

Product Description

This series of LED drivers are Bluetooth dimmable LED drivers, with maximum power output ranging from 9W to 40W. They all come with Switch-Dim interface by using Push switch (retractable switch) and of course Bluetooth dimming interface. It is ideal for direct projects or new luminaires design for lighting manufacturers. With Bluetooth wireless mesh networking, it makes communication between luminaires much easier without time-consuming hardwiring, which eventually saves costs for projects. Meanwhile, simple device setup and commissioning can be done via **Koolmesh™** app.

HED1009/BT



HED6010/BT


























HED1025/BT
















HED1040/BT



App Features

-  Quick setup mode & advanced setup mode
-  Floorplan feature to simplify project planning
-  Web app/platform for dedicated project management
-  Koolmesh Pro iPad version for on-site configuration
-  Grouping luminaires via mesh network
-  Scenes
-  Detailed motion sensor settings
-  Push switch configuration
-  Schedule to run scenes based on time and date
-  Astro timer (sunrise and sunset)
-  Staircase function (primary & secondary)
-  Internet-of-Things (IoT) featured
-  Device firmware update over-the-air (OTA)
-  Device social relations check
-  Bulk commissioning (copy and paste settings)
-  Power-on status (memory against power loss)
-  Offline commissioning
-  Different permission levels via authority management
-  Network sharing via QR code or keycode
-  Remote control via gateway support HBGW01
-  Interoperability with Hytronik Bluetooth product portfolio
-  Compatible with EnOcean switch EWSSB/EWSSDB
-  Continuous development in progress...

Hardware Features

-  Switch-Dim
-  PWM 1KHz (1-100%) (Except for HED6010/BT)
-  Bluetooth dimmable control
-  Insulated terminal cover with cord restraint
-  Active PFC design
-  Logarithmic Dimming
-  Linear Dimming
-  Configurable constant current (CC) output via DIP switch
-  Loop-in and loop-out terminals for efficient installation
-  Open-circuit Protection
-  Short-circuit Protection
-  Overload Protection
-  5-year warranty, designed for long lifetime up to 50,000 hours

* Certain scenes which require external photocell can be achieved by using together with Hytronik Bluetooth sensors, such as HBIR29, HCD038/BT + sensor head etc.

Bluetooth 5.0 SIG mesh



Smartphone app for both iOS & Android platform




Koolmesh Pro app for iPad




Web app/platform: www.iot.koolmesh.com

Bluetooth® Kinetic Switch



HBKS01 HBKS02 HBKS03 HBKS01D HBKS02D



Fully support EnOcean self-powered switch module
PTM215B (HBES01/W & HBES01/B)

Output Configuration

HED1009/BT, 9W

600mA	●●●●
500mA	●●●○
400mA	●●○●
350mA	●●○○
300mA	●○●○
250mA	●○○○
200mA	○●○○
	1 2 3 4

HED6010/BT, 12.5W

500mA	●●●○
400mA	●●○○
350mA	●●○○
300mA	○●○○
250mA	●○○○
230mA	○●○○
195mA	○●○○
	1 2 3 4

HED1025/BT, 25W

700mA	●●●●
650mA	○●●●
600mA	●●●○
550mA	●●●○
500mA	○●●○
450mA	●●●○
400mA	○●●○
350mA	●●○○
300mA	○●○○
	1 2 3 4

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

Technical Specifications

Bluetooth Transceiver

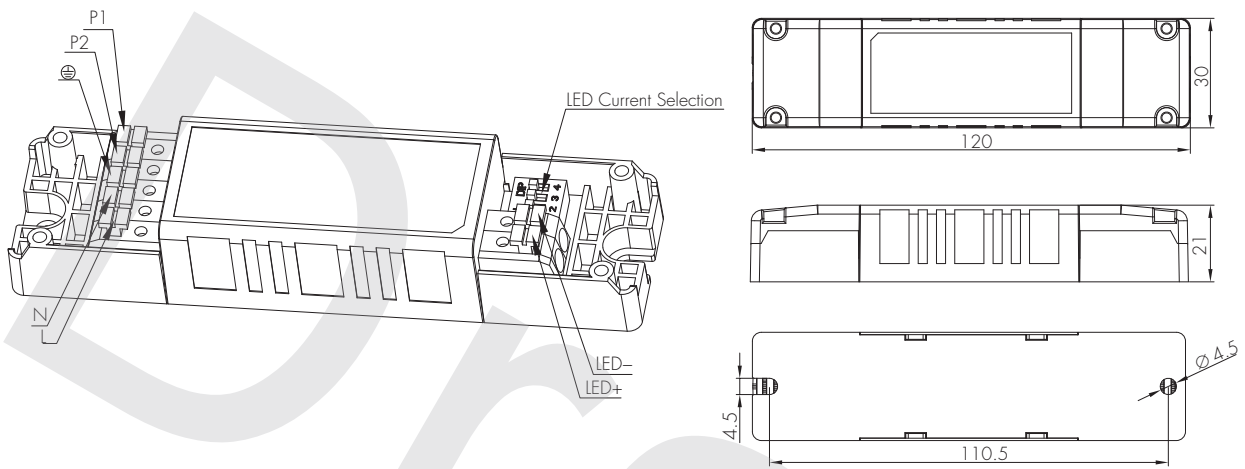
Operation frequency	2.4 GHz - 2.483 GHz
Transmission power	4 dBm
Range (Typical indoor)	10~30m
Protocol	Bluetooth® 5.0 SIG Mesh

