140W

160W with sensor

Technical Application Guide for PHILIPS LED Lamps

Philips TrueForce LED Highbay Lamp

Introduction

Philips TrueForce LED highbay lamps give you a quick and easy payback solution to replace HID lamps in Highbay application. The solution gives you the LED benefits of energy-efficiency and long-lifetime, plus they come for a low initial investment. Lamp design allows directly retrofit HID lamps with TrueForce LED highbay lamps without changing the fixtures or gear. This feature also allow system with ignitor failure or without ignitor to continue working, meanwhile, main voltage input solution is also available. Multiple beam angle options and high colour rendering index enhance the lighting distribution while creating a comfortable, safe and high productivity environment.

Benefits

- Cost saving with quick payback, up to 90% energy saving
- Easy adoption
- Low initial investment

Features

- High energy efficiency with directional light
- Long lifetime 50,000hrs and 80,000hrs with sensor condition
- Main voltage input, 120-277Vac
- 2 beam angles 60/120 degree
- Pleasant white light with CRI 80

Applications

- Industrial - Factories, Warehouses, Distribution centres
- Retail - Hyper markets, Shopping malls
- Others - Transportation hubs, Convention centres, Sports halls

CE RoHS COMPLIANT KEMA KEUR **IP40**

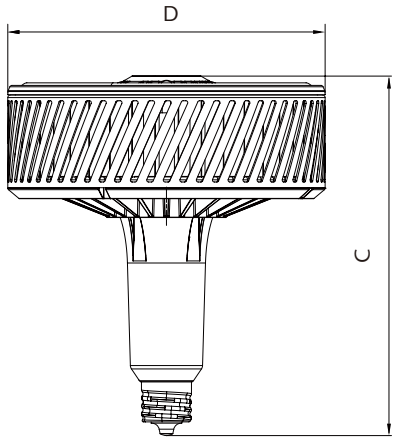
Technical Specifications

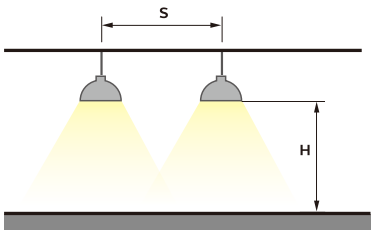
Product description	Watts	Lumens	Voltage	Beam Angle	CCT	CRI	LED Lifetime	Cap	Equivalent Wattage	Energy Saving
	W	lm	VAC	o	K		Hrs		W	
TForce HB 140W E40 840 NB	140	20000	120-277	60	4000	80	50,000	E40	400	up to 65%
TForce HB 140W E40 840 WB	140	20000	120-277	120	4000	80	50,000	E40	400	up to 65%
TForce HB 140W E40 865 NB	140	20000	120-277	60	6500	80	50,000	E40	400	up to 65%
TForce HB 140W E40 865 WB	140	20000	120-277	120	6500	80	50,000	E40	400	up to 65%
TForce HB 160W E40 865 WB Sensor	165	25000	120-277	120	6500	80	80,000*	E40	400-600	up to 90%*

* With sensor highbay application, lamp operates 100% light level at 1.5 hours per day, and the rest of day with 20% light.

Fixture compatibility

Product description	C max. Overall Length	D max. Diameter
	mm	mm
TForce LED highbay lamp	285	250



