

DALI LED Drivers (With System Feedback)

Constant Voltage Version - DALI/1-10V/Switch-Dim

HYTRONIK®

HED4030-A / HED6030-A / HED2075-A / HED3075-A



Applications

Ideal for use with 'plug n' play' or DALI broadcast master.

Fully addressable DALI systems

Switch-Dim

1-10V Dimming Systems

Suitable for LED strip and low voltage spot lamps - insulated terminal cover with cord restraint:

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

Use for retrofit upgrades & new luminaire designs.

Features

- with DALI feedback
 - 1-10V
 - Switch-Dim with Synchronization
 - Active PFC Design
 - Hybrid Flicker-free Dimming (HED2075-A only)
 - Configurable Constant Voltage (CV) Output
 - Logarithmic Dimming Curve
 - Linear Dimming
 - 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



DALI Group Selection (for HED3075-A only)

DALI group configuration can be done via software setting from PC or by hardware setting of the rotary switch on the driver.

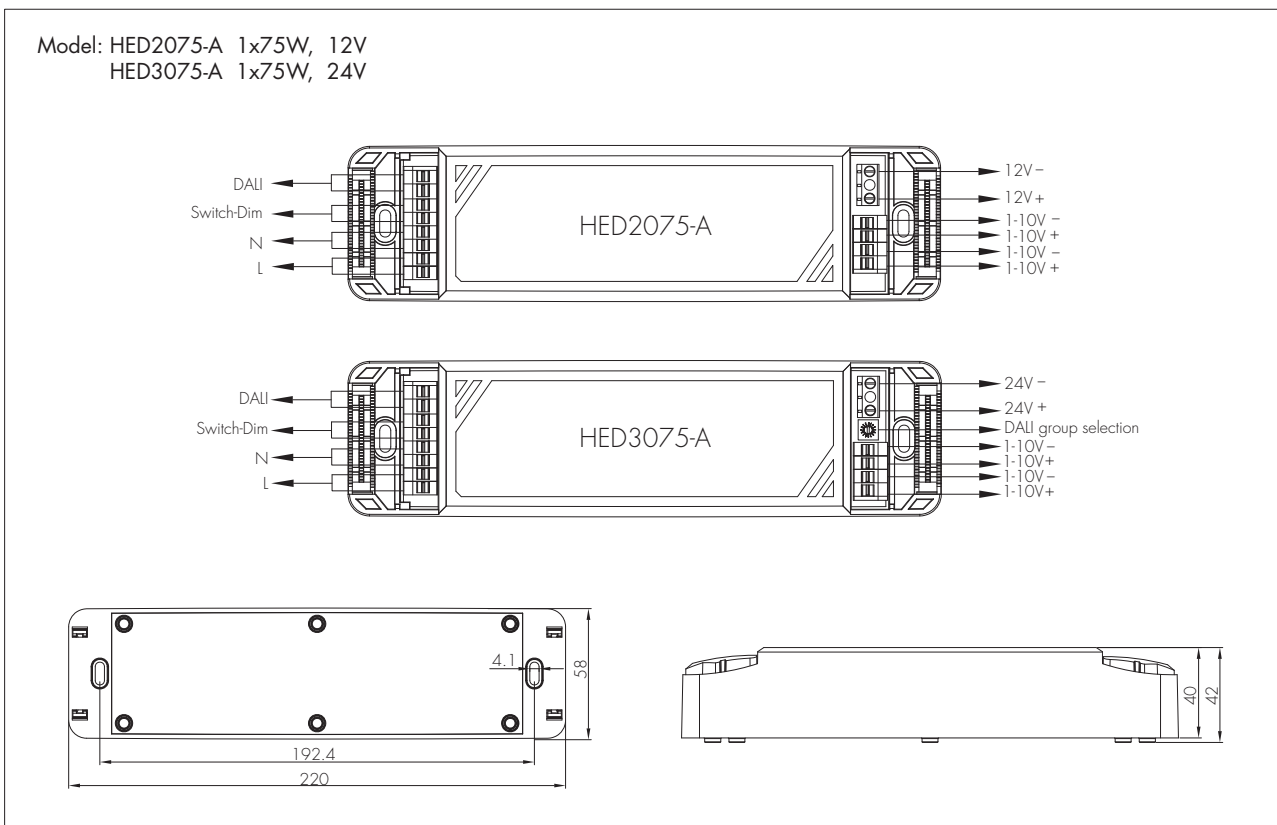
1. PC grouping can overwrite the rotary switch grouping and vice versa. The latest setting is always applied.
2. There are 16 channels available on the rotary switch. "0" means ungrouped. The rotary switch channel corresponds to the groups listed as below:

| Switch Channel | DALI Group | Switch Channel | DALI Group |
|----------------|------------|----------------|------------|
| 0 | ungrouped | 8 | group 7 |
| 1 | group 0 | 9 | group 8 |
| 2 | group 1 | A | group 9 |
| 3 | group 2 | B | group 10 |
| 4 | group 3 | C | group 11 |
| 5 | group 4 | D | group 12 |
| 6 | group 5 | E | group 13 |
| 7 | group 6 | F | group 14 |