	Model No.	HED1009/BT	HED6010/BT	HED1025/BT	HED1040/BT
Input	Mains Voltage	220~240VAC 50/60Hz			
	Mains Current	0.065~0.06A	0.071~0.065A	0.140~0.125A	0.210~0.200A
	Power Factor	0.9			
	Max. Efficiency	80%	82%	85%	85%
Output	Ripple Current	<3%	<3%	<3%	<3%
	Uout Max.	45V	52V	60V	65V
	Turn-on Time	<0.5s	<0.5s	<0.5s	<0.5s
	Dimming Interface	Switch-Dim			
Environment	Operation Temp.	-20 ~ +50°C	-20 ~ +50°C	-20 ~ +50°C	-20 ~ +50°C
	Case Temp. (Max.)	85°C	75°C	85°C	85°C
	IP Rating	IP20	IP20	IP20	IP20
Safety and EMC	EMC Standard	EN55015, EN61547, EN61000-3-2/-3-3, EN300328, EN301489-1/-17, EN62479			
	Safety Standard	EN61347-1, EN61347-2-13			
	Dielectric strength	Input→output: 3000VAC / 5mA / 1min			
	Abnormal protection	Output short-circuit protection, Overload Protection, Open-circuit Protection			

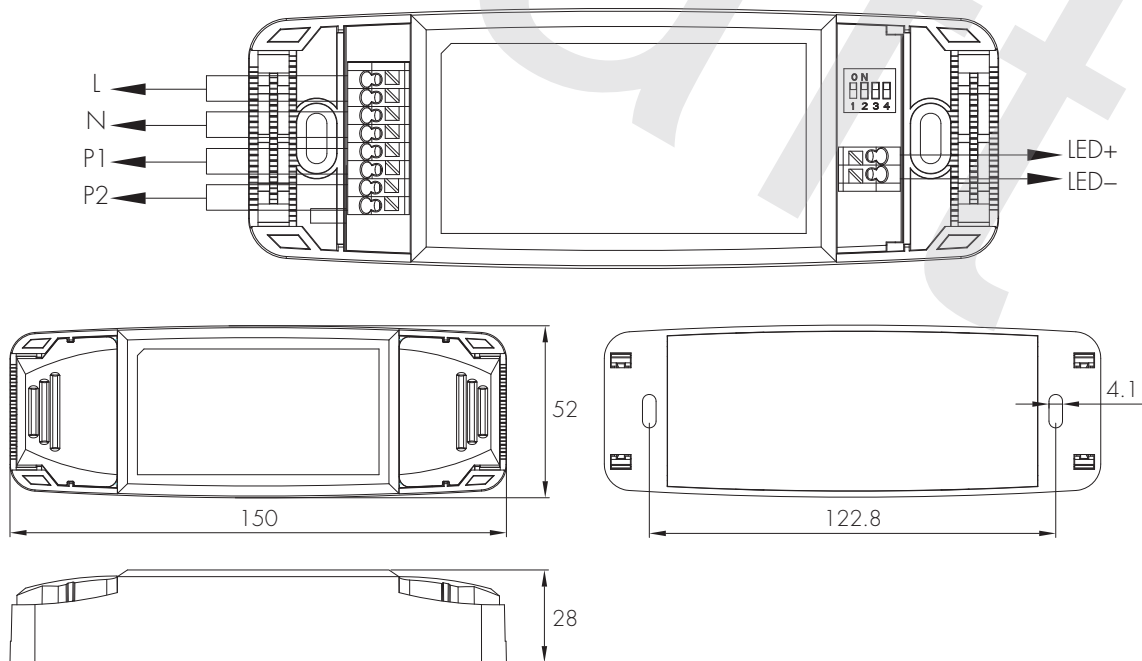
Model No.	Max. output power/current/voltage range			
HED1009/BT	2-6W/ 200mA /6-28V	2-9W/ 400mA /6-22V	2-9W/ 600mA /6-15V	
HED6010/BT	1.5-8W/ 195mA /6-41V	1.5-9W/ 230mA /6-41V	1.5-10W/ 250mA /6-41V	2-12W/ 300mA /6-41V
	2.5- 12.8W/ 350mA /6-36V	2.5-12.8W/ 400mA /6-32V	3-12.5W/ 500mA /6-25V	
HED1025/BT	2-15W/300mA /6-48V	2-17W/350mA /6-48V	2-20W/400mA /6-48V	3-22W/450mA /6-48V
	3-24W/500mA /6-46V	3-24W/550mA /6-44V	4-25W/600mA /6-42V	4-25W/650mA /6-38V
	4-25W/700mA /6-36V			