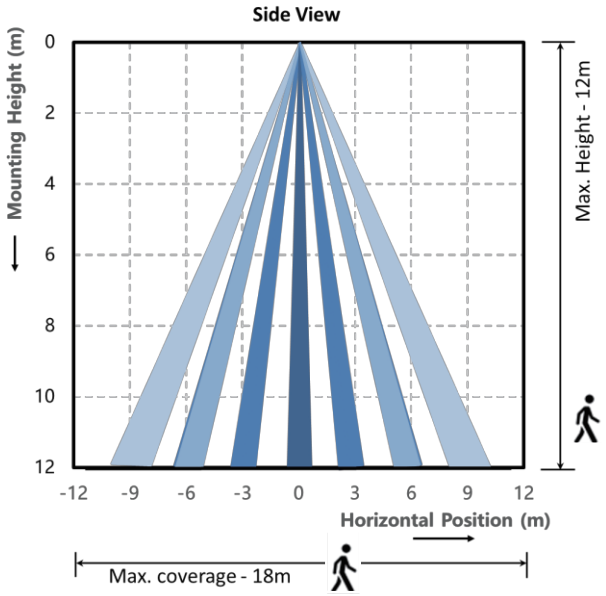


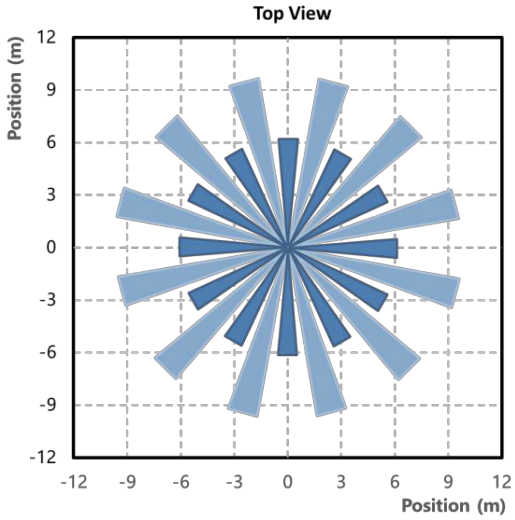
Recommendation:

- S/H < 1.1 use NB
- S/H < 2.1 use WB

Occupancy Sensing Detection Patterns

The plots below show the top and side view of the occupancy coverage based on NEMA test, an industry standard.
In the side view, it is visible that coverage ratio of mounting height: diameter at ground level is at maximum 1:1. For example if the mounting height is 12m, the maximum diameter coverage is 12m.



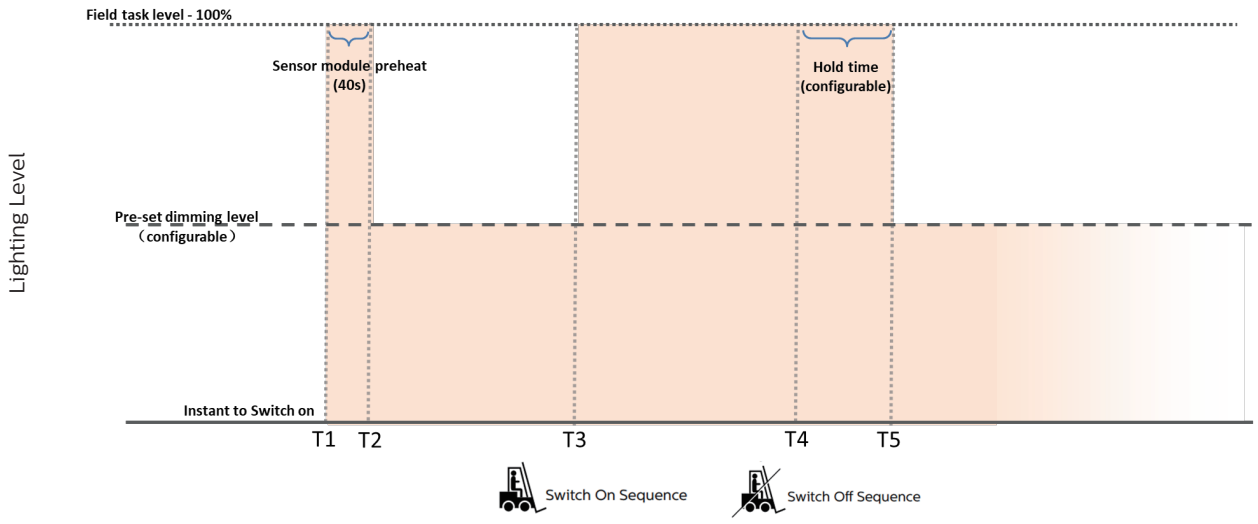


DISCLAIMER:

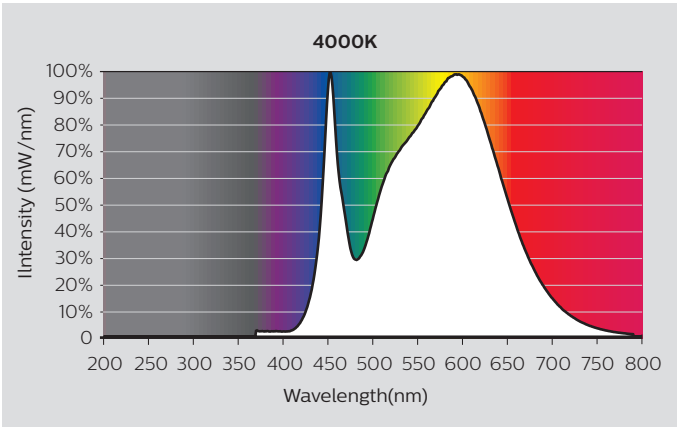
1. In these plots, the white areas are blind spots and the detection is based on subject's motion. An idle subject may not continue to trigger occupancy detection once the hold time expires.
2. As PIR based sensing works on temperature difference between the subject and the ground level, the occupancy detection could vary due to clothing and size of subject.

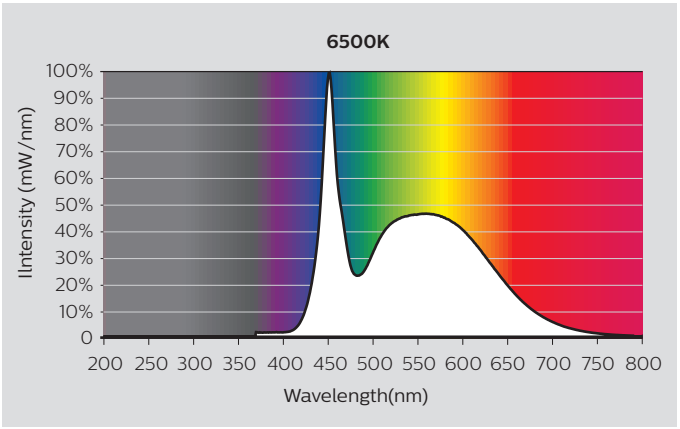
Occupancy Sensing

- Full-On Sequence



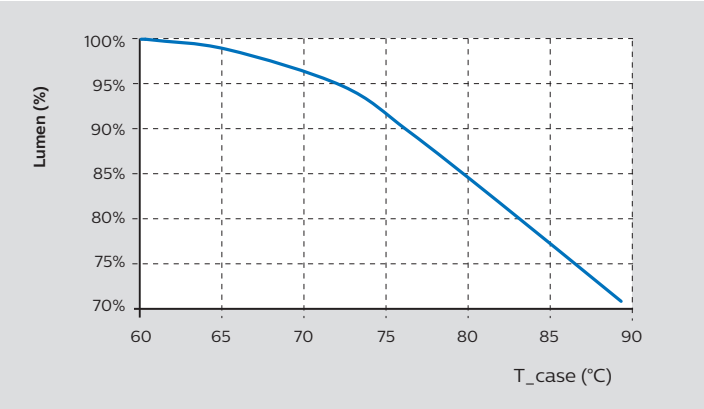
Spectral Power Distribution



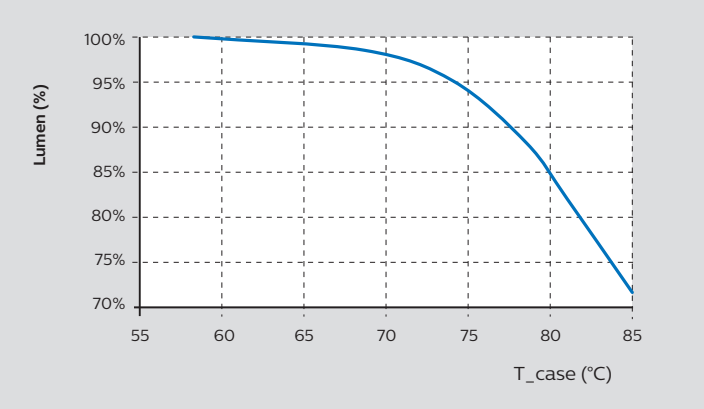


Temperature

140W



160W



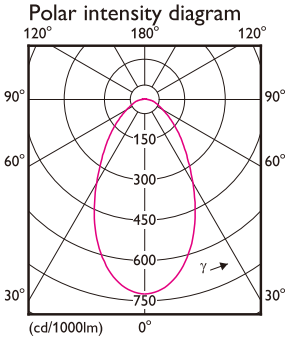
Photometric Diagrams

TForce HB 140W E40 840 NB

1 x 20000 lm

Light output ratio	1.00	CIE flux code	66 88 96 97 100
Service upward	0.03	UGRcen (4Hx8H, 0.25H)	24
Service downward	0.97		

