

# Flicker-Free Constant Current LED Drivers

Switch-Dim & 1-10V Constant Current Version

# HYTRONIK®

HE8008-A / HE1008-A / HE8030-A / HE8050-A



## Applications

Smooth, flicker free dimming and low stand-by power consumption feature in a range which make them the ideal choice from low wattage downlights to LED Panel Lighting. The multiple current selectors make driver upgrades very simple and a few models can cover a wide variety of fixtures.

- Office / Commercial Lighting
- Hotels
- Retail & Display
- Domestic Lighting

Use for retrofit upgrades & new luminaire designs.



## Features

- Active PFC Design
  - 1-10V
  - Switch-Dim with Synchronization
  - Logarithmic Dimming
  - Analogue Flicker-free Dimming
  - Configurable Constant Current (CC) Output via Dip-Switch
  - Thermal Cut-out Protection
  - Short Circuit Protection
  - Over-load Protection
  - Permanent Settings Memory, Protected against Loss of Power
  - 5 Year, 50,000hr Warranty
- } All with Auto-restart

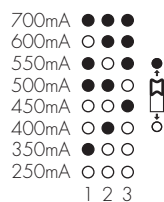


## Output Configuration

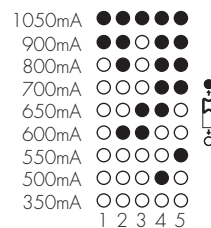
HE8008-A / HE1008-A, 1x8W



HE8030-A, 1x30W



HE8050-A, 1x50W



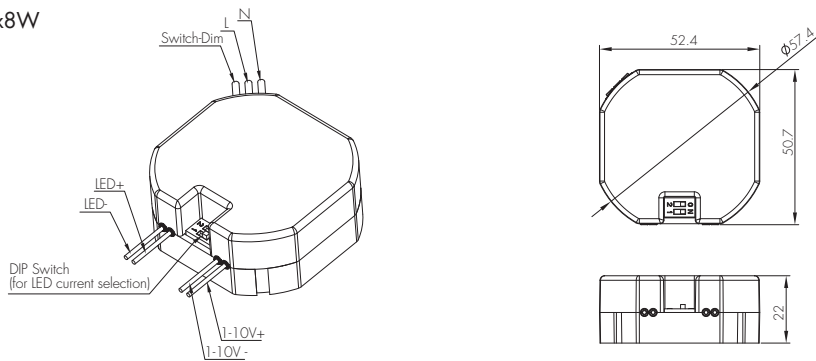
Warning: Please make sure the correct current is selected before starting the driver!

## Technical Data

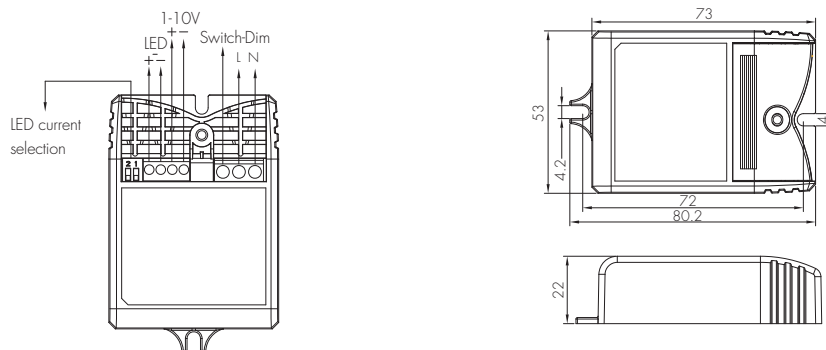
Model No.		HE8008-A	HE1008-A	HE8030-A	HE8050-A
Input	Mains Voltage	220~240VAC 50/60Hz			
	Mains Current	0.22~0.24A	0.22~0.24A	0.164~0.15A	0.29~0.27A
	Power Factor	0.9	0.9	0.9	0.9
	Max. Efficiency	88%			
	Dielectric Strength	Input→Output : 3000VAC			
	Leakage Current	< 0.25mA			
Output	Power/Current/ Voltage Range	2.8W /350mA /6~24V 3.8W /500mA /6~16V 3.8W /550mA /6~15V	2.8W /350mA /6~24V 3.8W /500mA /6~16V 3.8W /550mA /6~15V	15W /250mA /12-60V 21W /350mA /12-60V 24W /400mA /12-60V 27W /450mA /12-60V 30W /500mA /12-60V 30W /550mA /12-54V 30W /600mA /12-50V 30W /700mA /12-43V	25W /350mA /15~72V 36W /500mA /15~72V 40W /550mA /15~72V 43W /600mA /15~72V 47W /650mA /15~72V 50W /700mA /15~72V 50W /800mA /15~63V 50W /900mA /15~56V 50W /1050mA /15~48V
	Ripple Current	<3%	<3%	<3%	<3%
	Uout Max.	38V	38V	80V	100V
	Turn-on Time	< 0.5s	< 0.5s	< 0.5s	< 0.5s
	Dimming Interface	Switch-Dim, 1-10V			
Environment	Operation Temp.	Ta: -20~+50°C	Ta: -20~+45°C	Ta: -20~+50°C	Ta: -20~+45°C
	Case Temp. (Max.)	80°C	80°C	85°C	80°C
	IP Rating	IP20	IP20	IP20	IP20
Safety and EMC	EMC Standard	EN55015, EN61547, EN61000-3-2, EN61000-3-3			
	Safety Standard	EN61347-1, EN62493, EN61347-2-13			
	Certifications	Semko, CB, RCM, CE, EMC			

