PHILIPS

LED

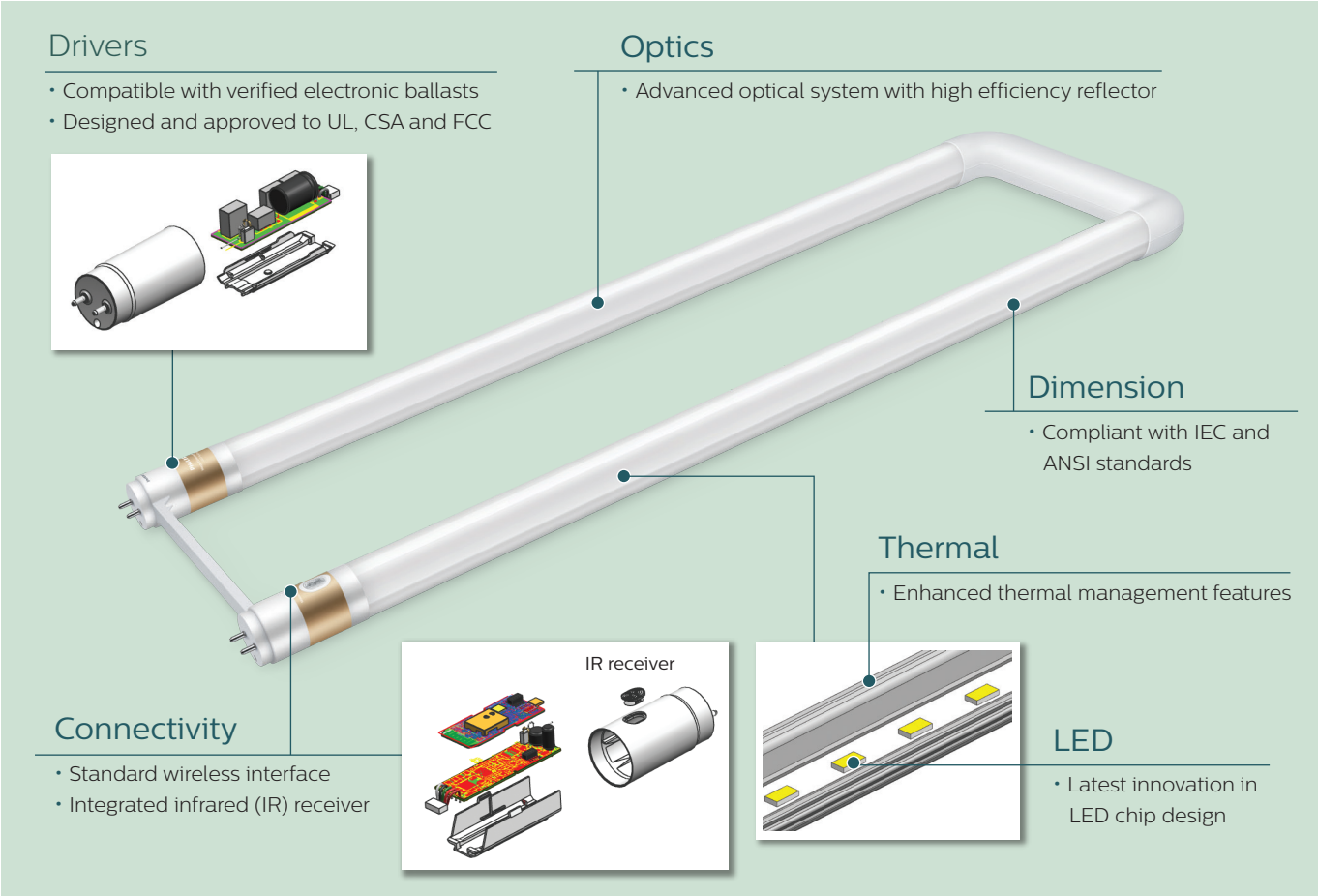
MasterConnect

InstantFit T8

Technical Application Guide

Philips MasterConnect LEDtube InstantFit T8 lamp, which is Interact Ready, enables an easy upgrade to a connected lighting system without re-wiring the fixtures. The 2.4GHz mesh networking technology allows integration with a variety of control devices such as sensors and switches. It also offers secure and reliable communication with the Interact IoT platform or verified third party systems. The result? Greater energy savings, expanded control possibilities and a more adaptable space!

interact ready.



