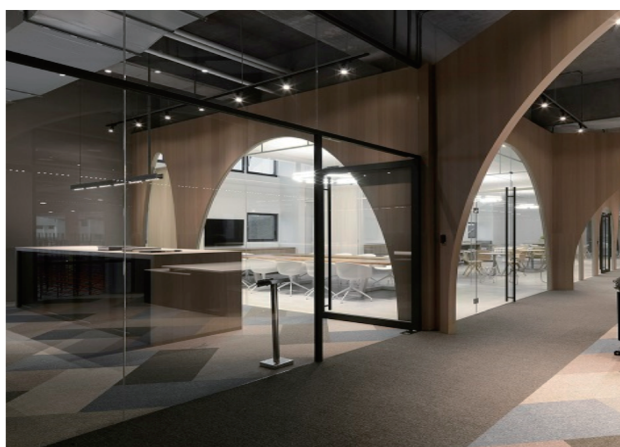


## In-track series Ldriver



### Product description

Constant current / in-track LED driver  
Fixed output current  
For luminaires of protection class II  
Selectable fixed output current via DIP switch 600, 500, 450 and 350mA  
Temperature protection as per EN 61347-2-13 C5e  
For ambient temperatures up to 35°C  
Optional accessory ACU ALU NIPPLE M10\*1 for mounting the luminaire head

### Advantage

Compact dimension, most coincident with the miniaturization of track luminaire  
Up to 92% efficiency  
Life-time up to 50,000 hours  
5-year guarantee

### Functions

Casing: polycarbonat, white, Black  
Type of protection IP20

### Features

Overtemperature protection  
Overload protection  
Short-circuit protection  
No-load protection  
Burst protection voltage 1 kV  
Surge protection voltage 1 kV (L to N)

### Typical applications

For spot light and downlight in retail and hospitality application

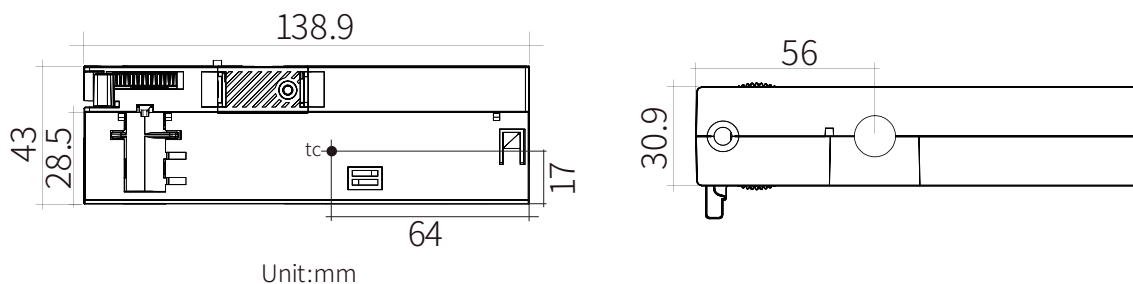
### Specific Technical Data

Type	Input Voltage	Output Power	Output Voltage	Output Current	Ripple	TC	Ta	Dimension
VLD 23W 350-600mA 38 OptC IT HE	220-240Vac	Max.23W	30-38V	600/500 450/350mA	<5%	55°C	-20...+35°C	138.9*30.9*43mm

### Ordering data

Article number	Description	Dimension of product	Net Wt/pc	Package/ctn	Dimension of carton
1060800334	VLD 23W 350-600mA 38 OptC IT-W HE	138.9*30.9*43mm	110g	50pcs	349*315*280mm
1060800335	VLD 23W 350-600mA 38 OptC IT-B HE	138.9*30.9*43mm	110g	50pcs	349*315*280mm