## Dimensions and Terminals

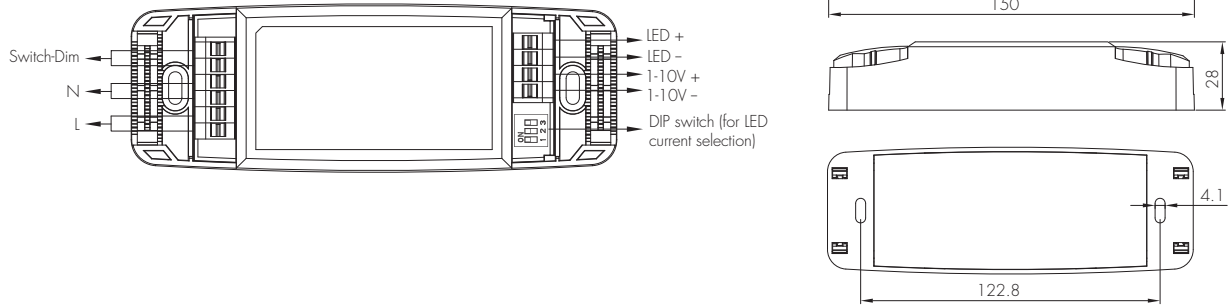
Model: HE8008-A 1x8W



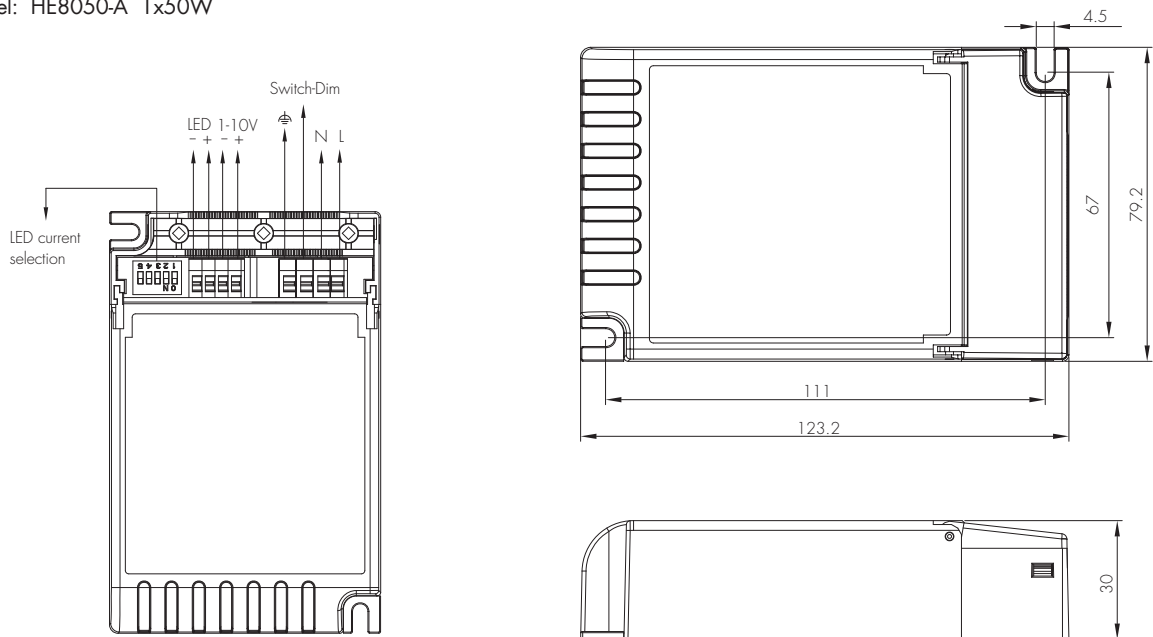
Model: HE1008-A 1x8W



Model: HE8030-A 1x30W



Model: HE8050-A 1x50W



### Wire Preparation

Image	Dimensions	Terminals	Model
	0.5 - 2.5mm 8mm	L, N Switch-Dim 1-10V LED output	HE1008-A HE8008-A
	0.5 - 1.5mm 8mm	L, N Switch-Dim 1-10V LED output	HE8030-A
	0.5 - 1.0mm 7mm	LED output	HE1008-A HE8008-A
	0.75 - 1.5mm 7mm	L, N Switch-Dim 1-10V LED output	HE8050-A

## Loading and In-rush Current

Model	HE8008-A / HE1008-A	HE8030-A	HE8050-A
In-rush Current (I <sub>max.</sub> )	8.4A	57A	58A
Pulse Time	11 μs	42.5 μs	49 μs

## Number of Drivers Based upon 16A Circuit Breaker

Cct Breaker Type	HE8008-A / HE1008-A	HE8030-A	HE8050-A