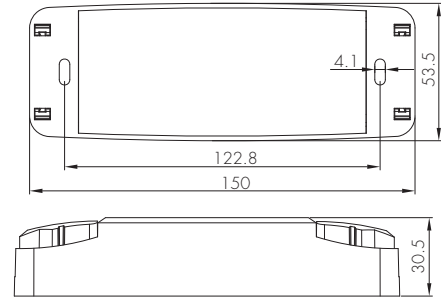
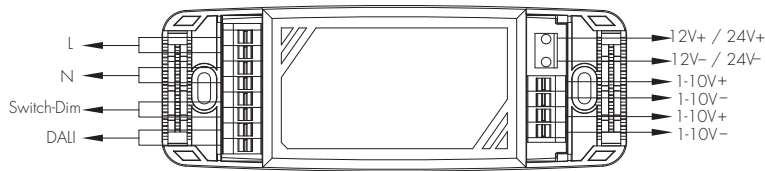
Technical Data

| | Model No. | HED4030-A | HED6030-A | HED2075-A | HED3075-A |
|----------------|---------------------|--|---------------|---------------|---------------|
| Input | Mains Voltage | 220~240VAC 50/60Hz | | | |
| | Mains Current | 0.175~0.16A | 0.165~0.15A | 0.39~0.36A | 0.4~0.35A |
| | Power Factor | ≥0.95 | ≥0.95 | ≥0.97 | ≥0.97 |
| | Max. Efficiency | 88% | | | |
| | Dielectric Strength | Input→Output : 3000VAC | | | |
| | Leakage Current | <0.25mA | | | |
| Output | Power (Max.) | 30W | 30W | 75W | 75W |
| | Uout Max. | 12V | 24V | 12V | 24V |
| | Turn-on Time | <0.5s | <0.5s | <0.5s | <0.5s |
| | Dimming Interface | DALI, Switch-Dim, 1-10V | | | |
| Environment | Operation Temp. | Ta: -20~+45°C | Ta: -20~+45°C | Ta: -20~+45°C | Ta: -20~+45°C |
| | Case Temp. (Max.) | 80°C | 75°C | 85°C | 85°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 | | | |
| | DALI Standard | IEC62386-101; IEC62386-102; IEC62386-207 | | | |
| | Certifications | Semko, CB, RCM, CE, EMC | | | |

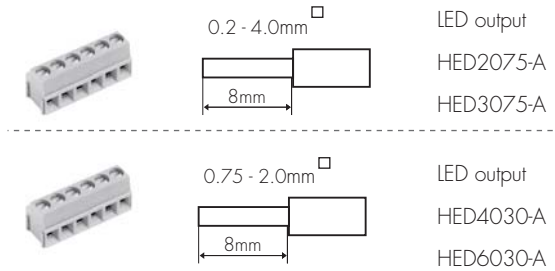
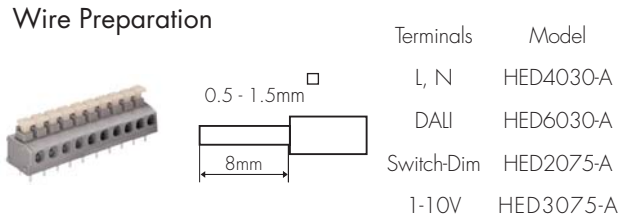
Dimensions and Terminals



Model: HED4030-A 1x30W, 12V
 HED6030-A 1x30W, 24V



Wire Preparation



To make or release the wire from the terminal, use a screwdriver to push down the button.

