Philips Essential LEDtube T5

PHILIPS

Philips Essential LEDtube T5 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 up to 50% 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

Maintain high performance

- Reliable operation between -20 °C to 45 °C ambient temperature
- Trustable claimed lifetime
- 50,000 switching cycles

Easy to experience

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

Energy Efficient

- Energy savings up to 50%*

* Based on comparison between 16W Essential LEDtube standard and Philips TL5 standard or super 80 28W (30-32W system power when working with Electronics Ballasts)

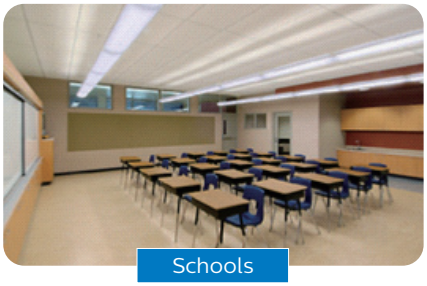
Safe and forget

- 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
- Slim size fitting into most of T5 fluorescent luminaire perfectly

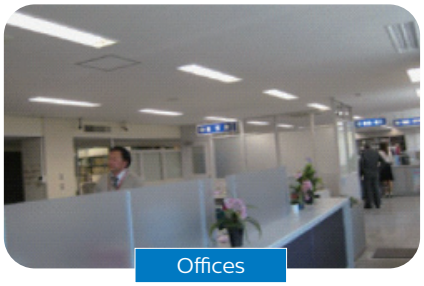
Application