Product Features

Ballast Compatibility
- Innovative driver design that enables a "plug-and-play" LED solution.
- Compatible with verified[1] electronic ballast.
- Quick and easy installation.

Connectivity
- Reliable and secure wireless communication, nominal range 40 feet.
- Easy commissioning and (re-)configuration.
- Interact ready.

Control Functionality
- Automatic on/off and dimming based on occupancy detection and daylight variation.
- Personal dimming and scene setting with wireless switch or app.
- High-end trimming to help save energy and extend lamp life.
- Energy reporting and diagnostics that brings peace of mind.

Energy Savings
- Energy savings of 50% or more* compared to fluorescent lamps.
- Additional 20-40% energy saving when used with advanced control, such as dimming, occupancy sensing and daylight harvesting.
- DLC listed.

User comfort
- Uniform light output with advanced optical design.
- Personal light setting to enhance user comfort and productivity.
- Typical CRI 82.

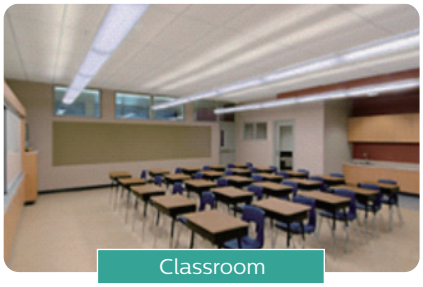
Reliability
- Reliable operation between -20°C (-4°F) and +45°C (133°F) ambient temperature.
- Tested to B50 L70 requirement. Lamps are rated for 50,000 hours.
- 200,000 wireless switching cycles.

Safety
- Over voltage and over temperature protection.
- Complies with relevant UL and CSA safety requirements.
- Shatterproof polycarbonate (PC) material.

Environment
- No Mercury.
- Low Carbon Footprint.

