Philips Essential

LEDtube 600, 1200mm

LED

PHILIPS

Essential LEDtube is a reliable value-for-money LED lamp out of Philips lighting portfolio, incorporated with frontier LED chips and other advanced technologies. The product helps customers to achieve over 60% energy saving and significant maintenance cost reduction by comparing to fluorescent lamps. It also helps generate natural and comfortable lighting effect, and to build up green and environment friendly image for our customers.

Product Features

New Platform
- First Essential LEDtube with glass tube to inherent Philip's strong & solid fluorescent technology with unique glass coating
- Wider beam angle for diffuse light effect in basic type of luminaires like bare batten or closed luminaires
- Enhanced efficiency (from 100 to 110 lm/w)

Maintain high performance
- Reliable operation between -20 °C to 45 °C ambient temperature
- Trustable claimed lifetime
- 200,000 switching cycles

User Comfort
- CRI 80
- Instant on, no flicker or buzz
- Advanced optical design ensures a uniform light output and superior optical efficiency

Energy Efficient
- Energy savings over 60%*

Safety
- Protection circuit inside ensuring people's safety in case of mis-use, complying with IEC safety requirements
- Pass 4KV high-pot test, insulation & safety guaranteed
- Pass 1KV surge test (vs. IEC standard 500V), avoiding the damage caused by input voltage fluctuation and lightning strike
- 100% comply with IEC requirement on T8 dimension, fitting into fluorescent luminaire perfectly

Environmental Friendly
- No mercury
- No pollution risk

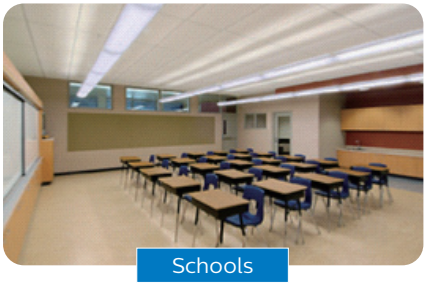
Compatibility
- ICompatible with electromagnetic ballasts by replace the fluorescent starter with Philips starter, eliminating the need for rewiring and allows fixture to maintain original CE compliance

* Based on comparison between 16W Essential LEDtube standard and Philips TLD standard or super 80 36W (40-44W system power when working with Electro Magnetic Ballasts)