Type B	100	37	27

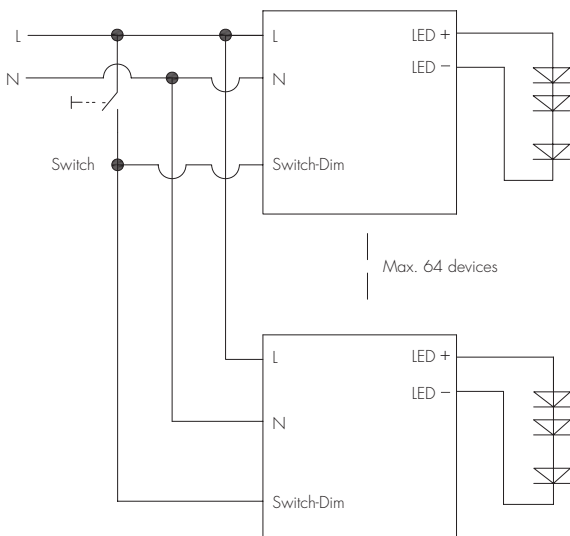
## Conversion table for max. quantities of drivers on other types of Miniature Circuit Breaker

MCB Type	Rating	Relative number of drivers	MCB Type	Rating	Relative number of drivers
B	16A	100% (see table above)	C	10A	104%
B	10A	63%	C	13A	135%
B	13A	81%	C	16A	170%
B	20A	125%	C	20A	208%
B	25A	156%	C	25A	260%

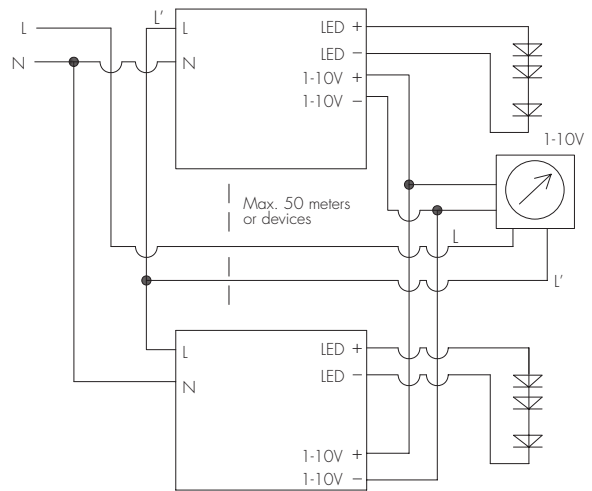
\* Environmental factors (such as temperature) will also influence the maximum number of the drivers. Please refer to the MCB manufactures datasheet for loading and derating factors.

## Wiring Diagrams

Switch-Dim Connection



1-10V Connection

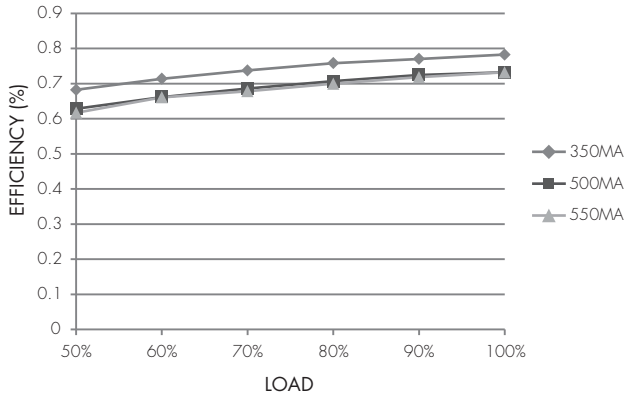


\* Unused terminals have been omitted for clarity.