## TC position



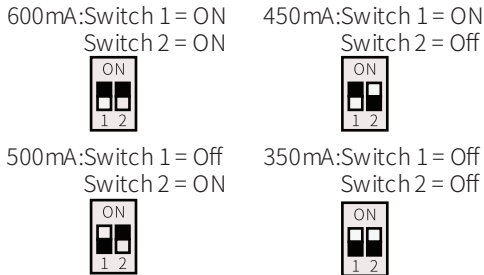
## Technical data

Product type	22.8W	
Rated supply voltage = U-IN on label	220-240	V
Input voltage range, AC	198-264	V
Mains frequency	50/60	Hz
Overvoltage protection(Input side)	320Vac,1h	
Max input current (@220-240V,50/60Hz)= I-IN on label	0.15	A
Max input power (@220-240V,50/60Hz) = P-IN on label	25.3	W
Typ.power consumption(at 230V .full load)	23	W
Max output power(@220-240V,50/60Hz) = P-OUT on label	23	W
Max. output voltage(V) (no load) = U-OUT from label	50	V
Output current tolerance(+/-%), (at 230 V, 50 Hz, full load)	±7.5	%
Output current tolerance(+/-%), (at 230 V, 50 Hz, min load)	±7.5	%
Output LF Current Ripple (<120Hz)	<5	%
Max. output peak current (at 230 V, 50 Hz, full load)	677	mA
Leakage current (230Vac/50Hz Input, Output full load)	<450	µA
THD(at 230V,50Hz, full load)	<15	%
Power factor(at 230V,50Hz, full load)	0.9C	
Efficiency(at 230V,50Hz, full load)	92	%
Starting time (at 230V,50Hz,full load)	<0.5	s
Turn off time (at 230V,50Hz,full load)	<0.5	s
Hold-up time at power failure (output)	0	ms
Ambient temperaure ta(°C)	-20...+35	°C
Ambient temperaure ta(50000 Hrs)	35	°C
Max. casing temperature tc	55	°C
Storage temperature ts	-20...+80	°C

## Adjust current

Output current can be adjusted by the DIP switch

**!** Set the current by DIP switch after mains off.  
Use of DIP switch only after mains off.

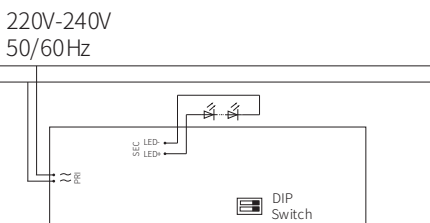


## 1. Standards

EN 55015  
EN 61000-3-2  
EN 61000-3-3  
EN 61347-1  
EN 61347-2-13  
EN 61547  
EN 62384  
EN 61643-11

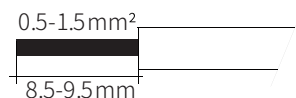
## 2. Installation and wiring

### 2.1 Circuit diagram



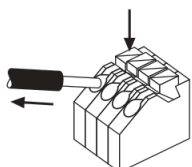
### 2.2 Wiring type and cross section

The wiring can be in stranded wires with ferrules or solid with a cross section of 0.5–1.5 mm<sup>2</sup>. Strip 8.5–9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.



### 2.3 Release of the wiring

Press down the "push button" and remove the cable from front.



### 2.4 Wiring guidelines

- All connections must be kept as short as possible to ensure good EMI behaviour.
- Mains leads should be kept apart from LED Driver and other leads (ideally 5 – 10 cm distance).
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance
- Incorrect wiring can damage LED modules.
- To avoid the damage of the Driver, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, lower, etc.).

### 2.5 Replace LED module

1. Mains off
2. Remove LED module
3. Wait for 10 seconds
4. Connect LED module again

### 2.6 Mounting luminaire

Max. allowed weight of complete luminaire: 5 kg (50 N)

This is valid for horizontal mounting of track system only.

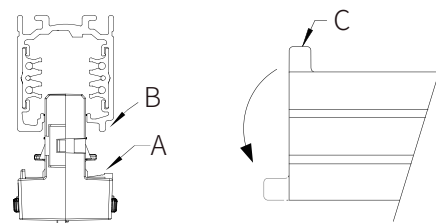
### 2.7 Compatible tracks

Manufacturer	Type	system	Casing colour
Powergear	PRO-0431	3 Phase	White, Black
Powergear	PRO-0431L	3 Phase	White, Black

**!** Possible changes made by different manufactures that could affect the compatibility between tracks and adapters.

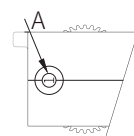
### 2.8 Adapter mounting into track

Insert the adapter into the track, so that the mechanical key (A) in the adaptor matches the groove (B) in the track. Rotate of about 90° the lever of the cam (C) until it reaches the locking position. To open rotate the lever the opposite direction.