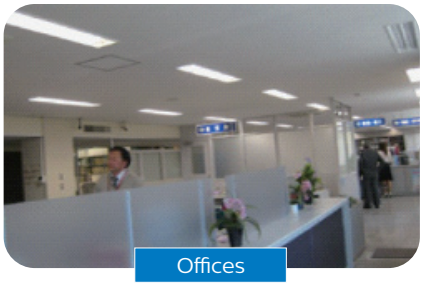
Application

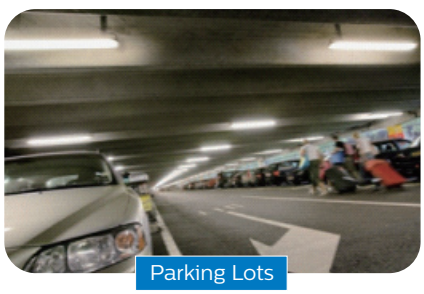

Retail


Industry

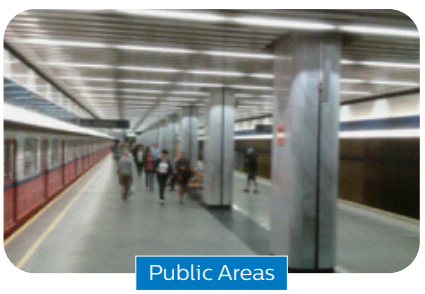

Schools


Hospitals


Offices


Parking Lots

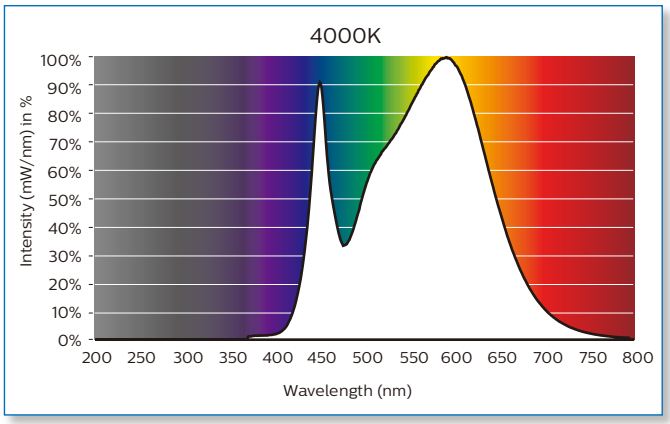

Warehouses

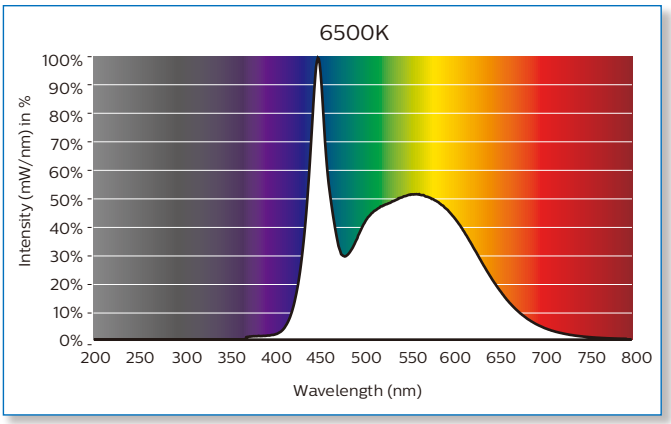

Public Areas

Spectral Power Distribution

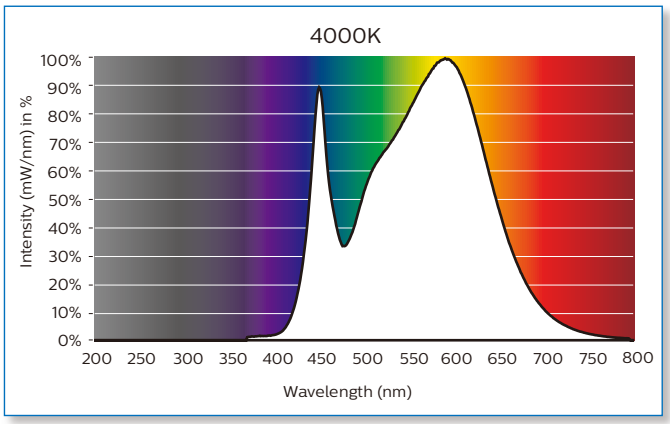
Light may be precisely characterized by giving the power of the light at each wavelength in the visible spectrum. The resulting spectralpower distribution (SPD) shows that the Essential LEDtube contains the visible light only. No harm from UV and IR.