Mechanical Structure & Dimensions

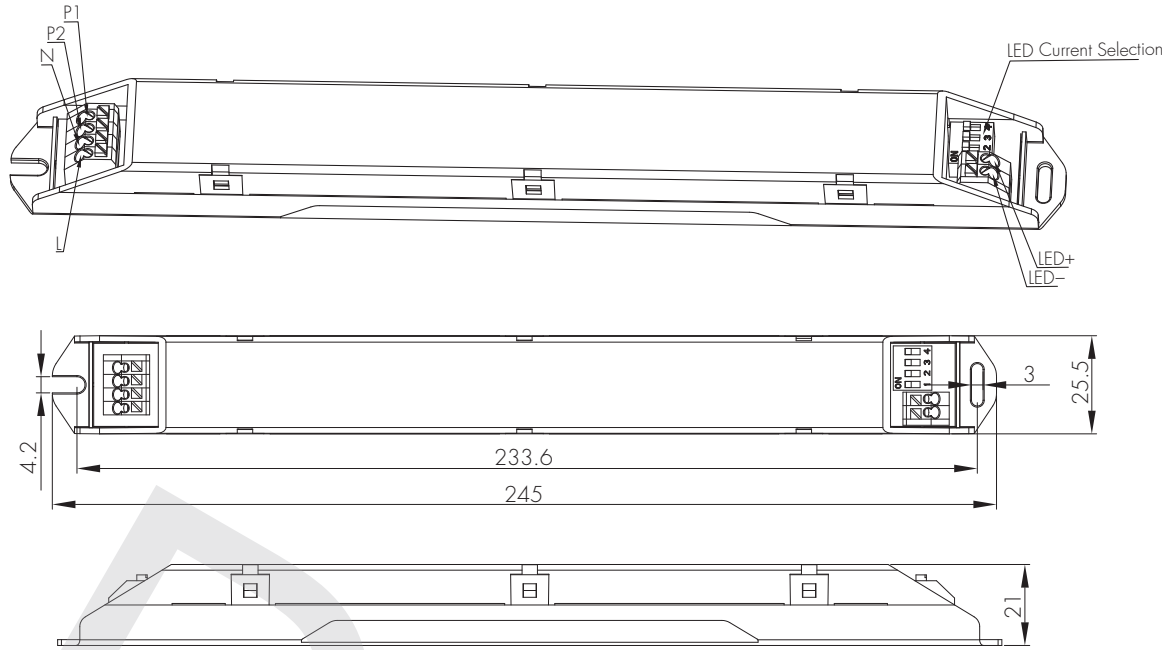
HED1009/BT, 1x9W



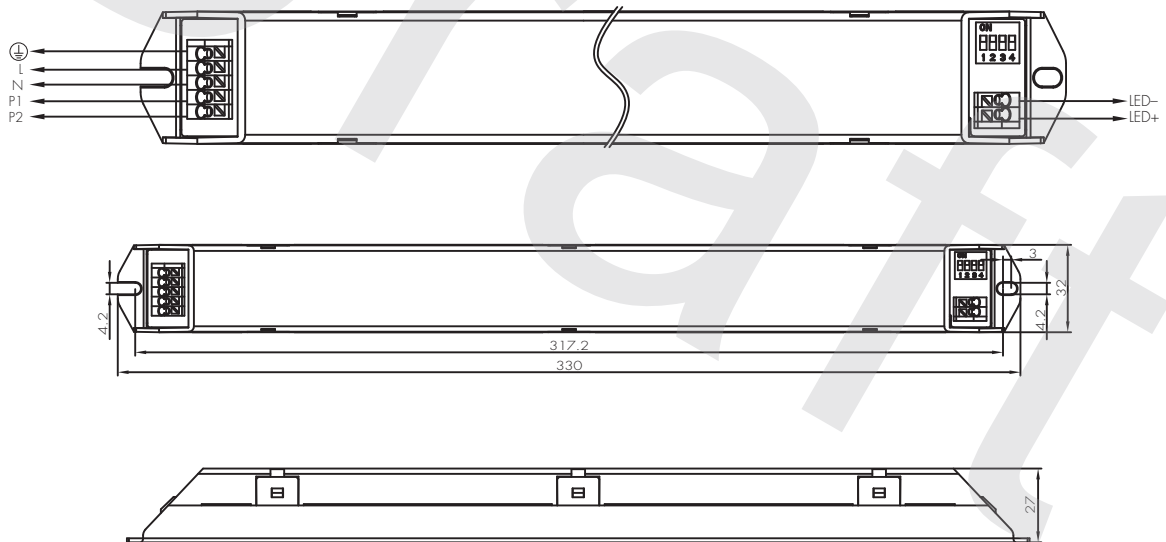
HED6010/BT, 1x10W



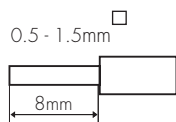
HED1025/BT, 1x30W



HED1040/BT, 1x40W



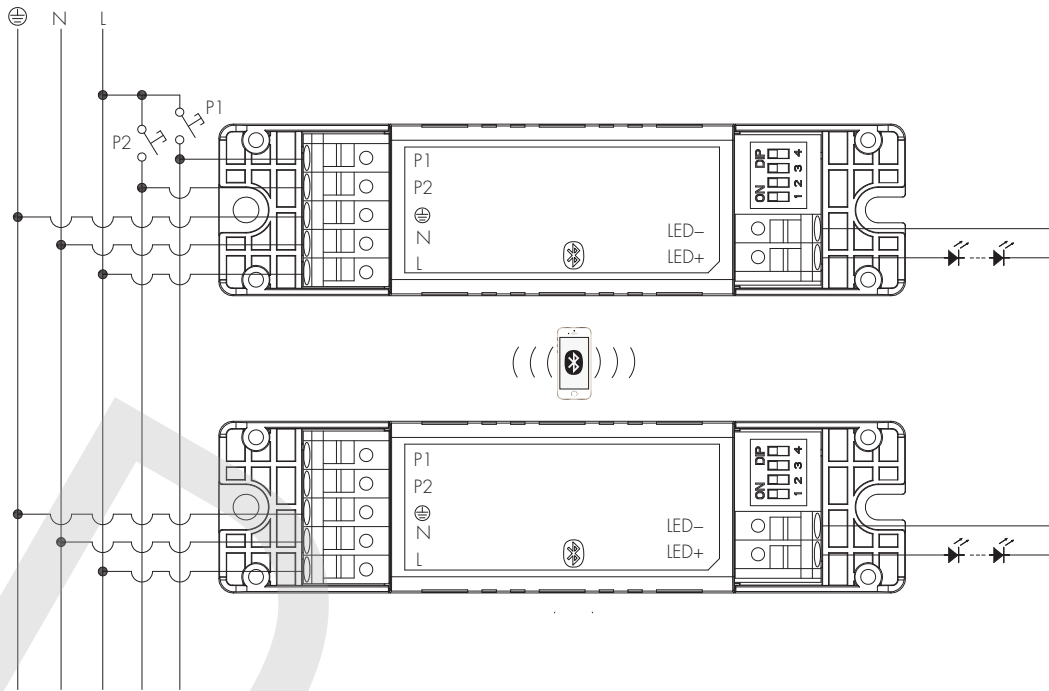
Wire Preparation



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