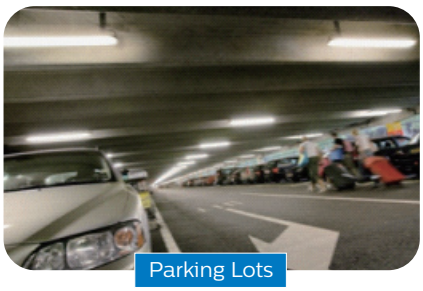

Retail


Industry

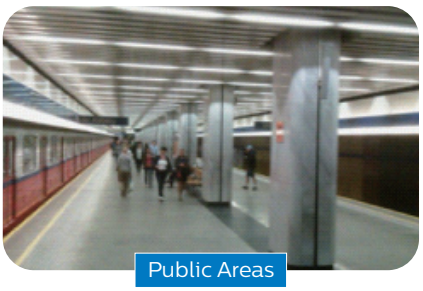

Schools


Hospitals


Offices

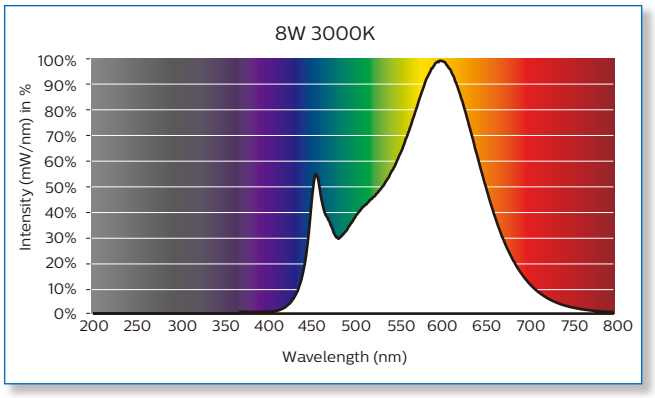

Parking Lots

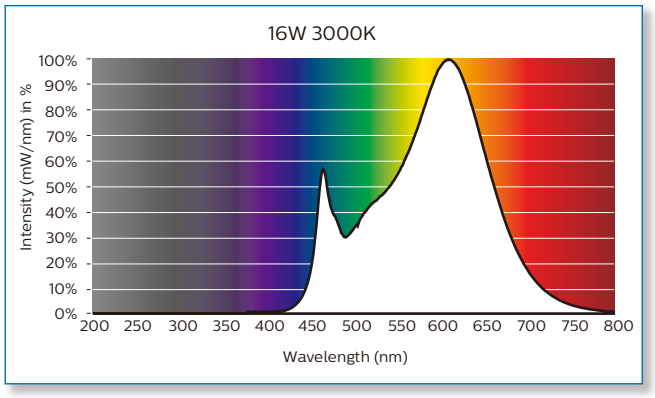

Warehouses

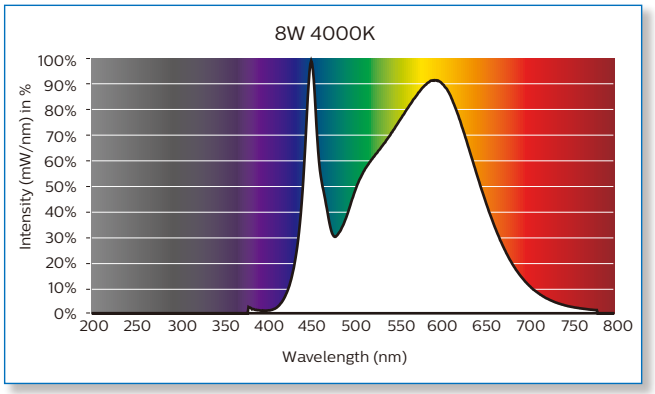

Public Areas

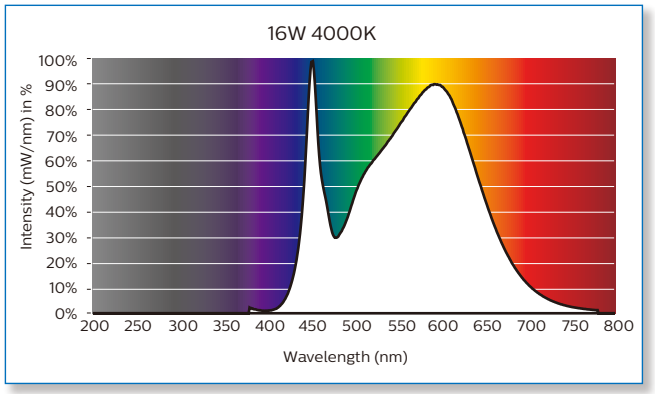
Spectral Power Distribution

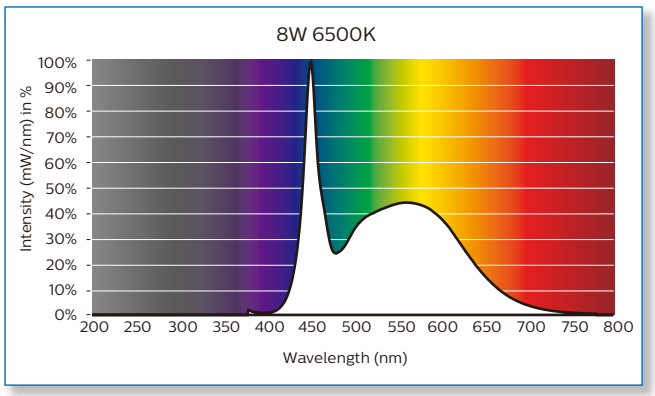
Light may be precisely characterized by giving the power of the light at each wavelength in the visible spectrum. The resulting spectralpower distribution (SPD) shows that the LEDtube contains the visible light only. No harm from UV and IR.

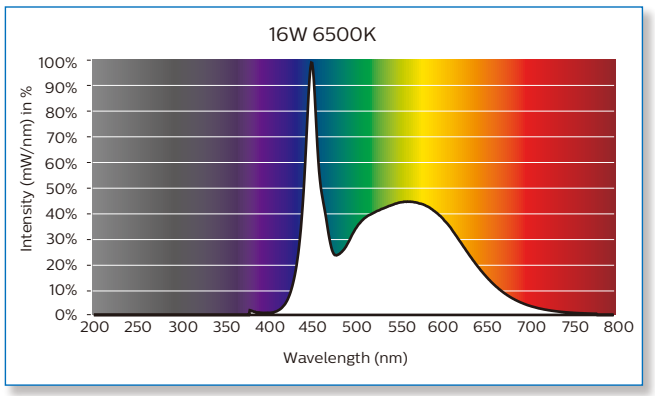












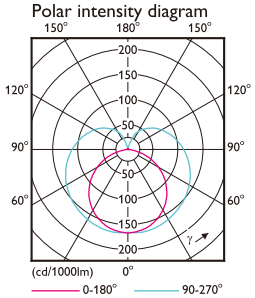
Photometric Diagrams

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 LEDtube's application.