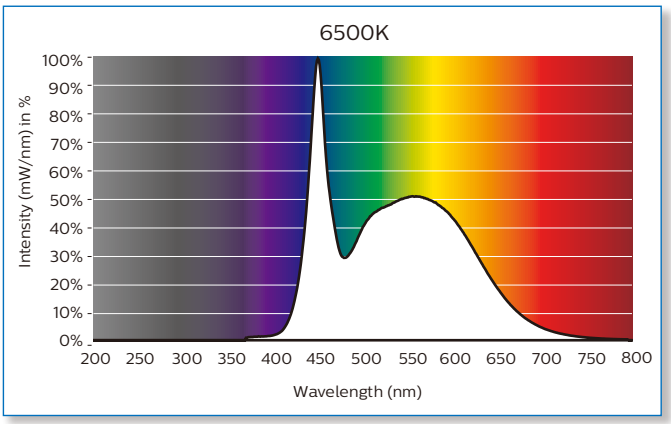
600mm





1200mm



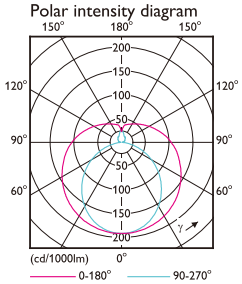


Photometric Diagrams

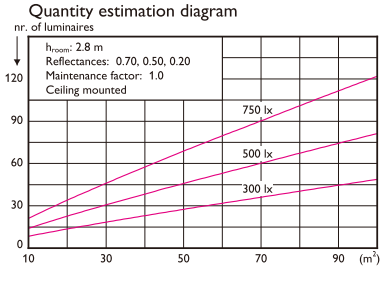
The Photometric diagram depicting the top down mounted lighting fixtures in a specific area and a numerical grid of the maintained lighting levels that the fixture will produce in that specific area. Pictures below show the photometric diagrams of a typical Philips Essential LEDtube's application.

Essential LEDtube 600mm 8W840 T8 — 1 x 800 lm

Polar intensity diagram



Quantity estimation diagram



Utilisation factor table

Room Index k	Reflectances (%) for ceiling, walls and working plane (CIE)										
	0.80	0.80	0.70	0.70	0.70	0.70	0.50	0.50	0.30	0.30	0.00
	0.50	0.50	0.50	0.50	0.50	0.30	0.30	0.10	0.30	0.10	0.00
	0.30	0.10	0.30	0.20	0.10	0.10	0.10	0.10	0.10	0.10	0.00
0.60	0.40	0.38	0.38	0.37	0.36	0.29	0.37	0.22	0.25	0.21	0.17
0.80	0.50	0.47	0.47	0.46	0.44	0.37	0.34	0.29	0.31	0.27	0.22
1.00	0.58	0.53	0.54	0.53	0.51	0.43	0.40	0.35	0.36	0.32	0.27
1.25	0.65	0.60	0.62	0.59	0.57	0.50	0.46	0.41	0.42	0.38	0.31
1.50	0.72	0.65	0.67	0.65	0.62	0.55	0.50	0.45	0.46	0.42	0.35
2.00	0.81	0.72	0.76	0.72	0.69	0.63	0.57	0.53	0.52	0.49	0.41
2.50	0.87	0.77	0.82	0.78	0.74	0.68	0.62	0.58	0.57	0.54	0.46
3.00	0.92	0.81	0.86	0.81	0.77	0.72	0.66	0.62	0.60	0.57	0.49
4.00	0.98	0.85	0.92	0.86	0.81	0.77	0.71	0.67	0.65	0.62	0.53
5.00	1.02	0.88	0.96	0.90	0.84	0.80	0.74	0.71	0.68	0.65	0.56

Ceiling mounted

Luminance Table

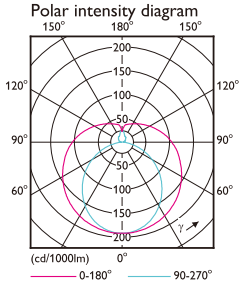
Plane Cone	0.0	15.0	30.0	45.0	60.0	75.0	90.0
45.0	5497	5452	5413	5442	5634	6191	7496
50.0	5311	5251	5188	5171	5300	5785	7185
55.0	5150	5083	4987	4919	4955	5348	6810
60.0	5020	4941	4827	4706	4643	4898	6399
65.0	4914	4838	4690	4513	4345	4426	5877
70.0	4839	4767	4594	4372	4104	3936	5245
75.0	4821	4743	4553	4304	3918	3448	4446
80.0	4840	4749	4577	4287	3803	2983	3280
85.0	4879	4767	4606	4332	3768	2656	1737
90.0	4958	4845	4672	4399	3866	2625	765

(cd/m²)