Polar intensity diagram

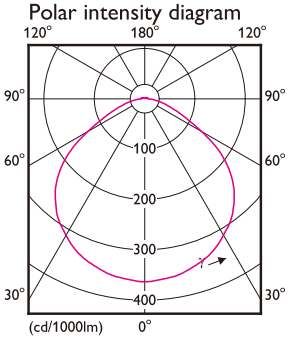


TForce HB 140W E40 840 WB

1 x 20000 lm

Light output ratio	1.00	CIE flux code	51 84 97 97 100
Service upward	0.03	UGRcen (4Hx8H, 0.25H)	26
Service downward	0.97		

Polar intensity diagram



TForce HB 140W E40 865 NB

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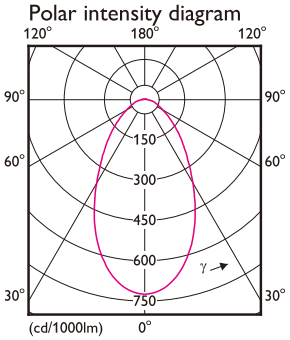
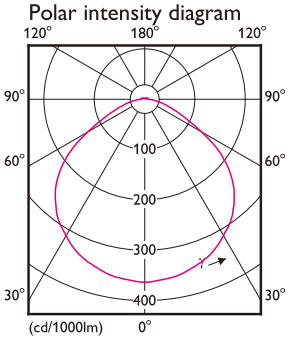
Polar intensity diagram



TForce HB 140W E40 865 WB 1 x 20000 lm

Light output ratio	1.00	CIE flux code	51 84 97 97 100
Service upward	0.03	UGRcen (4Hx8H, 0.25H)	26
Service downward	0.97		

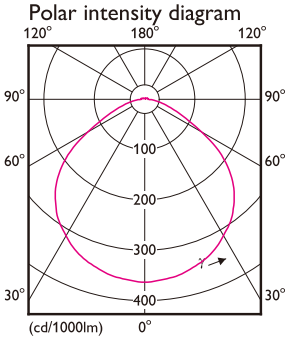
Polar intensity diagram



TForce HB 160W E40 865 WB Sensor 1 x 25000 lm

Light output ratio	1.00	CIE flux code	51 84 97 97 100
Service upward	0.03	UGRcen (4Hx8H, 0.25H)	27
Service downward	0.97		