Loading and In-rush Current

| Model | HED4030-A | HED6030-A | HED2075-A | HED3075-A |
|--------------------------------------|-----------|-----------|-----------|-----------|
| In-rush Current (I _{max.}) | 2.8 A | 2.8 A | 26 A | 26.6 A |
| Pulse Time | 70 μs | 70 μs | 400 μs | 400 μs |

Number of Drivers Based upon 16A Circuit Breaker

| Cct Breaker Type | HED4030-A | HED6030-A | HED2075-A | HED3075-A |
|------------------|-----------|-----------|-----------|-----------|
| Type B | 60 | 60 | 10 | 10 |

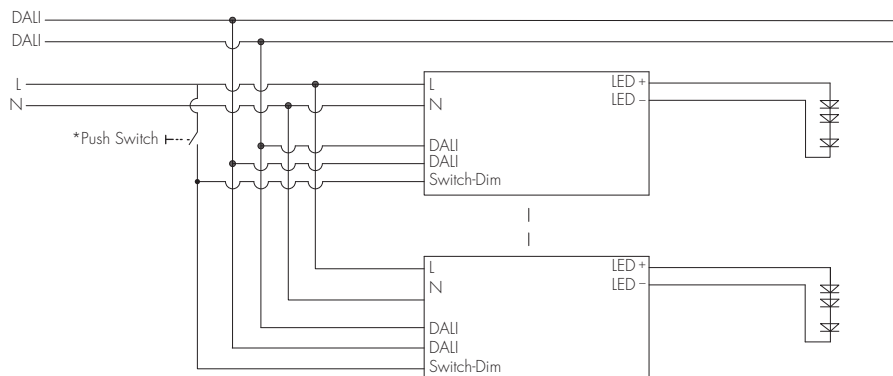
Conversion table for max. quantities of drivers on other types of Miniature Circuit Breaker

| 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.

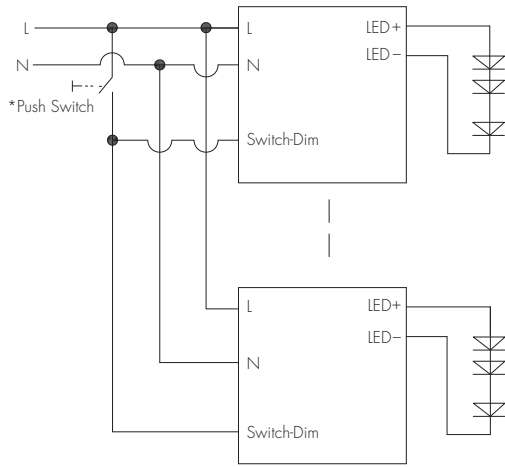
Wiring Diagrams

DALI Connections



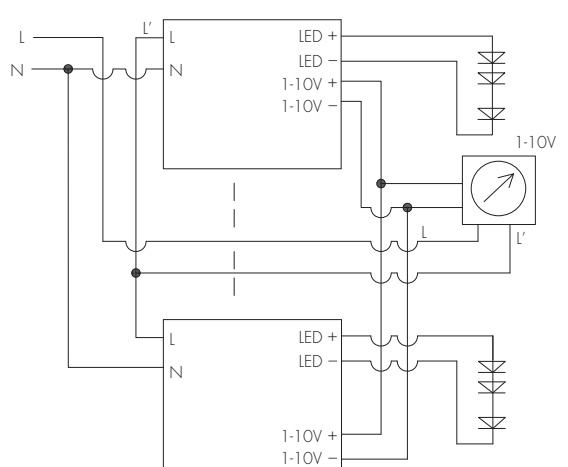
* Optional Switch-Dim for manual over-ride of DALI 1-10V is disabled upon DALI connection
 * Unused terminals have been omitted for clarity.

Switch-Dim Connections



* Unused terminals have been omitted for clarity.

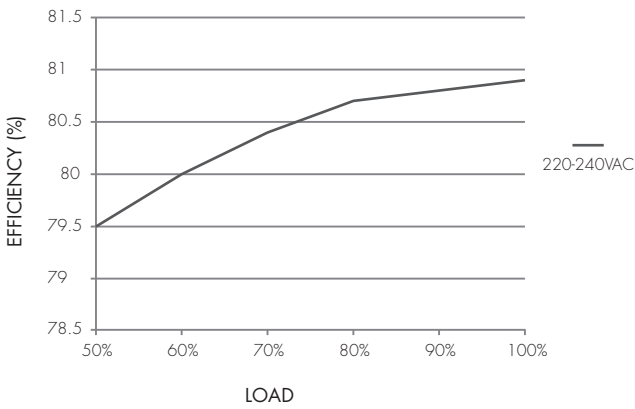
1-10V Connections



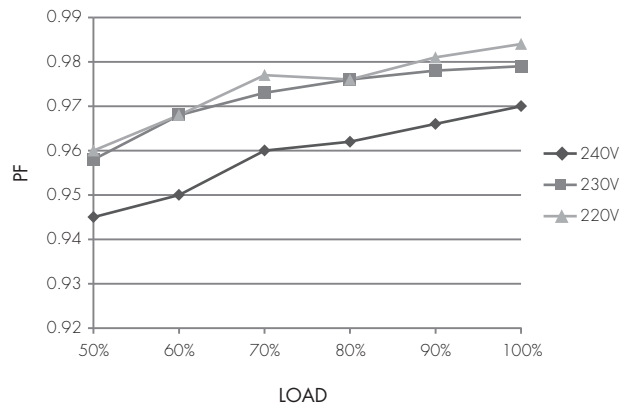
* Unused terminals have been omitted for clarity.