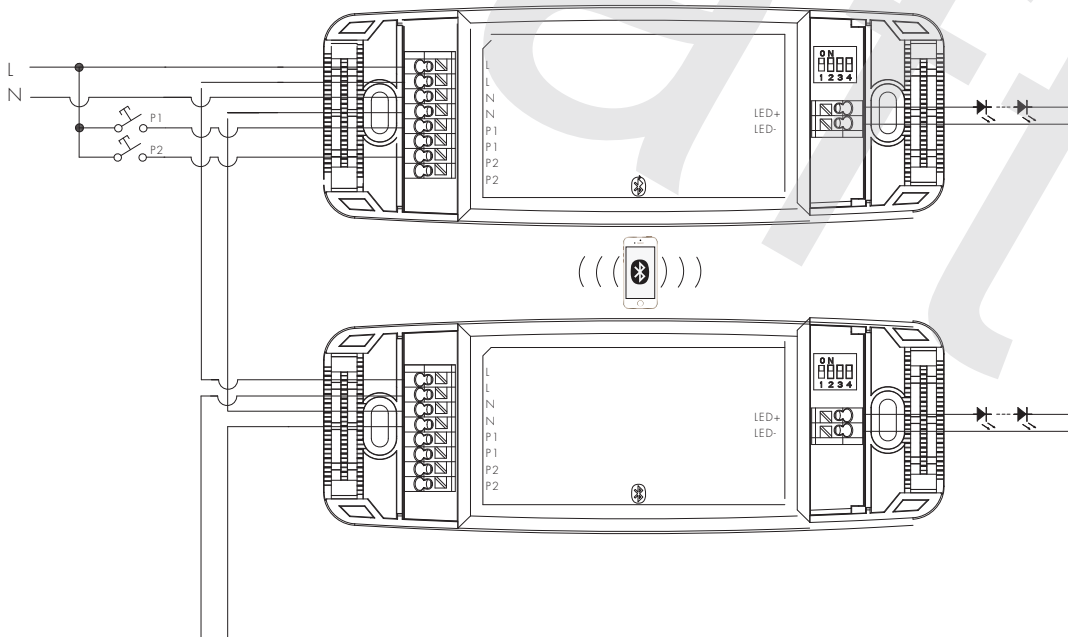
Wiring Diagram

Model: HED1009/BT



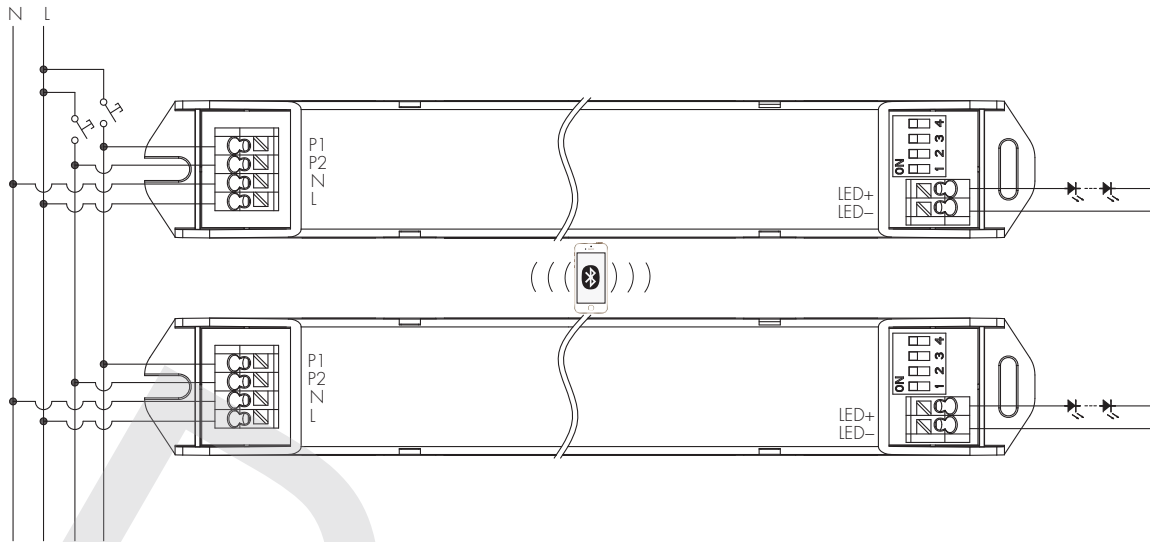
Note: There is no need for any hardwirings on "push" terminal between one driver to another. The installer only needs to connect the push switches to the nearest driver to save labor and cost. The push switches can be assigned to control any Bluetooth driver through the app commissioning.

