A New Lighting Experience

- **overload protection**
- **short circuiting protection**
- **SELV equivalent**
- **50,000 hrs service life time**

LED Constant Current Drivers

LEDLine ECX

Electronic converters for LED modules
operated with constant current drivers

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Konstantstromquellen ECX GB 1/4 December, 2009

Electronic constant current drivers for LED modules

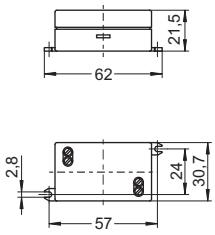
The electronic constant current drivers are optimised to drive VS HighPower LED modules.
Primary side switching only.
Before connecting LED modules ensure that the power supplier is isolated.

The converters (except ECXe 350mA/42W) are designed for DC-operation (mains frequency: 0 Hz) and can be used for emergency power supplies.

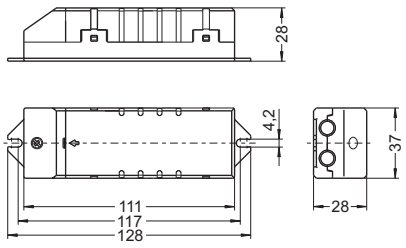
Mains voltage: 220–240 V ±10 %
Mains frequency: 0 Hz, 50–60 Hz
(186123: 50–60 Hz)
Electronic short-circuit protection
Overload protection
Protection against "no load" operation
Degree of proteciton: IP20
Protection class II
SELV equivalent
Power factor: 0.6
Screw terminals: 2.5 mm²
Quantity of screw terminals:
1x2-poles primary
1x2-poles secondary
With integrated cord grip (except 186123)
EN 61000-3-2
EN 55015
EN 61347-1
EN 61347-2-13
EN 61547
EN 62384

Service life time: 50,000 hrs
permanent operation when maximum temperature $t_c$max. at t_c point will not be exceeded;
failure rate: < 0.2% per 1,000 hrs

A



B



Constant current driver									
Max. output W	Type	**Ref. No.**	Mains current mA	Current output mA	Voltage output V	Ambient temperature t_a (°C)	Casing temperature t_c (°C)	Drawing	Weight g
Shape: 62x30.7x21.5 mm									
6	ECXe 350mA/6W	**186123**	60/65	350 +5 % –10 %	2–17.5	–20 to 50	65	A	32
Shape: 128x37x28 mm									
11	ECXe 350mA/11W	**186157**	122/117	350 ±5 %	2–32	–20 to 50	70	B	71
16	ECXe 500mA/16W	**186158**	160/155	500 ±5 %	2–32	–20 to 50	75	B	71
17	ECXe 700mA/17W	**186159**	188/178	700 ±5 %	2–25	–20 to 50	70	B	71
20	ECXe 1050mA/20W	**186160**	210/202	1050 ±5 %	2–19	–20 to 45	70	B	71

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Electronic constant current driver for LED modules

The electronic constant current drivers are optimised to drive constant current High Power LED modules.

Primary side switching only.
Before connecting LED modules ensure that the power supplier is isolated.

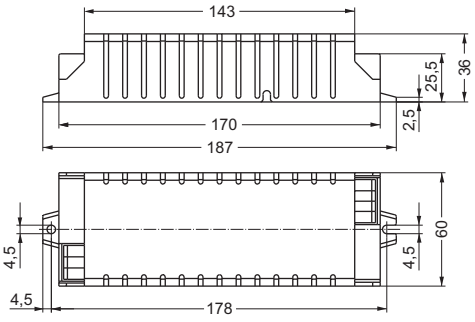
Mains voltage: 220–240 V ±10 %
Mains frequency: 50–60 Hz
Electronic short-circuit protection
Overload protection
Protection against "no load" operation
Degree of proteciton: IP20
Protection class I
SELV equivalent
Power factor: 0.97
Push-in terminals: 2.5 mm²
Quantity of push-in terminals:
1x2-poles + earth terminal primary
1x2-poles secondary
EN 61000-3-2
EN 55015
EN 61347-1
EN 61347-2-13
EN 61547
EN 62384

When using ECXe350mA/42W together with LED modules in luminaires care must be taken to ensure safety according to EN 60598.

Service life time: 50,000 hrs
permanent operation when maximum temperature $t_c$max. at t_c point will not be exceeded;
failure rate: < 0.2% per 1,000 hrs

Additional Technical Features

The electronic constant current source is protected against transient main peaks up to 3 kV (between L and N) and up to 4 kV (between L, N and PE).