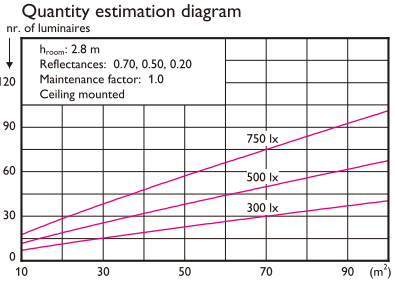
ESSENTIAL LEDtube 600mm 8W830 G5 I

1 x 1000 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	0.38	0.36	0.36	0.36	0.35	0.27	0.25	0.21	0.23	0.19	0.15
0.80	0.48	0.45	0.45	0.44	0.43	0.35	0.32	0.27	0.29	0.25	0.20
1.00	0.55	0.51	0.52	0.51	0.49	0.41	0.38	0.33	0.34	0.30	0.25
1.25	0.63	0.58	0.59	0.57	0.55	0.48	0.43	0.38	0.39	0.35	0.29
1.50	0.69	0.63	0.65	0.62	0.60	0.52	0.48	0.43	0.44	0.39	0.33
2.00	0.78	0.70	0.73	0.70	0.66	0.60	0.55	0.50	0.50	0.46	0.39
2.50	0.84	0.74	0.79	0.75	0.71	0.65	0.60	0.55	0.54	0.51	0.43
3.00	0.89	0.78	0.83	0.79	0.74	0.69	0.63	0.59	0.57	0.54	0.46
4.00	0.95	0.82	0.89	0.84	0.79	0.74	0.68	0.64	0.62	0.59	0.50
5.00	0.99	0.85	0.93	0.87	0.81	0.78	0.71	0.68	0.65	0.62	0.53

Ceiling mounted

Luminance Table

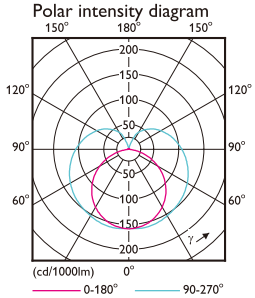
Plane / Cone	0.0	15.0	30.0	45.0	60.0	75.0	90.0
45.0	856	891	972	1122	1318	1583	1913
50.0	766	806	902	1075	1295	1592	1987
55.0	670	721	837	1039	1282	1618	2070
60.0	569	637	779	1001	1273	1649	2191
65.0	469	547	721	968	1271	1697	2341
70.0	361	458	668	947	1281	1768	2542
75.0	241	376	623	930	1304	1858	2821
80.0	130	301	584	922	1338	1981	3223
85.0	36	244	557	928	1389	2152	3850
90.0	8	210	546	945	1469	2396	4938

(cd/m²)

