# CC COMPACT DIP SWITCH



## EASYLINE DIP SWITCH C-R5

**186841, 186842, 186843**

### Typical Applications

Built-in in compact luminaires for

- Shop lighting
- Downlights
- Panels

### EasyLine DIP switch C-R5

- **SELECTABLE OUTPUT CURRENT VIA DIP SWITCH**
- **VERY LOW RIPPLE CURRENT: < 5%**
- **SELV**
- **LONG SERVICE LIFE: UP TO 50,000 HRS.**
- **PRODUCT GUARANTEE: 5 YEARS**



## EasyLine DIP switch C-R5

### Product features

- Compact casing shape

### Functions

- Selectable current output by dip-switch

### Electrical features

- Mains voltage: 220–240 V  $\pm 10\%$
- Mains frequency: 50–60 Hz
- Push-in terminals:  
rigid 0.5–1.5 mm<sup>2</sup>  
strand 0.75–1.5 mm<sup>2</sup>
- Power factor at full load: > 0.98
- Open circuit voltage (U<sub>max.</sub>): 60 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
- Overload protection
- Overtemperature protection
- Protection against "no load" operation
- Degree of protection: IP20
- Protection class II
- SELV

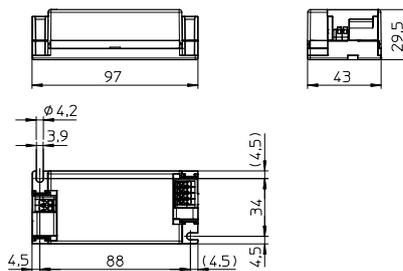
### Packaging units

Ref. No.	Packaging unit		Weight g
	Pieces per box	Boxes per pallet	
186841	20	40	110
186842	20	40	90
186843	20	40	85



### Dimensions

- Casing: K25
- Length: 97 mm
- Width: 43 mm
- Height: 29.5 mm



### Applied standards

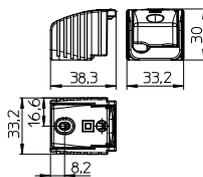
- EN 61347-1
- EN 61347-2-13
- EN 61547
- EN 61000-3-2
- EN 62384
- EN 55015
- EN 61000-3-3



### Cord grip for K25

Available for independent operation  
Available separately  
2 cord grips per LED driver required

**Ref. No.: 186845**



### 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](http://www.vossloh-schwabe.com)).  
We will be happy to send you these conditions upon request.

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

# LED Drivers – EasyLine DIP switch C-R5

## Electrical characteristics

Max. output W	Type	Ref. No.	Voltage 50–60 Hz V	Mains current mA	Inrush current A / $\mu$ s	Current output DC mA ( $\pm$ 5%)	Voltage output DC (V)	THD at full load % (230 V)	Efficiency at full load % (230 V)	Ripple 100 Hz %
10.5	ECXe 500.346	<b>186843</b>	220–240	80	< 16 / 100	250	25–42	< 10	87	< 5
14.7				100		350				
18.9				110		450				
21				130		500				
21	ECXe 700.345	<b>186842</b>	220–240	120	< 16 / 100	500	23–42	< 10	89	< 5
25.2				140		600				
27.3				150		650				
29.4				160		700				
33.6	ECXe 1050.344	<b>186841</b>	220–240	190	< 16 / 100	800	25–42	< 10	90	< 5
37.8				210		900				
39.9				220		950				
44.1				240		1050				

## 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	+50	5	85	-20	+80	5	85	+80	IP20

## Expected service life time

at operation temperatures at  $t_c$  point

Operation current	Ref. No. 186841, 186842, 186843	
All	70 °C*	80 °C
hrs.	50,000	35,000

\* recommended operation temperature

## Product labels

**VS LIGHTING SOLUTIONS** EN 61347-1 EN 61347-2-13 EN 62384 EN 61547 EN 55015 EN 61000-3-2 EN 61000-3-3  
 Vossloh-Schwabe Deutschland GmbH  
 Hohe Steinert 8, D-58509 Lüdenscheid  
 Electronic converter for LED  
**Type ECXe 1050.344**  
 Ref.-No. 186841  
 Made in Bulgaria (EU)

**SEC**  $U_{OUT} = 60V$   
**SELV**  
 $t_c = 80^\circ C$

**PRI**  
**UN=220...240V~**  
**IN=190...240mA**

Pin1	Pin2	$I_{LED}$ [mA]	$U_{LED}$ [V]	$P_{LED}$ [W]	$U_{OUT}$ [V]	$I_{OUT}$ [mA]	$\lambda$
OFF	OFF	800	25.42	34	220/240V	20...+50	0,98
ON	OFF	900	25.42	38	50/60Hz	20...+50	0,98
ON	ON	1050	30.42	44		20...+50	0,98

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 Vossloh-Schwabe Deutschland GmbH  
 Hohe Steinert 8, D-58509 Lüdenscheid  
 Electronic converter for LED  
**Type ECXe 700.345**  
 Ref.-No. 186842  
 Made in Bulgaria (EU)