Essential LEDtube 600mm 8W865 T8

1 x 800 lm

Polar intensity diagram



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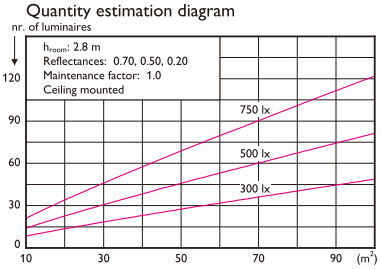

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	0.50	0.50	0.50	0.50	0.50	0.30	0.30	0.10	0.30	0.10	0.00
	0.30	0.10	0.30	0.20	0.10	0.10	0.10	0.10	0.10	0.10	0.00
0.60	0.40	0.38	0.38	0.37	0.36	0.29	0.27	0.22	0.25	0.21	0.17
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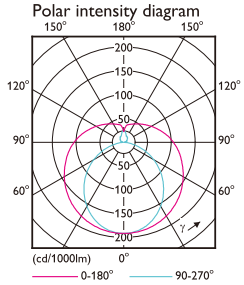
(cd/m²)

Essential LEDtube 1200mm 14.5W840 T8

1 x 1600 lm

Polar intensity diagram



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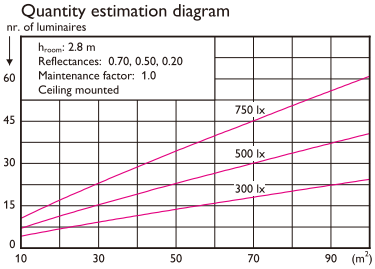

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	0.30	0.10	0.30	0.20	0.10	0.10	0.10	0.10	0.10	0.10	0.00
0.60	0.40	0.38	0.38	0.37	0.36	0.29	0.27	0.22	0.25	0.21	0.17
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Ceiling mounted

Luminance Table

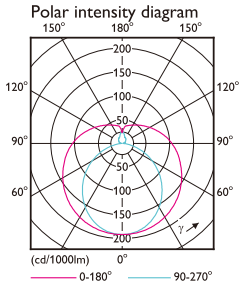
Plane Cone	0.0	15.0	30.0	45.0	60.0	75.0	90.0
45.0	10990	10903	10827	10889	11268	12383	14999
50.0	10622	10502	10371	10348	10595	11570	14369
55.0	10300	10162	9970	9843	9916	10696	13621
60.0	10040	9885	9649	9412	9279	9804	12799
65.0	9823	9677	9374	9032	8690	8843	11741
70.0	9678	9535	9188	8749	8209	7872	10505
75.0	9642	9486	9111	8613	7837	6897	8892
80.0	9675	9504	9148	8567	7606	5966	6586
85.0	9753	9533	9206	8657	7546	5313	3474
90.0	9917	9689	9343	8799	7743	5269	1531

(cd/m²)

Essential LEDtube 1200mm 14.5W865 T8

1 x 1600 lm

Polar intensity diagram



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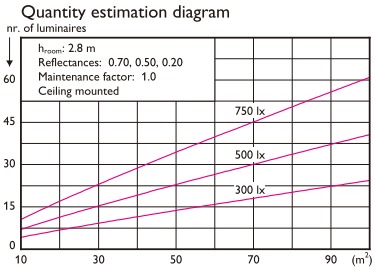

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	0.30	0.10	0.30	0.20	0.10	0.10	0.10	0.10	0.10	0.10	0.00
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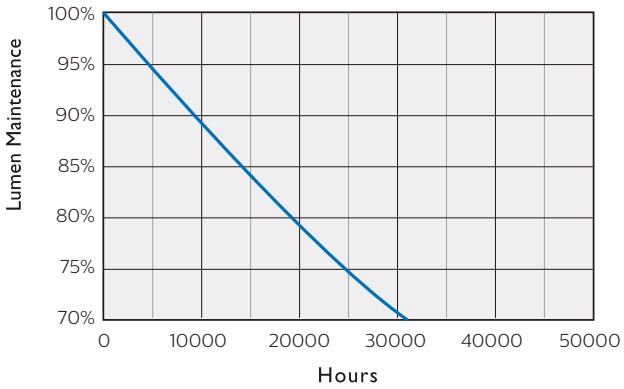
(cd/m²)