Constant current driver								
Max. output W	Type	**Ref. No.**	Mains current mA	Current output mA	Voltage output V	Ambient temperature t_a (°C)	Casing temperature t_c (°C)	Weight g
Shape: 187x60x36 mm								
42	ECXe 350mA/42W	**186175**	210/190	350 ±5 %	40–115	–30 to 60	65	270

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Electronic constant current drivers for LED modules

Light-emitting diodes are semiconductor devices with a light-emitting p-n junction. Due to the specific diode characteristics, the current can only flow through an LED in one direction.

Coupled with the special properties of a semiconductor, this non-linear behaviour can increase the current and power uptake of an LED as it heats up.

If this effect is not limited, unchecked heating can finally destroy the semiconductor junction.

For this reason, VS recommends using an external constant current driver to operate all HighPower LED modules.

To ensure that the same current flows through every LED, HighPower modules can only be wired in series.

The constant current source has to be selected to suit the respective application, i.e. it must supply the required current and also provide sufficient voltage for the LED string.

The number of VS LED modules that can be connected to a single operating device is dependent on the forward bias of the respective modules.

The table shows the maximum number of VS HighPower modules that can be connected to the corresponding VS constant current driver.

LED module Type	**Ref. No.**	Max. quantity of LED modules per constant current driver 350mA/ 6W **186123**	 11W **186157**	500mA/ 16W **186158**	700mA/ 17W **186159**	1050mA/ 20W **186160**
HighPerformance Line – 300x12 mm / 6 W						
WU-M-291-W-.....	**526742, 532638, 532639, 532640**	1	1	–	–	–
WU-M-291-SB	**530028**	1	1	–	–	–
WU-M-291-SG	**530029**	1	1	–	–	–
WU-M-291-SO	**530030**	1	2	–	–	–
WU-M-291-SY	**530031**	1	2	–	–	–
HighPerformance Line – 300x12 mm / 12 W						
WU-M-292-W-.....	**526743, 532641, 532642, 532643**	–	–	–	1	–
WU-M-292-SB	**530032**	–	–	–	1	–
WU-M-292-SG	**530033**	–	–	–	1	–
WU-M-292-SO	**530034**	–	–	–	1	–
WU-M-292-SY	**530035**	–	–	–	1	–
HighPerformance Square – 20x20 mm / 1.2 W						
WU-M-293-W-.....	**526744, 532645, 532646, 532647**	5	9	–	–	–
WU-M-293-SB	**530036**	5	9	–	–	–
WU-M-293-SG	**530037**	5	9	–	–	–
WU-M-293-SO	**530038**	7	13	–	–	–
WU-M-293-SY	**530039**	7	13	–	–	–
HighPerformance Square – 35x35 mm / 2.5 W						
WU-M-294-W-.....	**526745, 532648, 532649, 532650**	2	4	–	–	–
WU-M-294-SB	**530040**	2	4	–	–	–
WU-M-294-SG	**530041**	2	4	–	–	–
WU-M-294-SO	**530042**	3	6	–	–	–
WU-M-294-SY	**530043**	3	6	–	–	–
HighPerformance Square – 50x50 mm / 5 W						
WU-M-295-W-.....	**526746, 534395, 534396, 534397**	1	2	–	–	–
VS-P3-Series						
VS-P3-NKB 94510-CW	**534511**	1	2	2	–	–
VS-P3-NKB 94511-WW	**534512**	1	2	2	–	–
VS-P3-NKB 98510-CW	**534513**	–	1	1	–	–
VS-P3-NKB 98520-CW	**534514**	–	1	1	–	–
VS-P3-NKB 98511-WW	**534515**	–	1	1	–	–
VS-P3-NKB 98521-WW	**534516**	–	1	1	–	–
PowerEmitter XR-E						
VS-PowerEmitter-XR-E-W	**All types**	4	7	8	5	4
VS-PowerEmitter-XR-E-WW	**All types**	4	7	8	5	–
TriplePowerEmitter XR-E / IP67						
WU-M-325-XR-E-W....	**All types**	1	2	2	1	1
WU-M-325-XR-E-WW....	**All types**	1	2	2	1	–
LEDLine High Power XR-E						
WU-M-329-WWW	**All types**	–	–	–	–	1

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