**SEC**  $U_{OUT} = 60V$   
**SELV**  
 $t_c = 80^\circ C$

**PRI**  
**UN=220...240V~**  
**IN=120...160mA**

Pin1	Pin2	$I_{LED}$ [mA]	$U_{LED}$ [V]	$P_{LED}$ [W]	$U_{OUT}$ [V]	$I_{OUT}$ [mA]	$\lambda$
OFF	OFF	500	23.42	21	220/240V	20...+50	0,95
ON	OFF	600	23.42	25	50/60Hz	20...+50	0,98
ON	ON	700	23.42	30		20...+50	0,98

**VS LIGHTING SOLUTIONS** EN 61347-1 EN 61347-2-13 EN 62384 EN 61547 EN 55015 EN 61000-3-2 EN 61000-3-3  
 Vossloh-Schwabe Deutschland GmbH  
 Hohe Steinert 8, D-58509 Lüdenscheid  
 Electronic converter for LED  
**Type ECXe 500.346**  
 Ref.-No. 186843  
 Made in Bulgaria (EU)

**SEC**  $U_{OUT} = 60V$   
**SELV**  
 $t_c = 80^\circ C$

**PRI**  
**UN=220...240V~**  
**IN=80...130mA**

Pin1	Pin2	$I_{LED}$ [mA]	$U_{LED}$ [V]	$P_{LED}$ [W]	$U_{OUT}$ [V]	$I_{OUT}$ [mA]	$\lambda$
OFF	OFF	250	25.42	11	220/240V	20...+50	0,95
ON	OFF	350	25.42	15	50/60Hz	20...+50	0,98
ON	ON	500	25.42	21		20...+50	0,98

## Dip-switch settings

186841 / ECXe 1050.344			
Pin 1	Pin 2	Current (mA)	Factory setting (mA)
ON	ON	1050	1050
ON	OFF	950	
OFF	ON	900	
OFF	OFF	800	

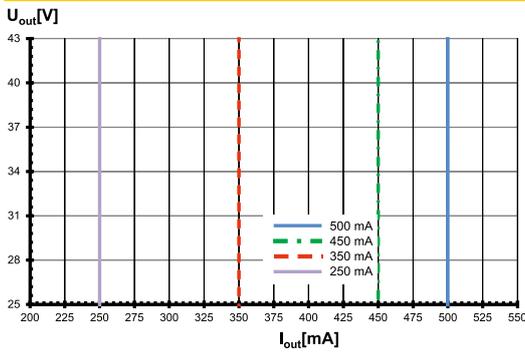
186842 / ECXe 700.345			
Pin 1	Pin 2	Current (mA)	Factory setting (mA)
ON	ON	700	700
ON	OFF	650	
OFF	ON	600	
OFF	OFF	500	

186843 / ECXe 500.346			
Pin 1	Pin 2	Current (mA)	Factory setting (mA)
ON	ON	500	500
ON	OFF	450	
OFF	ON	350	
OFF	OFF	250	

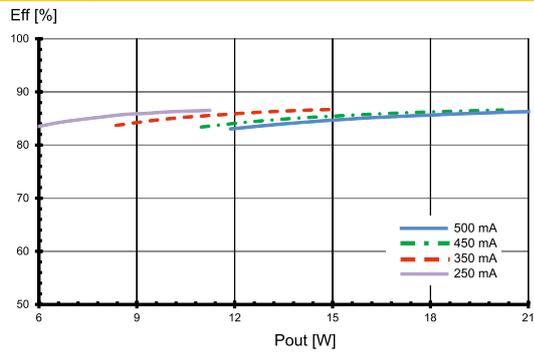
The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.