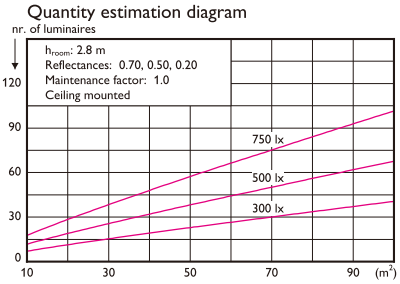
ESSENTIAL LEDtube 600mm 8W840 G5 I

1 x 1050 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	0.36	0.35	0.34	0.34	0.33	0.26	0.24	0.20	0.22	0.18	0.15
0.80	0.45	0.42	0.43	0.42	0.40	0.33	0.30	0.26	0.28	0.24	0.19
1.00	0.53	0.49	0.50	0.48	0.46	0.39	0.36	0.31	0.33	0.29	0.23
1.25	0.60	0.55	0.56	0.54	0.52	0.45	0.41	0.36	0.37	0.33	0.28
1.50	0.65	0.59	0.62	0.59	0.57	0.50	0.45	0.41	0.41	0.37	0.31
2.00	0.74	0.66	0.70	0.66	0.63	0.57	0.52	0.48	0.47	0.44	0.37
2.50	0.80	0.71	0.75	0.71	0.67	0.62	0.57	0.53	0.51	0.48	0.41
3.00	0.84	0.74	0.79	0.75	0.71	0.66	0.60	0.56	0.55	0.52	0.44
4.00	0.90	0.78	0.85	0.79	0.75	0.70	0.64	0.61	0.59	0.56	0.48
5.00	0.94	0.81	0.88	0.82	0.77	0.74	0.67	0.64	0.61	0.59	0.50

Ceiling mounted

Luminance Table

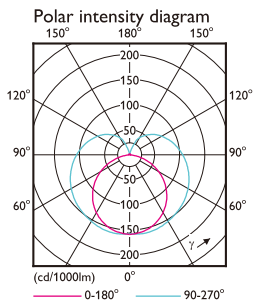
Plane / Cone	0.0	15.0	30.0	45.0	60.0	75.0	90.0
45.0	856	891	972	1122	1318	1583	1913
50.0	766	806	902	1075	1295	1592	1987
55.0	670	721	837	1039	1282	1618	2070
60.0	569	637	779	1001	1273	1649	2191
65.0	469	547	721	968	1271	1697	2341
70.0	361	458	668	947	1281	1768	2542
75.0	241	376	623	930	1304	1858	2821
80.0	130	301	584	922	1338	1981	3223
85.0	36	244	557	928	1389	2152	3850
90.0	8	210	546	945	1469	2396	4938

(cd/m²)

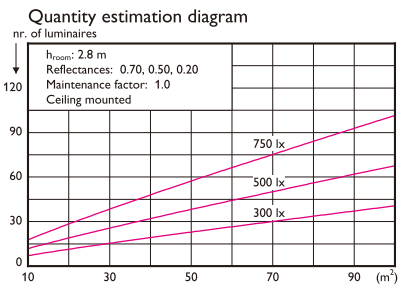
ESSENTIAL LEDtube 600mm 8W865 G5 I

1 x 1050 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	0.36	0.35	0.34	0.34	0.33	0.26	0.24	0.20	0.22	0.18	0.15
0.80	0.45	0.42	0.43	0.42	0.40	0.33	0.30	0.26	0.28	0.24	0.19
1.00	0.53	0.49	0.50	0.48	0.46	0.39	0.36	0.31	0.33	0.29	0.23
1.25	0.60	0.55	0.56	0.54	0.52	0.45	0.41	0.36	0.37	0.33	0.28
1.50	0.65	0.59	0.62	0.59	0.57	0.50	0.45	0.41	0.41	0.37	0.31
2.00	0.74	0.66	0.70	0.66	0.63	0.57	0.52	0.48	0.47	0.44	0.37
2.50	0.80	0.71	0.75	0.71	0.67	0.62	0.57	0.53	0.51	0.48	0.41
3.00	0.84	0.74	0.79	0.75	0.71	0.66	0.60	0.56	0.55	0.52	0.44
4.00	0.90	0.78	0.85	0.79	0.75	0.70	0.64	0.61	0.59	0.56	0.48
5.00	0.94	0.81	0.88	0.82	0.77	0.74	0.67	0.64	0.61	0.59	0.50

Ceiling mounted

Luminance Table

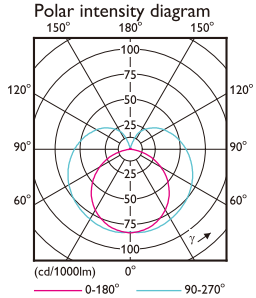
Plane / Cone	0.0	15.0	30.0	45.0	60.0	75.0	90.0
45.0	856	891	972	1122	1318	1583	1913
50.0	766	806	902	1075	1295	1592	1987
55.0	670	721	837	1039	1282	1618	2070
60.0	569	637	779	1001	1273	1649	2191
65.0	469	547	721	968	1271	1697	2341
70.0	361	458	668	947	1281	1768	2542
75.0	241	376	623	930	1304	1858	2821
80.0	130	301	584	922	1338	1981	3223
85.0	36	244	557	928	1389	2152	3850
90.0	8	210	546	945	1469	2396	4938