Lifetime and Lumen Maintenance

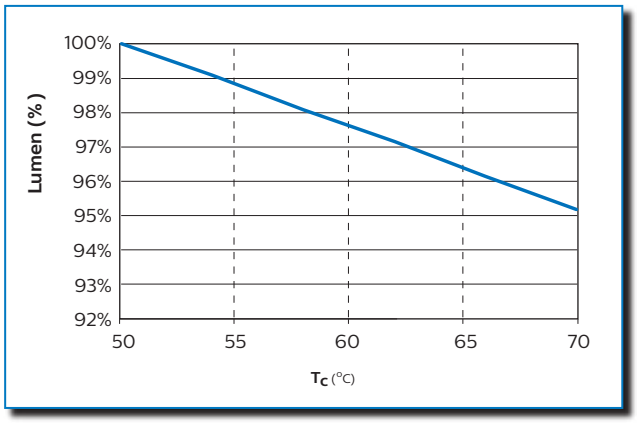


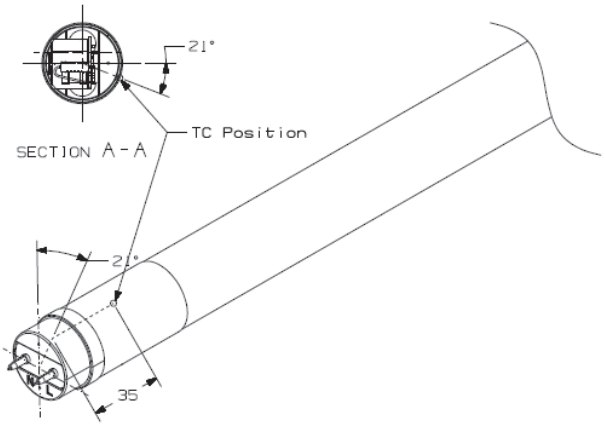
Philips Essential LEDtube has a lifetime of 30,000 hours, defined as the number of hours when 50% of a large group of identical lamps below 70% of its initial lumens.

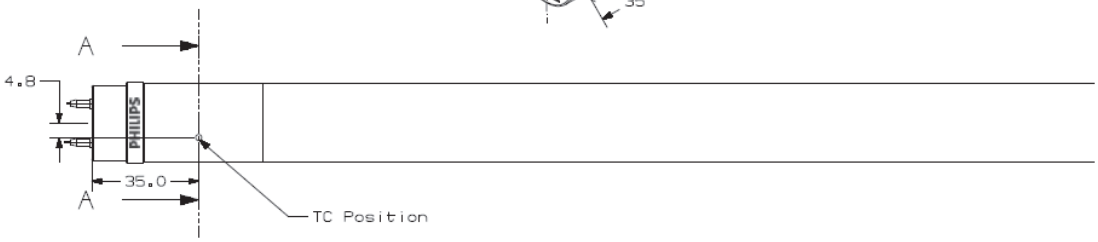
Temperature

Essential LEDtube's excellent thermal design ensures low temperature during operating, which brings reliable and stable product performance throughout life time.