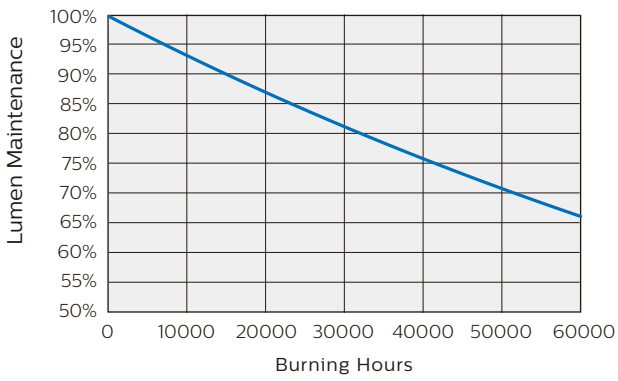
Polar intensity diagram



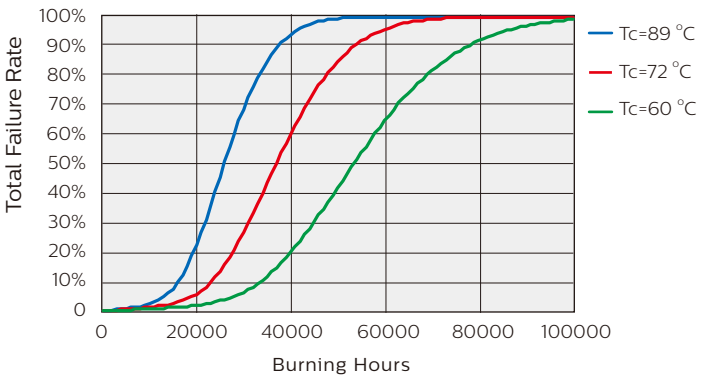
Lifetime + Sustainability

- 140W

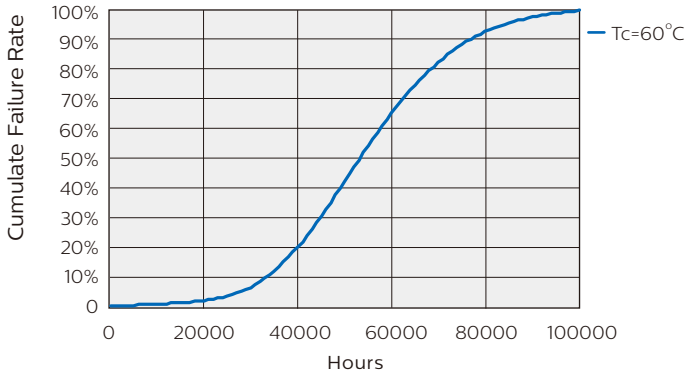
Lumen Maintenance vs Lifetime



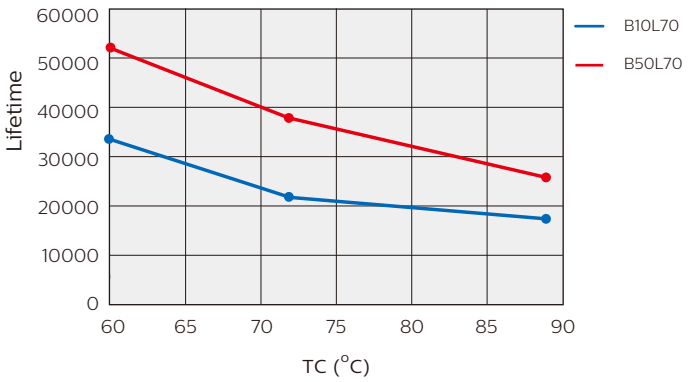
Failure Rate vs Lifetime



Failure rate vs. Lifetime @ Ta 25 °C



Lifetime vs. Tcase

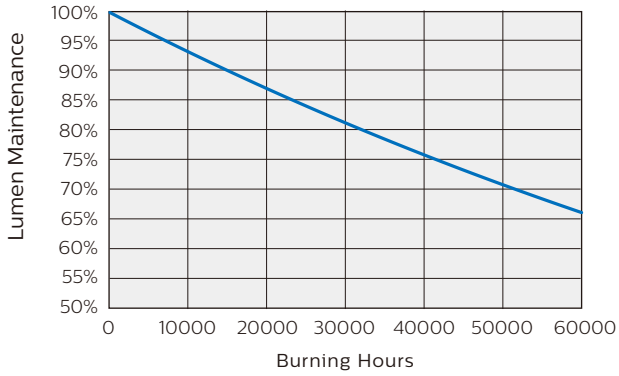


- The Philips TrueForce LED Highbay lamp has a lifetime of 50,000 hours, de ned as the number of hours when 50% of a large group of identical lamps fall below 70% of its initial lumens.

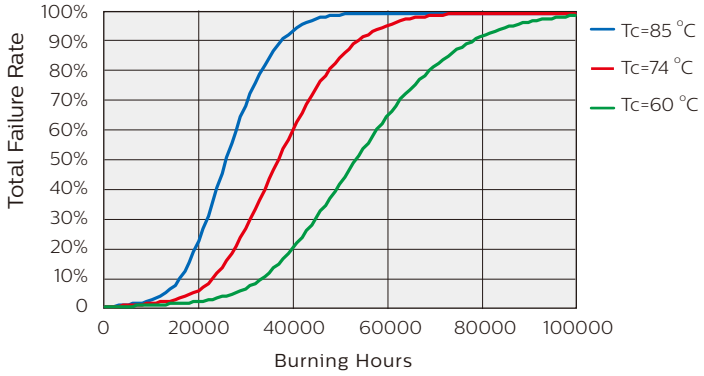
- Lifetime estimation based on the application environment condition: please refer to the Tc for lifetime forecast.