(cd/m²)

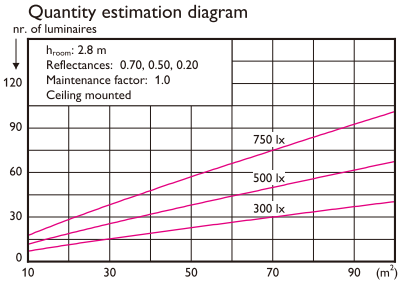
ESSENTIAL LEDtube 1200mm 16W830 G5 I

1 x 2000 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	0.19	0.18	0.18	0.18	0.17	0.14	0.13	0.10	0.12	0.10	0.08
0.80	0.24	0.22	0.23	0.22	0.21	0.17	0.16	0.14	0.15	0.12	0.10
1.00	0.28	0.26	0.26	0.25	0.24	0.21	0.19	0.16	0.17	0.15	0.12
1.25	0.31	0.29	0.30	0.29	0.27	0.24	0.22	0.19	0.20	0.18	0.15
1.50	0.34	0.31	0.32	0.31	0.30	0.26	0.24	0.22	0.22	0.20	0.16
2.00	0.39	0.35	0.37	0.35	0.33	0.30	0.27	0.25	0.25	0.23	0.19
2.50	0.42	0.37	0.40	0.37	0.36	0.33	0.30	0.28	0.27	0.25	0.21
3.00	0.44	0.39	0.42	0.39	0.37	0.35	0.32	0.30	0.29	0.27	0.23
4.00	0.48	0.41	0.45	0.42	0.39	0.37	0.34	0.32	0.31	0.30	0.25
5.00	0.50	0.43	0.46	0.43	0.41	0.39	0.35	0.34	0.32	0.31	0.26

Ceiling mounted

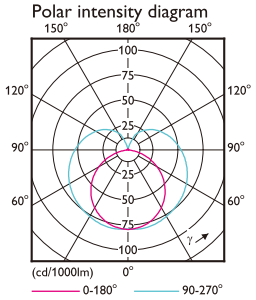
Luminance Table

Plane / Cone	0.0	15.0	30.0	45.0	60.0	75.0	90.0
45.0	428	453	502	589	703	861	1063
50.0	383	410	467	567	696	875	1122
55.0	335	367	435	550	694	899	1192
60.0	285	325	406	533	695	928	1291
65.0	235	280	377	518	699	970	1418
70.0	180	234	350	509	712	1027	1596
75.0	121	193	328	504	733	1102	1859
80.0	65	155	308	503	761	1206	2280
85.0	18	126	296	510	802	1354	3058
90.0	4	109	291	525	865	1579	4938

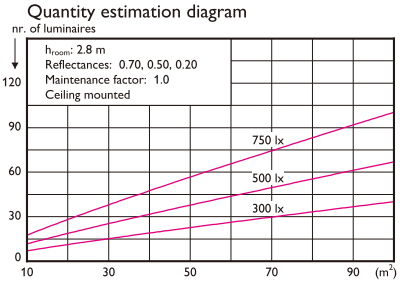
(cd/m²)

ESSENTIAL LEDtube 1200mm 16W840 G5 I — 1 x 2100 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	0.18	0.17	0.17	0.17	0.17	0.13	0.12	0.10	0.11	0.09	0.07
0.80	0.23	0.21	0.22	0.21	0.20	0.17	0.15	0.13	0.14	0.12	0.10
1.00	0.27	0.25	0.25	0.24	0.23	0.20	0.18	0.16	0.16	0.14	0.12
1.25	0.30	0.28	0.28	0.27	0.26	0.23	0.21	0.18	0.19	0.17	0.14
1.50	0.33	0.30	0.31	0.30	0.29	0.25	0.23	0.21	0.21	0.19	0.16
2.00	0.37	0.33	0.35	0.33	0.32	0.29	0.26	0.24	0.24	0.22	0.19
2.50	0.40	0.36	0.38	0.36	0.34	0.31	0.29	0.27	0.26	0.24	0.21
3.00	0.43	0.37	0.40	0.38	0.36	0.33	0.30	0.28	0.28	0.26	0.22
4.00	0.46	0.40	0.43	0.40	0.38	0.36	0.33	0.31	0.30	0.28	0.24
5.00	0.48	0.41	0.45	0.42	0.39	0.37	0.34	0.33	0.31	0.30	0.25