Operating temperature	T operating	min -20°C	max +45°C
Storage temperature	T case	min -40°C	max +65°C
Maximum surface temperature for rated lifetime of tube at Tamb.=25°C	T case		+56°C



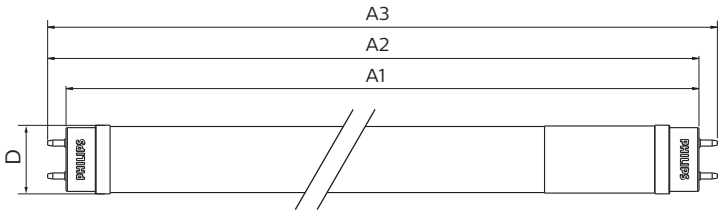




Approbation & Certificates

Philips LEDtube is designed by strictly following applicable legislation and international standard.
The product complies with **CE, KEMA, RoHS and REACH**.

CE KEMA KEUR **RoHS** REACH



Dimensions (mm)

Product	A1	A2	A3	D
600mm	588.6	595.7	602.8	28
1200mm	1198.2	1205.3	1212.4	28
1500mm	1498.8	1505.9	1513.0	28

Technical specification

Product Description	Lamp Wattage (W)	Voltage (V)	Cap	Length (mm)	Beam Angle (°)	Lifetime (hrs)	Lumen output (lm)	CCT (K)	CRI * (Typical)	Pcs per	Model Number Box
Essential LEDtube 600mm 8W840 T8 AP I	8	220-240	G13	600	240	30,000	800	4000	80	10	9290013386
Essential LEDtube 600mm 8W865 T8 AP I	8	220-240	G13	600	240	30,000	800	6500	80	10	9290013387
Essential LEDtube 1200mm 14.5W840 T8AP I	14.5	220-240	G13	1200	240	30,000	1600	4000	80	10	9290013388
Essential LEDtube 1200mm 14.5W865 T8AP I	14.5	220-240	G13	1200	240	30,000	1600	6500	80	10	9290013389

* minimum is 80

Quick Installation Guide

Please take the time to read this quick installation guide. Philips Lighting does not accept liability for any damages for installations not performed according to this guide or not performed by a professional electrician.

Installation Warning

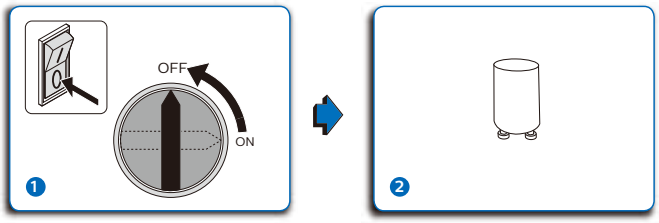
- Check whether the system is an EM (Electro Magnetic) ballast based system or an HF (High Frequency electronic) ballast based system, and follow the appropriate instructions accordingly. For new built luminaries follow section "New built luminaries".
- Product is not dimmable.
- Always switch off the power supply before commencing work.
- Do not change the structure or any components of the product.

Application Notes

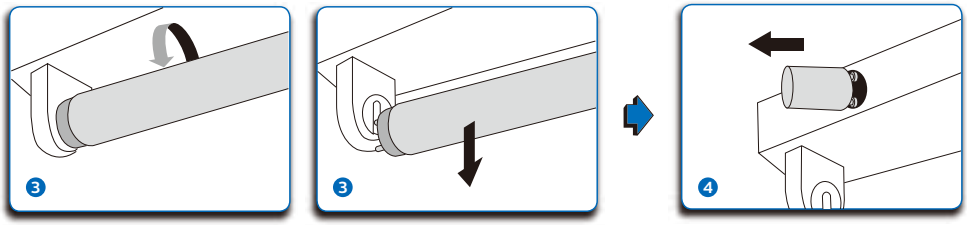
- Operation temperature range is between -20°C and +45°C ambience.
- Only to apply in dry indoor usage and environments.
- Not intended for use with emergency light fixtures or exit light.
- For use in fixtures which consist of IEC compliant G13 bi-pin lamp holders which can support 500 gram.