Model: HED6010/BT



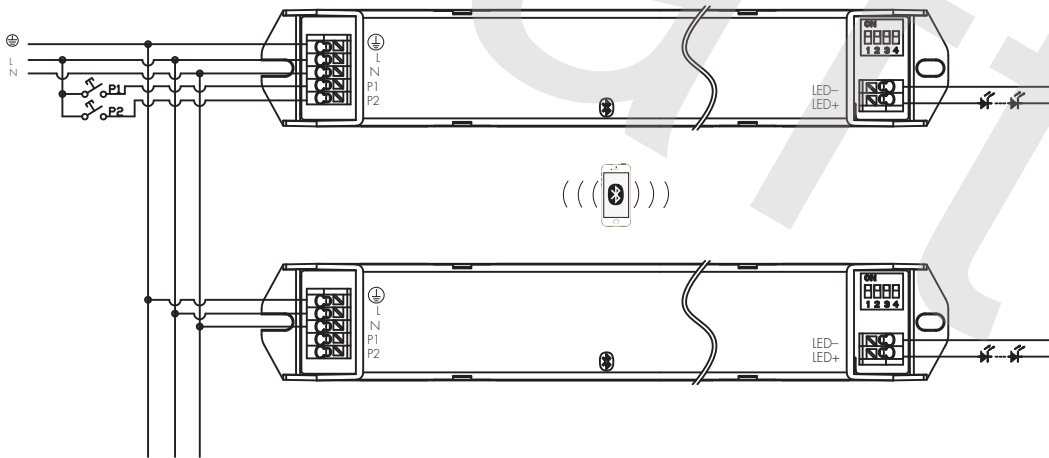
Note: There is no need for any hardwirings on "push" terminal between one driver to another. The installer only needs to connect the push switches to the nearest driver to save labor and cost. The push switches can be assigned to control any Bluetooth driver through the app commissioning.