Performance Characteristics

HED4030-A

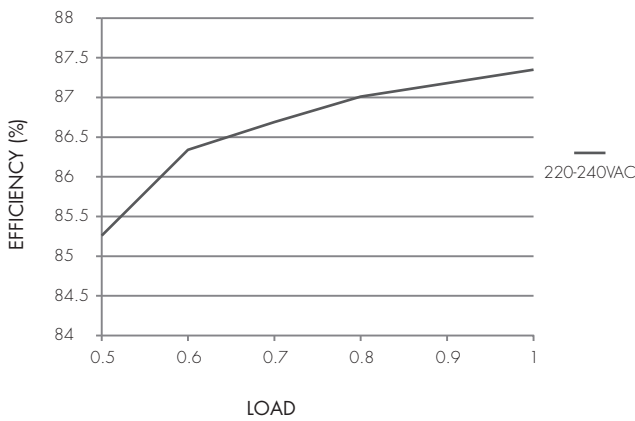


* Typical Efficiency vs Load

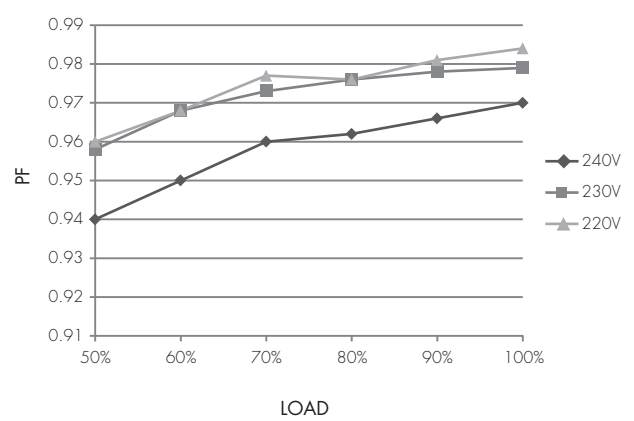


* Typical Power Factor vs Load

HED6030-A

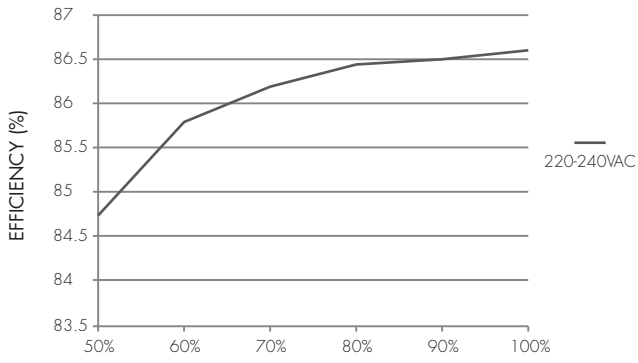


* Typical Efficiency vs Load

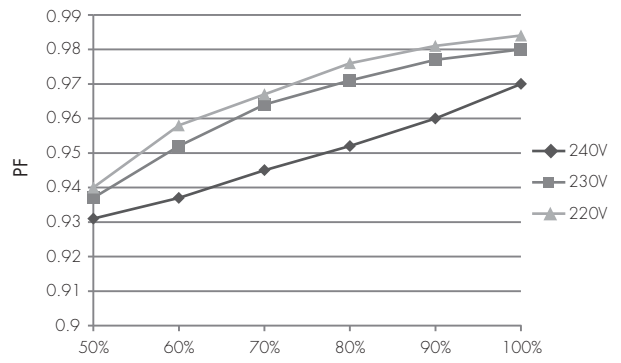


* Typical Power Factor vs Load

HED2075-A

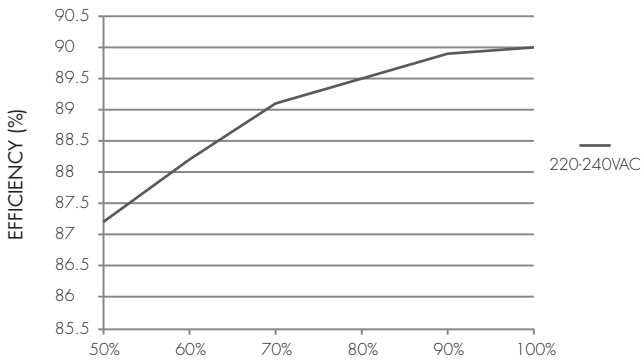


* Typical Efficiency vs Load

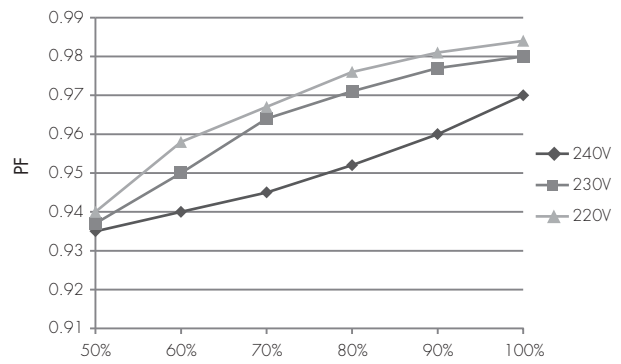


* Typical Power Factor vs Load

HED3075-A



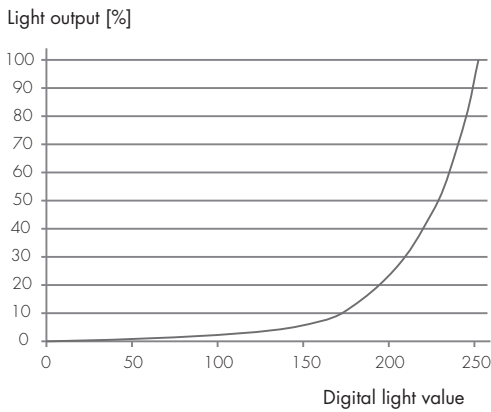
* Typical Efficiency vs Load



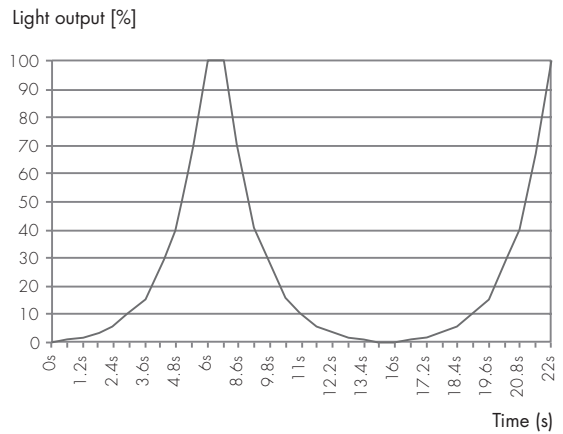
* Typical Power Factor vs Load

Dimming Characteristics

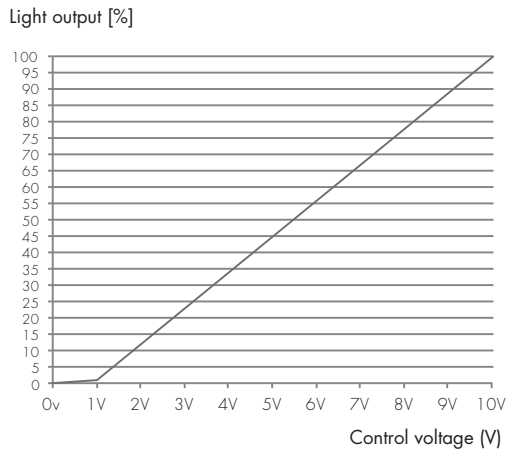
DALI Dimming Curve



Switch-Dim Dimming Curve



1-10V Dimming Curve



Dimming Interface Operation Notes

DALI

This series of products are supplied as DALI default group 0 and are 'plug n'play DALI' or 'independent DALI' system ready. These models are also fully DALI addressable and may be assigned to groups within the limits specified by the DALI protocol or supporting DALI controllers by using a DALI programming tool.

Switch-Dim

The provided Switch-Dim interface allows a simple dimming method using commercially available non-latching (momentary) wall switches. Up to 64 LED drivers may be connected to one switch. The Switch-Dim interface may also be used at the same time as DALI to serve as a manual override.

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 (>1.5 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.

Note: In the unlikely event that the LED driver be used with the Switch-Dim or DALI 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).