Ceiling mounted

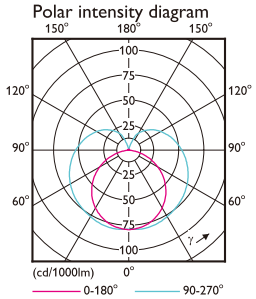
Luminance Table

Plane / Cone	0.0	15.0	30.0	45.0	60.0	75.0	90.0
45.0	428	453	502	589	703	861	1063
50.0	383	410	467	567	696	875	1122
55.0	335	367	435	550	694	899	1192
60.0	285	325	406	533	695	928	1291
65.0	235	280	377	518	699	970	1418
70.0	180	234	350	509	712	1027	1596
75.0	121	193	328	504	733	1102	1859
80.0	65	155	308	503	761	1206	2280
85.0	18	126	296	510	802	1354	3058
90.0	4	109	291	525	865	1579	4938

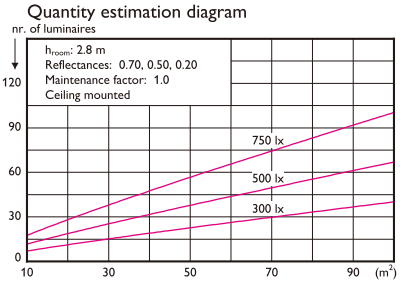
(cd/m²)

ESSENTIAL LEDtube 1200mm 16W865 G5 I — 1 x 2100 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	0.18	0.17	0.17	0.17	0.17	0.13	0.12	0.10	0.11	0.09	0.07
0.80	0.23	0.21	0.22	0.21	0.20	0.17	0.15	0.13	0.14	0.12	0.10
1.00	0.27	0.25	0.25	0.24	0.23	0.20	0.18	0.16	0.16	0.14	0.12
1.25	0.30	0.28	0.28	0.27	0.26	0.23	0.21	0.18	0.19	0.17	0.14
1.50	0.33	0.30	0.31	0.30	0.29	0.25	0.23	0.21	0.21	0.19	0.16
2.00	0.37	0.33	0.35	0.33	0.32	0.29	0.26	0.24	0.24	0.22	0.19
2.50	0.40	0.36	0.38	0.36	0.34	0.31	0.29	0.27	0.26	0.24	0.21
3.00	0.43	0.37	0.40	0.38	0.36	0.33	0.30	0.28	0.28	0.26	0.22
4.00	0.46	0.40	0.43	0.40	0.38	0.36	0.33	0.31	0.30	0.28	0.24
5.00	0.48	0.41	0.45	0.42	0.39	0.37	0.34	0.33	0.31	0.30	0.25

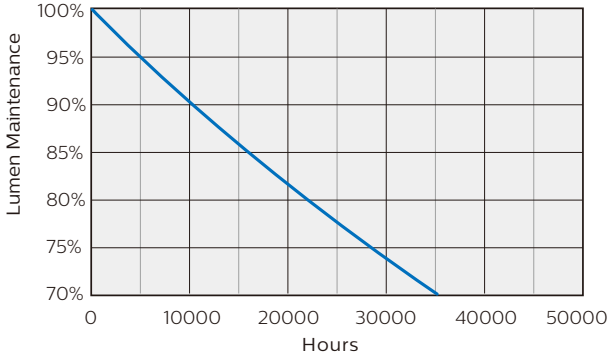
Ceiling mounted

Luminance Table

Plane / Cone	0.0	15.0	30.0	45.0	60.0	75.0	90.0
45.0	428	453	502	589	703	861	1063
50.0	383	410	467	567	696	875	1122
55.0	335	367	435	550	694	899	1192
60.0	285	325	406	533	695	928	1291
65.0	235	280	377	518	699	970	1418
70.0	180	234	350	509	712	1027	1596
75.0	121	193	328	504	733	1102	1859
80.0	65	155	308	503	761	1206	2280
85.0	18	126	296	510	802	1354	3058
90.0	4	109	291	525	865	1579	4938