## Typ. performance graphs for 186843 / Type ECXe 500.346

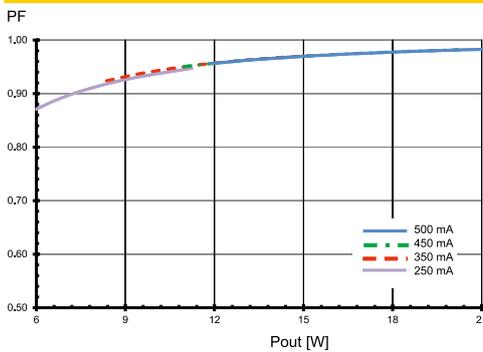
### Working area



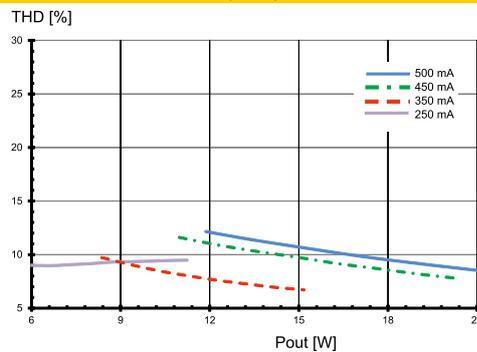
### Efficiency



### Power factor

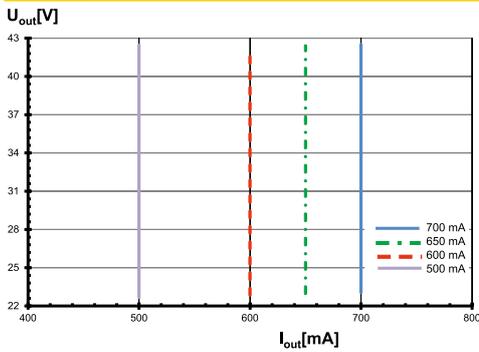


### Total harmonic factor (THD)

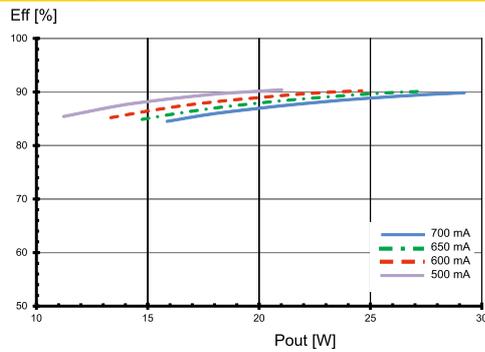


## Typ. performance graphs for 186842 / Type ECXe 700.345

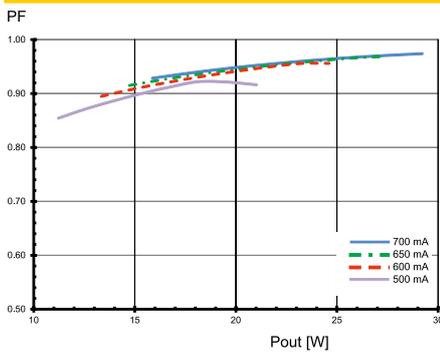
### Working area



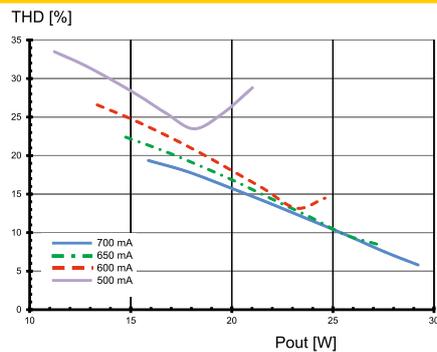
### Efficiency



### Power factor



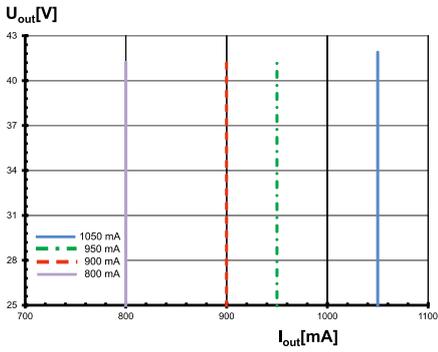
### Total harmonic factor (THD)



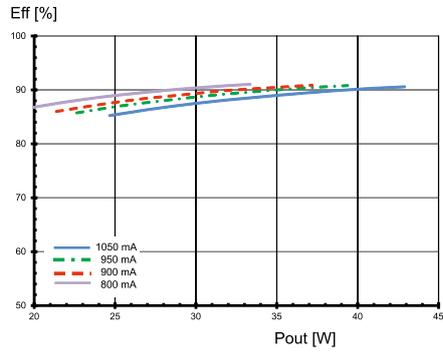
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## Typ. performance graphs for 186841 / Type ECXe 1050.344

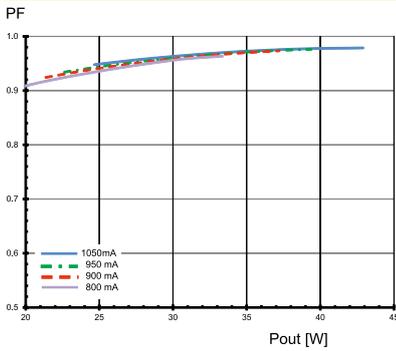
### Working area



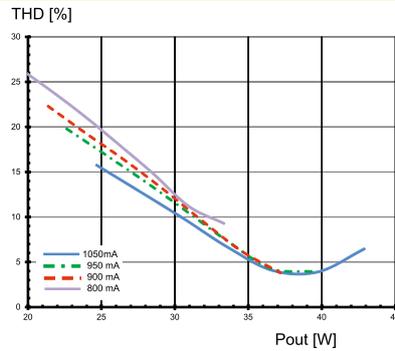
### Efficiency



### 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: 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

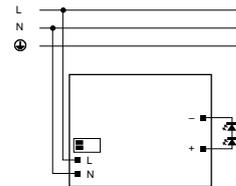
### Mechanical mounting

- 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  $\geq 4$  (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 rigid 0.5–1.5 mm<sup>2</sup> strand 0.75–1.5 mm<sup>2</sup>
- Stripped length: 7–8 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: 2 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 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 m $\Omega$  (approx. 20 m [2.5 mm<sup>2</sup>] 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.	
<b>Automatic cut-out type</b>		B 16	B 10
ECXe 500.346	<b>186843</b>	50	30
ECXe 700.345	<b>186842</b>	25	15
ECXe 1050.344	<b>186841</b>	25	15

- 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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