• 165W

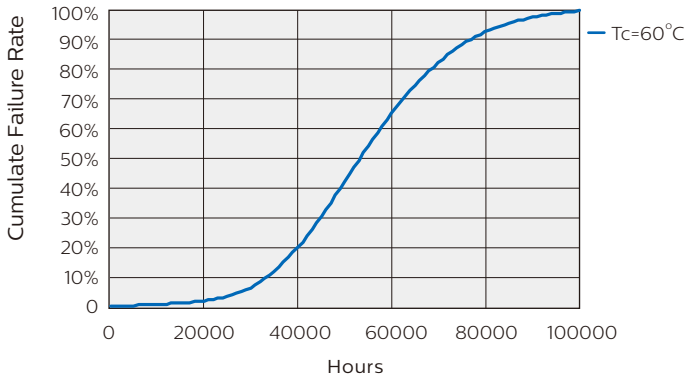
Lumen Maintenance vs Lifetime



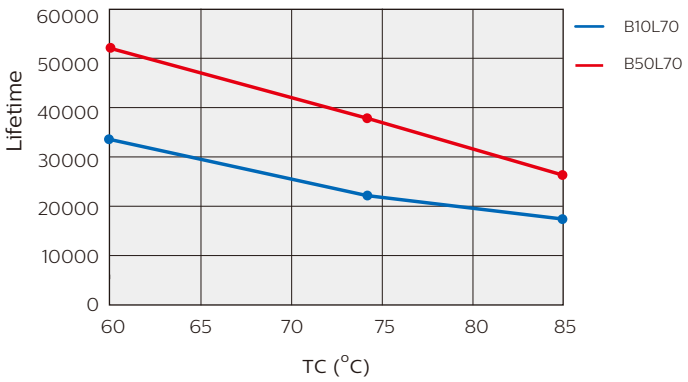
Failure Rate vs Lifetime



Failure rate vs. Lifetime @ Ta 25 °C



Lifetime vs. Tcase

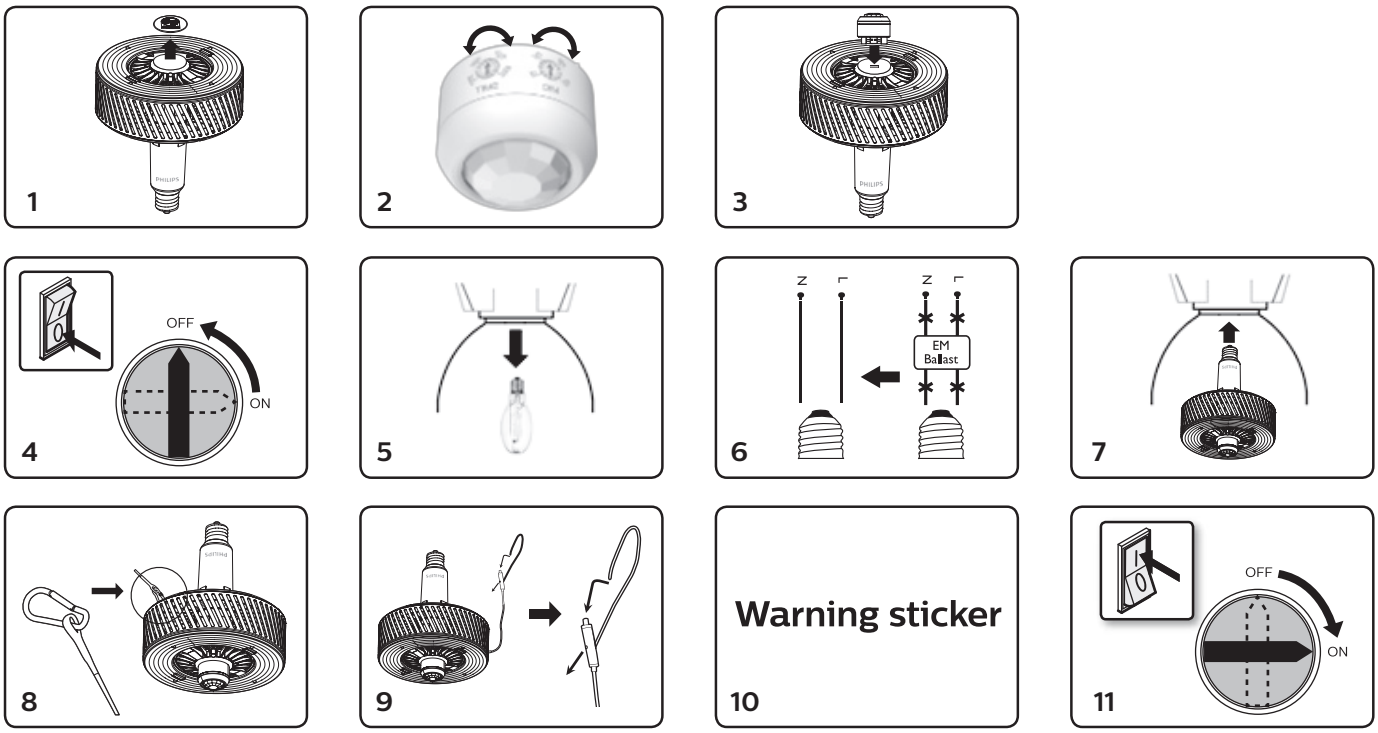


WARNINGS & CAUTIONS

- Always switch off the power supply before commencing work!
- The LED lamp is suitable for direct main voltage input.
- The LED lamp is NOT compatible with dimmers.
- Suitable for use in operation temperature range between -20°C to 45°C.
- If LED lamp is being use within luminaire, the minimum dimensions requirement on lamp compartment is (HxO) 300mm X 406mm. If the luminaire comes with a glass/cover, it's recommended to detach it for optimal light efficiency and product lifetime. Please check the Tc temperature in application guide for the best performance.
- Do not change the structure or any components of the LED lamp to ensure safety.
- The LED lamp is designed to fit in standard IEC compliant E40 lamp holders.
- The LED lamp should be installed by qualified professional electrician.
- Perform inspection before installation to ensure the luminaire/lamp holder is in good condition to carry the weight and performance of the LED lamp.
- The LED lamps should be positioned so that prolonged staring into the luminaire at a distance closer than Im is not expected.
- Always install the safety sling provided in the package.
- The LED lamp fulfilled IP40 requirement.
- The LED lamp is designed for general lighting service.
- Please do not apply the LED lamp in applications which contains emergency or/and explosive proof luminaires.
- Recommend 6-12 meters height for the installation height of sensor highbay lamp.
- Default sensor delay time is 5mins, and it can adjust to I/5/10/30 mins.
- Default sensor lamp output is 20% when sensor works, and it can adjust to 0%/20%/40%/60%.
- Place heat radiating devices outside of the monitoring cone.
- Avoid drafts (e.g.from ventilators or heating systems).