(cd/m²)

Lifetime and Lumen Maintenance

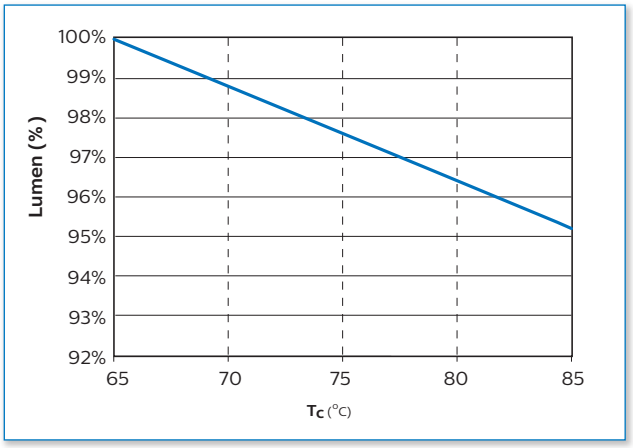


Philips Essential LEDtube T5 has a lifetime of 30,000 hours, defined as the number of hours when 50% of a large group of identical lamps below 70% of its initial lumens.

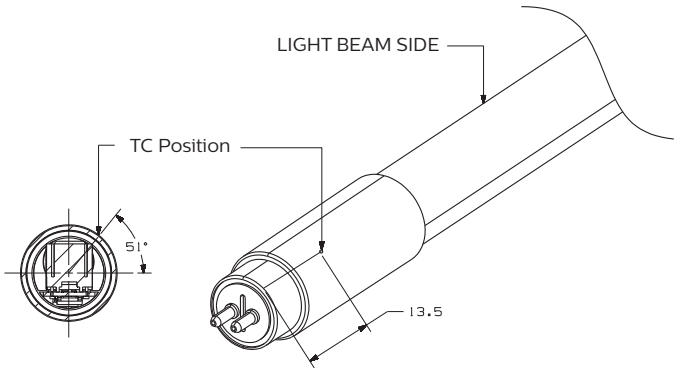
Temperature

Philips Essential T5 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 storage	min -40°C	max +65°C
Maximum surface temperature of tube at Tamb.=25°C	T surface		+60°C

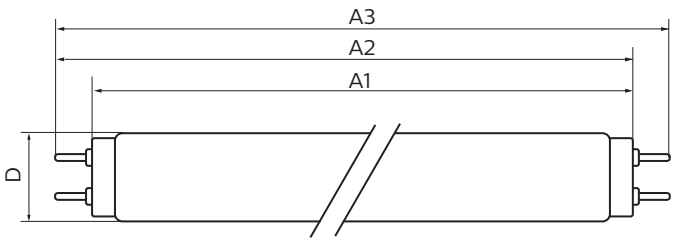


Dimension: mm



Approbation & Certificates

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



Dimensions (mm)

Product	A1	A2	A3	D
G5 2ft	549	546.7/549	560.7/563.2	19
G5 4ft	1149	1153.7/1156.1	1160.7/1163.2	19