Model: HED1025/BT



Note: There is no need for any hardwirings on "push" terminal between one driver to another. The installer only needs to connect the push switches to the nearest driver to save labor and cost. The push switches can be assigned to control any Bluetooth driver through the app commissioning.

Model: HED1040/BT



Note: CH1 & CH2 are working independently, meaning that they cannot be used with luminaires that share "+".

There is no need for any hardwirings on "push" terminal between one driver to another. The installer only needs to connect the push switches to the nearest driver to save labor and cost. The push switches can be assigned to control any Bluetooth driver through the app commissioning.

Loading and In-rush Current

Model	HEC6010/BT	HEC1025/BT	HED1040/BT
In-rush Current (I _{max.})	23A	22A	25A
Pulse Time	30 μs	18 μs	15 μs

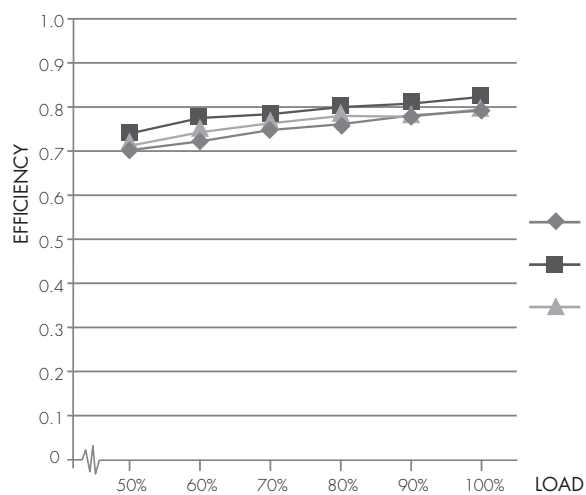
Circuit Breaker Information

Automatic circuit breaker type	B16A	B10A	B13A	B20A	B25A
HED1009/BT	176	110	143	220	276
HED6010/BT	142	89	115	178	222
HED1025/BT	73	46	59	92	115
HED1040/BT	41	26	33	52	65

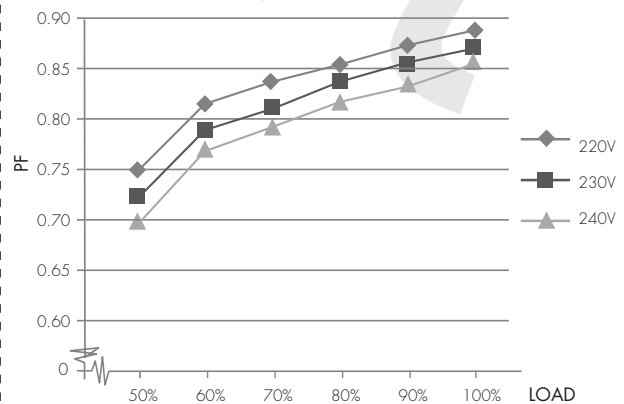
The data above is calculated according to the formula: Maximum Amount = $16/(P_n/230)$. In order to provide a more reliable reference in real application, the data have been revised to take 60% of the number calculated, i.e. $16/(P_n/230) \times 60\%$. Please kindly take note that the calculation is based on ABB circuit breaker series S200. Actual values may differ due to different types of circuit breaker used and installation environment.