### 2.8 Phase selection

When the track is connected to a three-phase system it is possible to select the phase (1, 2 or 3) to distribute the single luminaires in the system, by means of the proper selector (A) of the adaptor.



Accessory NIPPLE

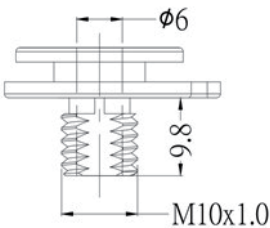
Product description

- Optional threaded sleeve for luminaire mounting
- Suitable for S-9009/D-M10 threaded nut



Ordering data

Article number	Description	Net Wt/pc	Package/c tn
301000153	NIPPLE M10*1.0,Length 9.8mm White RAL 9010	6.0g	50pcs
301000154	NIPPLE M10*1.0,Length 9.8mm Black RAL 9005	6.0g	50pcs



### 3. Thermal details and life-time

Expected life-time

Type	ta	25°C	35°C
VLD 23W 350-600mA 38 OptC IT HE Life-time	>50000h	>50000h	>50000h

Test result at max. output voltage.

The LED Drivers are designed for a life-time stated above under reference conditions and with a failure probability of less than 10 %.

Life-time declarations are informative and represent no warranty claim.

### 4. Maximum loading of automatic circuit breakers in relation to inrush current

Maximum loading of automatic circuit breakers

Inrush current

Automatic circuit	C10	C13	C16	C20	B10	B13	B16	B20	I <sub>max</sub>	Time
Installation Ø	1.5mm	21.5mm <sup>2</sup>	1.5mm <sup>2</sup>	1.5mm <sup>2</sup>	2.5mm <sup>2</sup>	1.5mm <sup>2</sup>	1.5mm <sup>2</sup>	2.5mm <sup>2</sup>		
VLD 23W 350-600mA 38 OptC IT HE	36	47	58	73	21	28	35	43	19.1A	160.0µs

This are max. values calculated out of inrush current! Please consider not to exceed the maximum rated continuous current of the circuit breaker. Calculation uses typical values from ABB series S200 as a reference.

Actual values may differ due to used circuit breaker types and installation environment.

#### 4.1 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

Type	THD	3	5	7	9	11
VLD 23W 350-600mA 38 OptC IT HE	<15%	<12%	<10%	<7%	<5%	<3%

Acc. to EN61000-3-2. Harmonics < 5 mA or < 0.6 % (whatever is greater) of the input current are not considered for calculation of THD.

### 5. Functions

#### 5.1 Short-circuit behaviour

In case of a short circuit on the secondary side (LED) the LED Driver switches off. After elimination of the short circuit the nominal operation is restored automatically.

#### 5.2 No-load operation

The LED Driver works in burst working mode to provide a constant output voltage regulation which allows the application to be able to work safely when LED string opens due to a failure.

#### 5.3 Overload protection

If the output voltage range is exceeded the LED Driver will protect itself by reducing the LED output current.

After elimination of the overload, the nominal operation is restored automatically.

### 6. Miscellaneous

#### 6.1 Insulation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) ,each luminaire should be submitted to an insulation test with 500V DC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.

The insulation resistance must be at least 2MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500V AC (or 1.414 x 1500V DC).

To avoid damage to the electronic devices this test must not be conducted."

#### 6.2 Conditions of use and storage

Humidity: 5 % up to max. 85 %,  
not condensed  
( 40 days/year at 85 %)

Storage temperature: -20 °C up to max. +80 °C

The devices have to be within the specified temperature range (ta) before they can be operated.

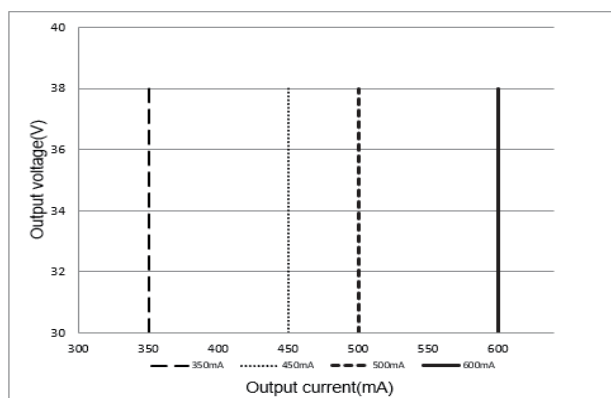
#### 6.3 Maximum number of switching cycles

All LED Driver are tested with 50,000 switching cycles.