- EM ballast based system

Installation Guide

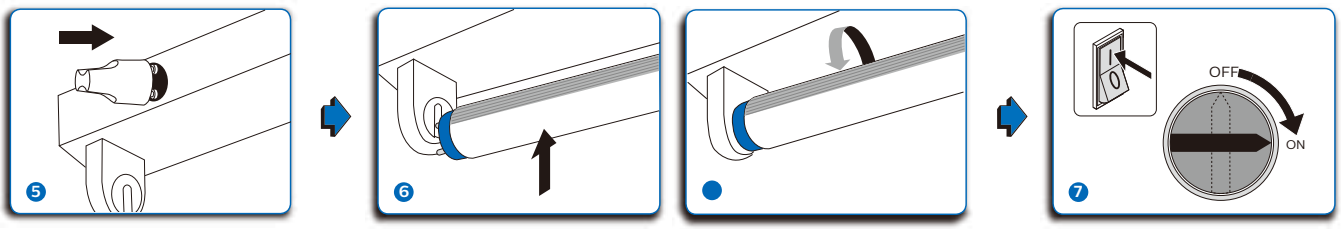


Mains Off



Remove all existing FLUORESCENT TUBES from luminaire

Remove all existing STARTERS from luminaire



Install EMP starter replacement only

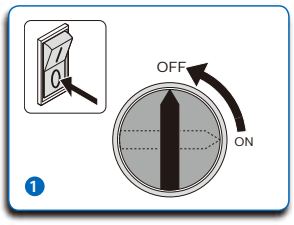
Install the LEDtube

Turn on mains

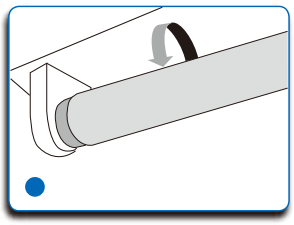
For EM ballast installations please check if a Power Factor Correcting Capacitor is installed in the existing circuit. If yes, please follow the instructions below:

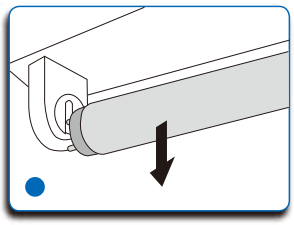
- Please simply remove the capacitor if it is in parallel with the EM Ballast
- In case of 2ft/600mm lamps, if there is only one starter in the luminaire for 2 lamps, or 2 starters for 4 lamps, then rewire according to the SAFE rewiring instructions in next section
- The lamp is made of glass material and therefore not recommended to use in food applications or installations that have to comply with HACCP standards.

- HF ballast based system

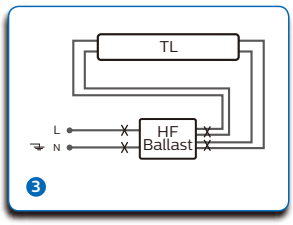


Mains Off



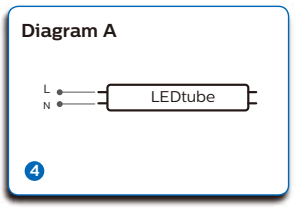


Remove all existing FLUORESCENT TUBES from luminaire

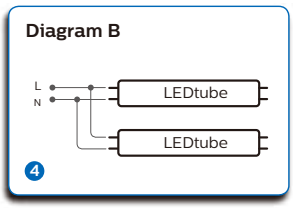


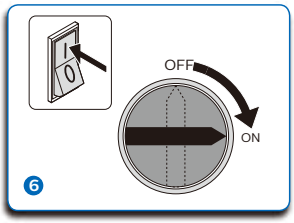
By pass HF

For 3 lamps use diagram A & B



For 4 lamps use diagram B & B





Turn on mains

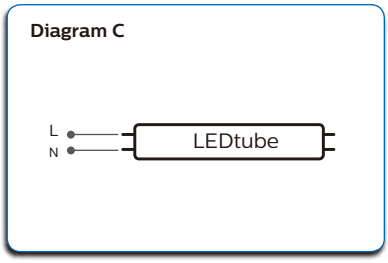
Bypass existing HF BALLAST and rewire according to the following diagrams.
Please check the L/N markings on the lamp end and insert the lamp with AC mains supplied to the corresponding end.
To install the lamp in the wrong direction will lead to malfunction.