Technical specification

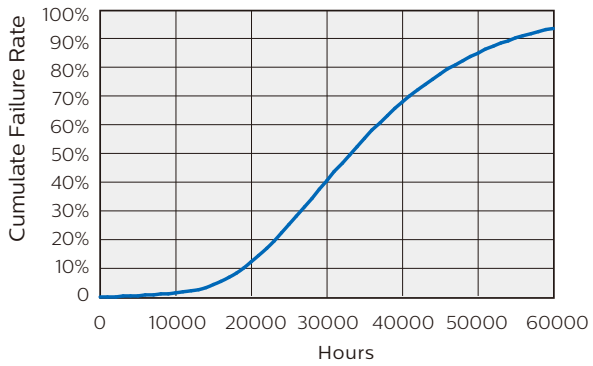
Product Description	Wattage	Voltage	Cap	Length	Beam Angle	Lifetime	Lumen output	CCT	CRI *	Model Number
	(W)	(V)		(mm)	(°)	(hrs)	(lm)	(K)	(Typical)	
ESSENTIAL LEDtube 600mm 8W830 G5 I	8	100-240	G5	600	240	30,000	1000	3000	80	9290013806
ESSENTIAL LEDtube 600mm 8W840 G5 I	8	100-240	G5	600	240	30,000	1050	4000	80	9290013807
ESSENTIAL LEDtube 600mm 8W865 G5 I	8	100-240	G5	600	240	30,000	1050	6500	80	9290013808
ESSENTIAL LEDtube 1200mm 16W830 G5 I	16	100-240	G5	1200	240	30,000	2000	3000	80	9290013809
ESSENTIAL LEDtube 1200mm 16W840 G5 I	16	100-240	G5	1200	240	30,000	2100	4000	80	9290013810
ESSENTIAL LEDtube 1200mm 16W865 G5 I	16	100-240	G5	1200	240	30,000	2100	6500	80	9290013811

Quick Installation Guide

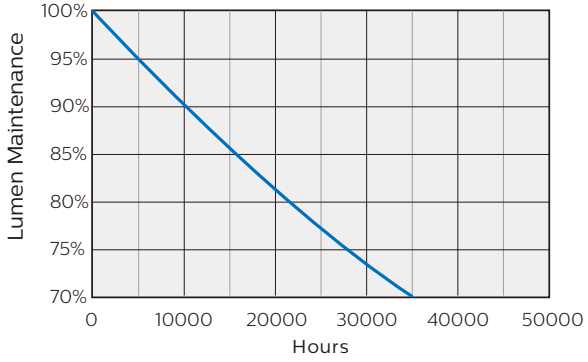
Please take the time to read quick installation guide which is showed on the product package. Philips Lighting does not accept liability for any damages for installations not performed according to this guide or not performed by a professional electrician.

OEM Guideline

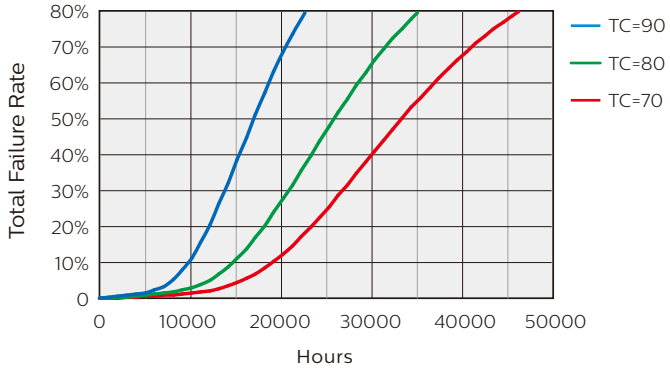
Failure rate vs. Lifetime @ Ta 25°C



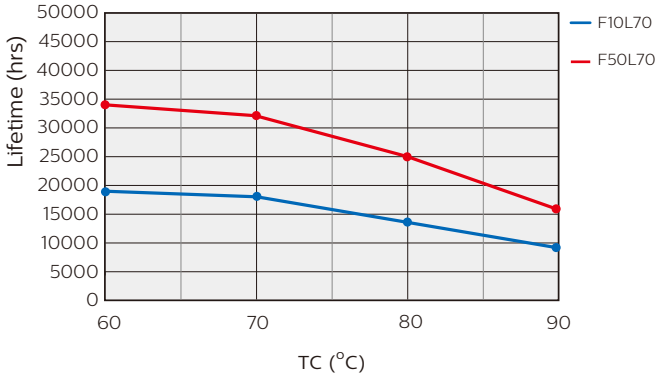
Lumen Maintenance vs. Lifetime



Failure Rate vs.
Lifetime vs. Tcase



Lifetime vs. Tcase



03/2017
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