Performance Characteristics

HED1009/BT

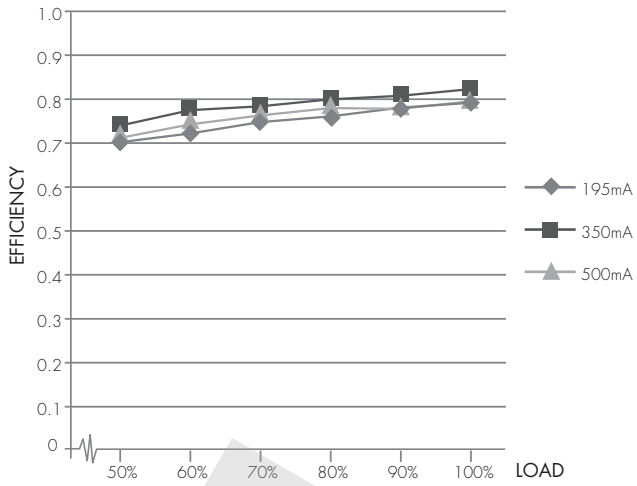


* Typical Efficiency vs Load

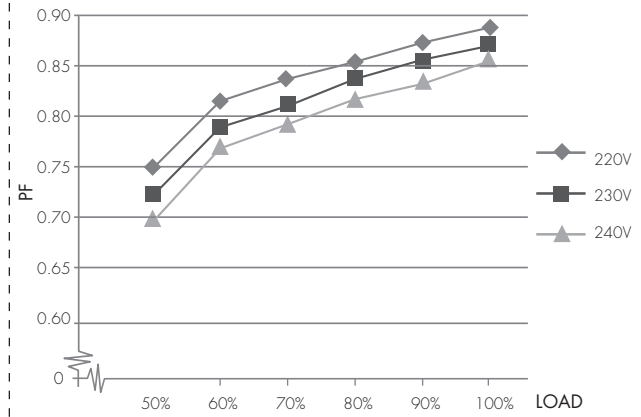


* Typical Power Factor vs Load

HED6010/BT

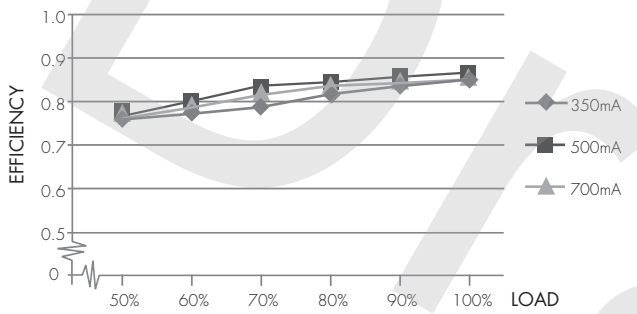


* Typical Efficiency vs Load

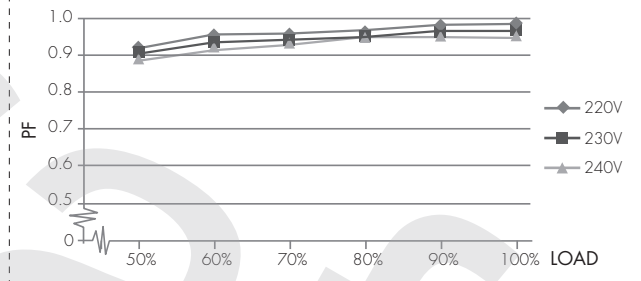


* Typical Power Factor vs Load

HED1025/BT

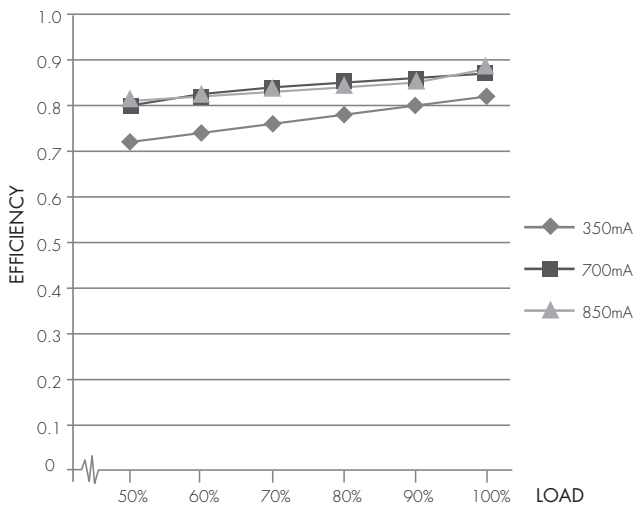


* Typical Efficiency vs Load

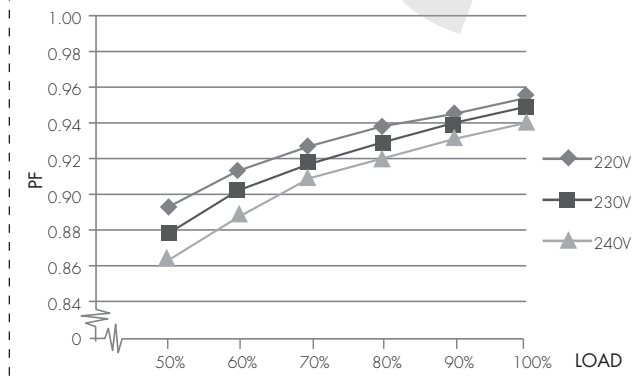


* Typical Power Factor vs Load

HED1040/BT

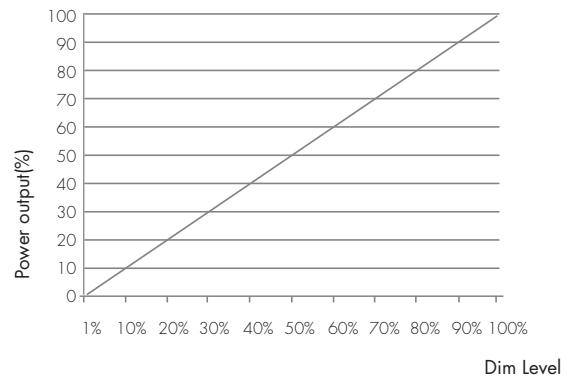
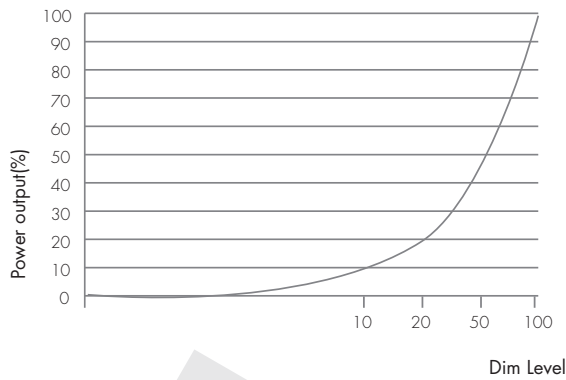


* Typical Efficiency vs Load

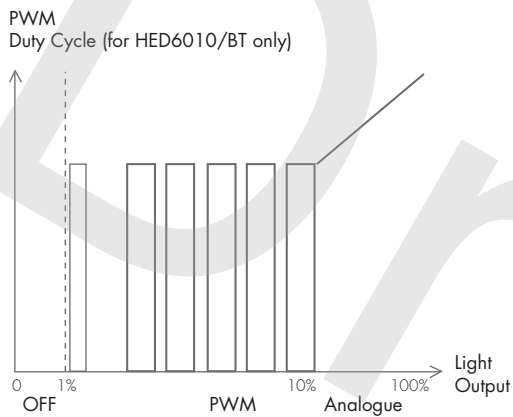


* Typical Power Factor vs Load

Dimming Characteristics



Dimming Profile



Dimming range	Dimming technique
0-1%	OFF
1-10%	PWM
10-100%	Analogue

Dimming Interface Operation Notes

Switch-Dim

The provided Switch-Dim interface allows for a simple dimming method using commercially available non-latching (momentary) wall switches. Up to 64 LED drivers maybe connected to one switch. Detailed Push switch configurations can be set on Koolmesh app.

Switch Function	Action	Descriptions
Push switch	Short press (<1 second) * Short press has to be longer than 0.1s, or it will be invalid.	- Turn on/off - Turn on only - Turn off only - Recall a scene - Exit manual mode - Do nothing
	Double push	- Turn on only - Turn off only - Recall a scene - Exit manual mode - Do nothing
	Long press (≥1 second)	- Dimming - Do nothing
Simulate sensor	/	- Upgrade a normal on/off motion sensor to a Bluetooth controlled motion sensor