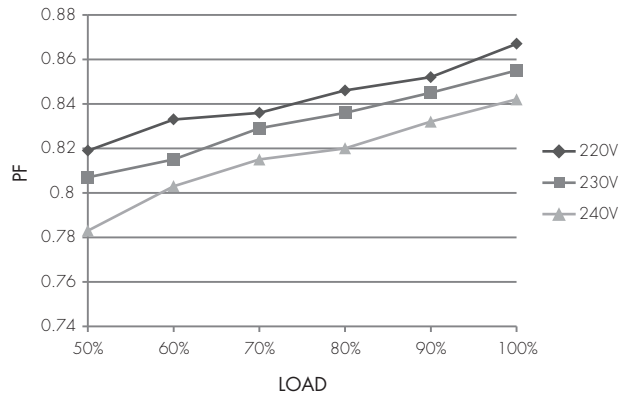
For further details of the dimming interfaces, please refer to the last section of this datasheet

# Performance Characteristics

HE8008-A / HE1008-A

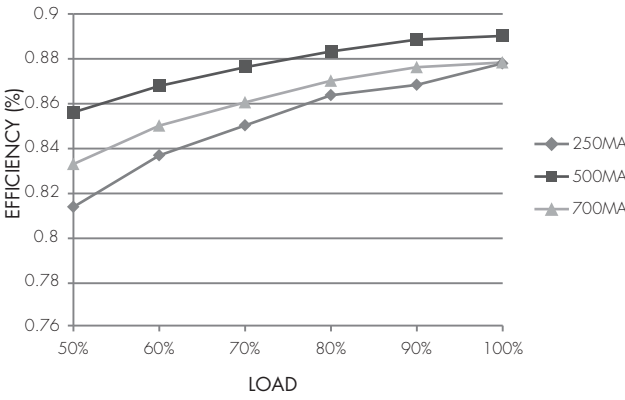


\* Typical Efficiency vs Load

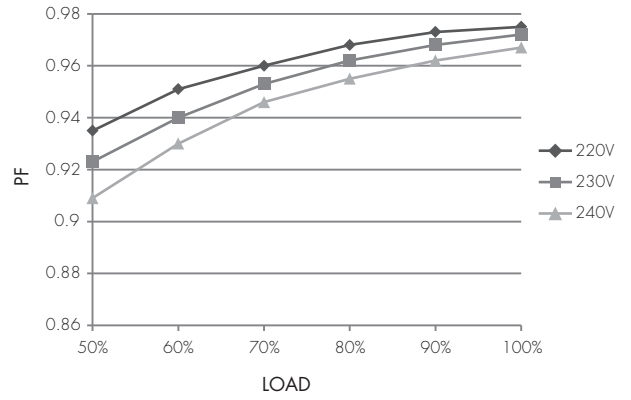


\* Typical Power Factor vs Load

HE8030-A

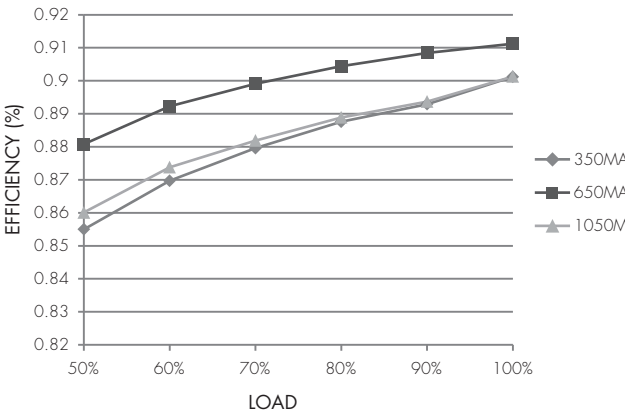


\* Typical Efficiency vs Load

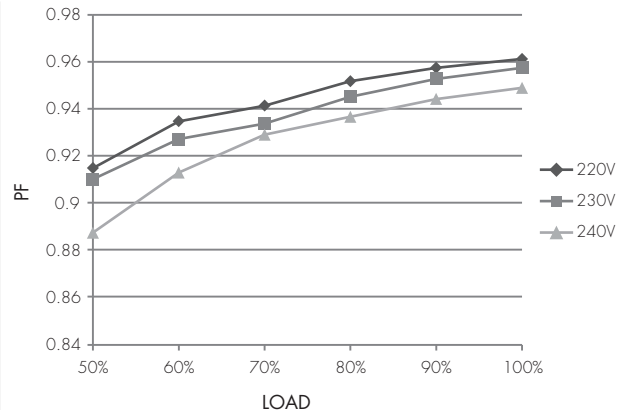


\* Typical Power Factor vs Load

HE8050-A



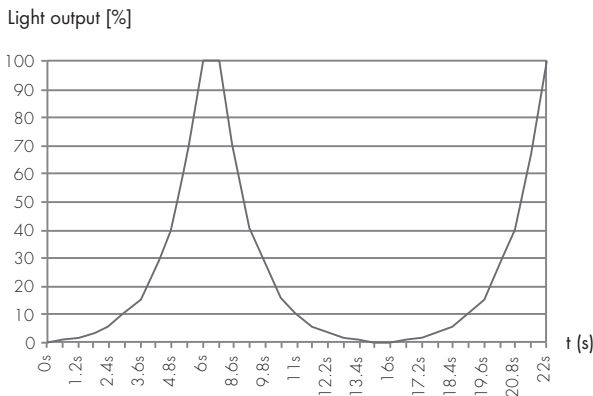
\* Typical Efficiency vs Load



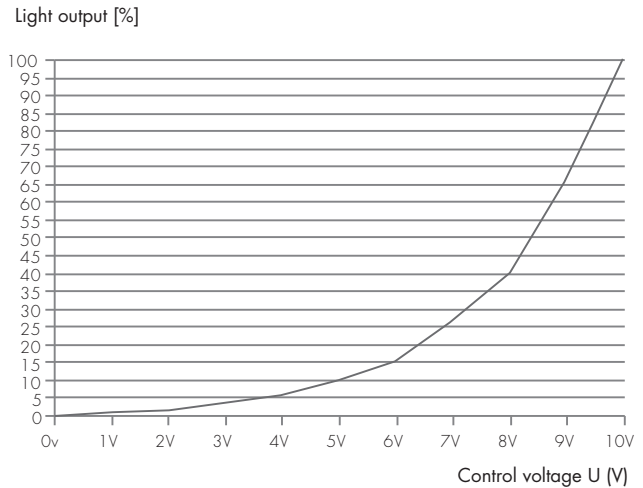
\* Typical Power Factor vs Load

## Dimming Characteristics

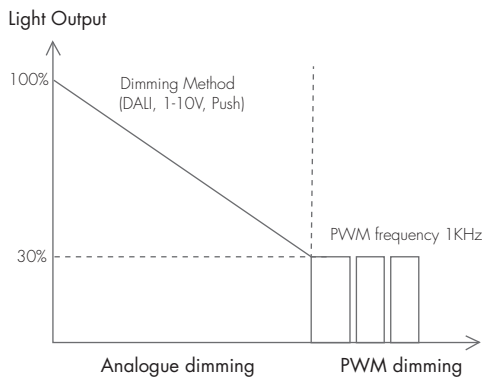
Switch-Dim Dimming Curve



1-10V Dimming Curve



### Dimming Profile



Dimming range	Dimming technique
30%-100%	Analogue
1-30%	PWM

Note: An upgrade with extended flicker-free dimming is in development to provide 3-100% analogue dimming.

## Dimming Interface Operation Notes

### Switch-Dim

The provided Switch-Dim interface allows a simple dimming method using commercially available non-latching (momentary) wall switches. Up to 50 LED drivers may be connected to one switch.

#### Switch Action

Short press (<0.4 second)

Note: short press has to be longer than 0.1s, or it will be invalid.

Long press (>0.4 second)

#### Response

Toggle light on / off

Toggle dim light / increase brightness

#### Synchronization

Switch Action

Long press (>15 seconds)

#### Response

All lights will dim down to minimum then return to 50% brightness

\* We recommend the number of drivers connected to a switch does not exceed 25 pieces. The maximum length of the wires from push to driver should be no more than 20 meters.

### 1-10V

The 1-10V input is operable via commercially available simple rotary wall switches designed for 1-10V dimming equipment or from dedicated system central dimming controllers. The 1-10V output is fully isolated and is SELV compliant.

Note: In the unlikely event that the LED driver be used with the Switch-Dim interface prior to using the 1-10V interface, the 1-10V interface may need to be re-set. This is achieved by placing a short circuit across the 1-10V terminals until the light returns to full brightness (approx. 3-5 seconds).