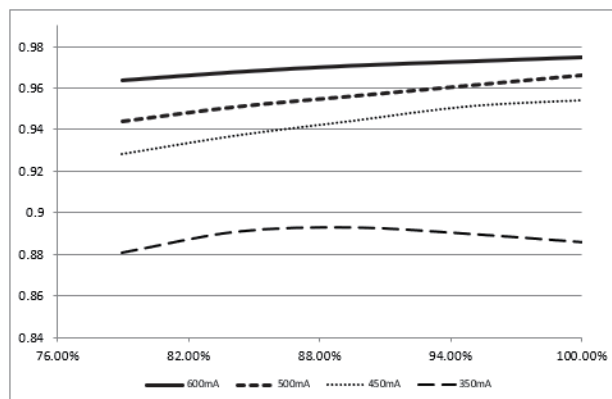
The actually achieved number of switching cycles is significantly higher.

## 7. Electrical values

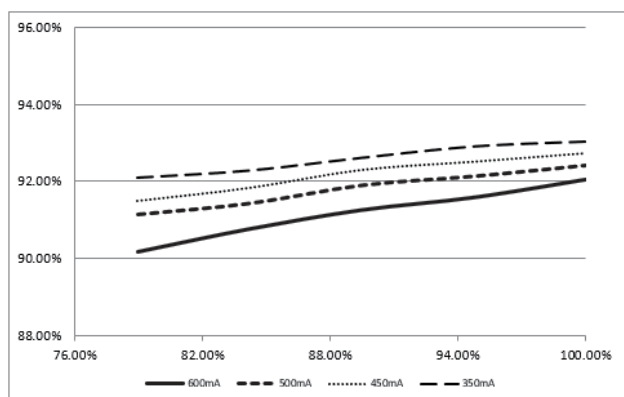
### 7.1 Operating window



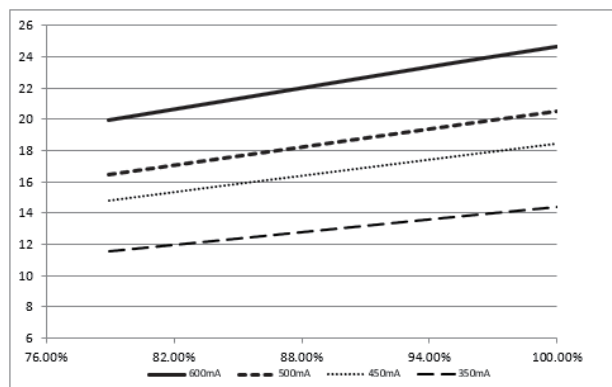
### 7.4 Power factor vs load (@230VAC 50HZ)



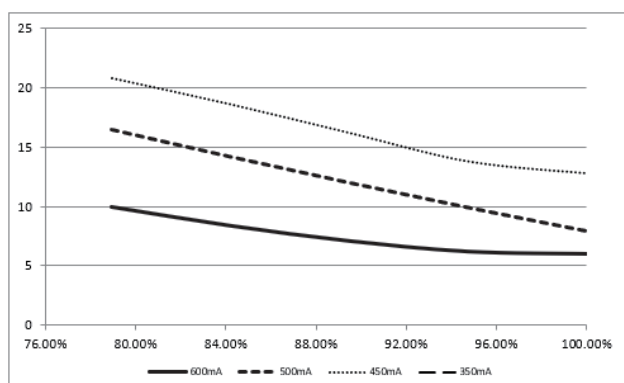
### 7.2 Efficiency vs load (@230VAC 50HZ)



### 7.5 Input power vs load (@230VAC 50HZ)



### 7.3 THD vs load (@230VAC 50HZ)



### 7.6 Input current vs load (@230VAC 50HZ)