Additional Information / Documents

1. Regarding precautions for LED driver installation and operation, please kindly refer to [www.hytronik.com/download ->knowledge ->LED Drivers - Precautions for Product Installation and Operation](http://www.hytronik.com/download->knowledge->LED%20Drivers%20-%20Precautions%20for%20Product%20Installation%20and%20Operation)
2. To learn more about detailed product features/functions, please refer to [www.hytronik.com/download->knowledge->Introduction of App Scenes and Product Functions](http://www.hytronik.com/download->knowledge->Introduction%20of%20App%20Scenes%20and%20Product%20Functions)
3. Regarding precautions for Bluetooth product installation and operation, please kindly refer to [www.hytronik.com/download ->knowledge ->Bluetooth Products - Precautions for Product Installation and Operation](http://www.hytronik.com/download->knowledge->Bluetooth%20Products%20-%20Precautions%20for%20Product%20Installation%20and%20Operation)
4. Data sheet is subject to change without notice. Please always refer to the most recent release on [www.hytronik.com/products/bluetooth technology ->Bluetooth Drivers](http://www.hytronik.com/products/bluetooth%20technology->Bluetooth%20Drivers)
5. Regarding Hytronik standard guarantee policy, please refer to [www.hytronik.com/download ->knowledge ->Hytronik Standard Guarantee Policy](http://www.hytronik.com/download->knowledge->Hytronik%20Standard%20Guarantee%20Policy)

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