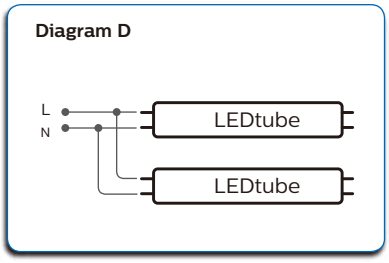
The supplied warning sticker must be placed on the luminaire and must be visible during lamp replacement

- New built luminaires

Number of tube	Wire according to diagram
1	C
2	D
3	C+D
4	D+D

Please check the L/N markings on the lamp end and insert the lamp with AC mains supplied to the corresponding end.
To install the lamp in the wrong direction will lead to malfunction.

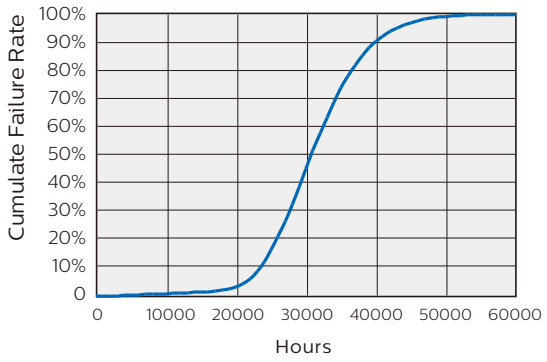




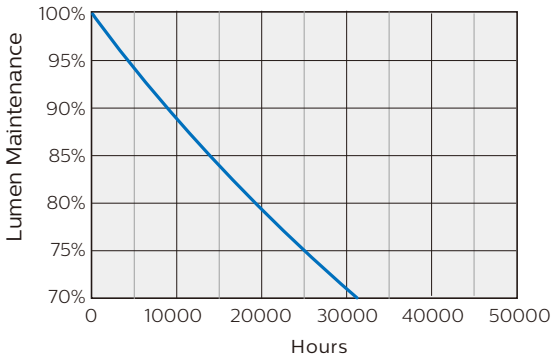
OEM Guideline

600mm/1200mm

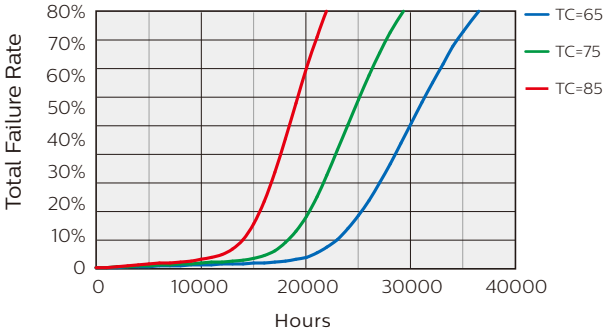
Lifetime Curve



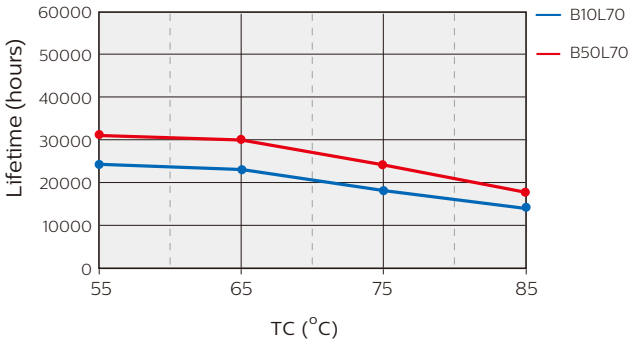
Lifetime and Lumen Maintenance



Failure Rate vs.
Lifetime vs. Tcase



Lifetime vs. Tcase



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