- Please remove luminaire cover when use sensor high bay lamp.
- Don't press sensor top cover during installation.
- The total system performance may vary depending on the lighting/luminaire system.
- For latest information, please refer to www.philips.com/lighting
- In case of doubt, please consult Signify representative.

DISCLAIMER:
Philips Lighting disclaims liability for any direct, indirect or incidental damages in case of installation performed either not according to this guide or not performed by a professional electrician.

Installation Guide



Perform a visual inspection to ensure the lamp-holder and internal wiring is not damaged, if the lamp-holder is damaged, corroded, charred, blackened, or loose, the lamp holder should be replaced with new lamp-holder. If the internal wire is damaged, it should be replaced with new wire.

1. Remove cover with Philips logo on the top side of lamp.
2. Adjust sensor setting for delay time and light output.
3. Insert sensor part into lamp via USB interface, pls don't push sensor top cover.
4. Switch off the power to luminaire.
5. Remove diffuser/glass (if provided) and existing lamp from the luminaire.
6. Bypass the gear including ballast/capacitor/ignitor and connect lamp-holder wires directly to AC supply leads. Use only on 110-277VAC, 50/60 Hz circuits.
7. Check the socket condition (replace it if the condition is poor) then screw in Philips TrueForce LED lamp into the E40 lamp holder firmly.
8. Install the safety sling provided to the lamp.
9. Attach the other end of the safety sling to the luminaire/fixed point. Adjust the sling length until suitable.
10. Affix the sticker provided inside the luminaire where it is prominently visible to the future installers. The sticker serves to notify that the luminaire has been modified and do not accept traditional HID lamps any longer.
11. Switch on power.

* skip step 1-3 for standard LED highbay lamp.

05/2020
www.philips.com/lighting