** 50% energy savings compared to an F32T8 with Philips reference ballast. Lamps are set at 100% light level.*

Applications


Classroom

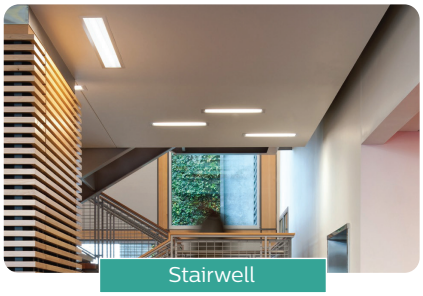
Conference Room

Private Office

Open-plan Office

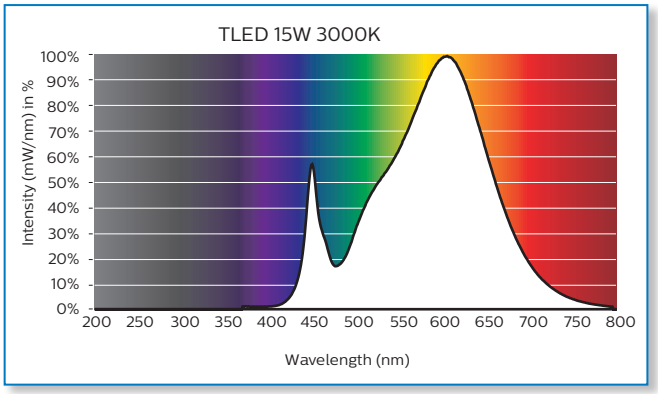
Common Area

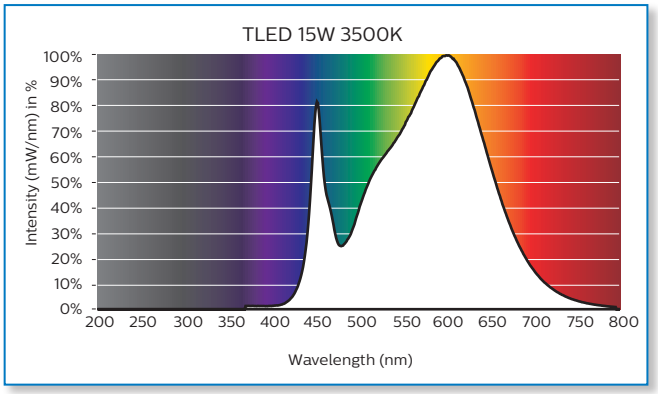
Corridor

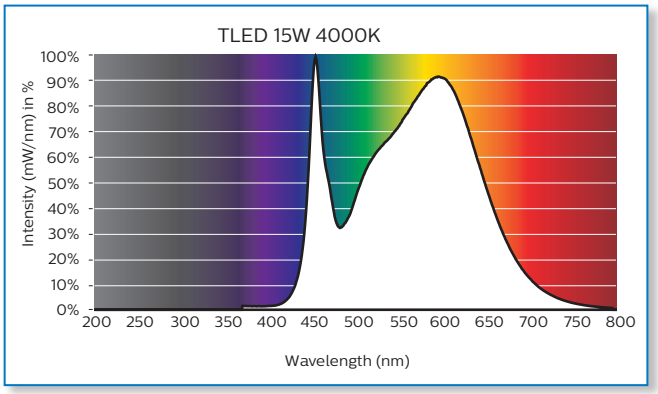

Stairwell

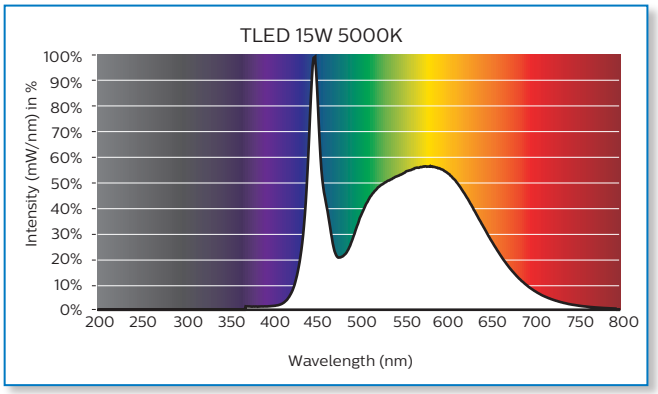
Restroom

Spectral Power Distribution







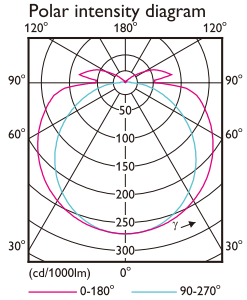


Photometric Diagrams

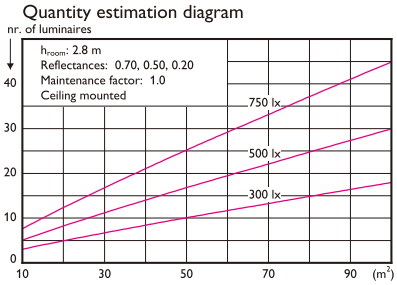
1 x TLED 15W 3000K 160D 9290013980

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	0.44	0.42	0.43	0.42	0.41	0.33	0.32	0.27	0.31	0.27	0.24
0.80	0.54	0.51	0.52	0.51	0.49	0.42	0.40	0.35	0.39	0.34	0.31
1.00	0.62	0.58	0.60	0.58	0.56	0.49	0.47	0.41	0.45	0.40	0.37
1.25	0.70	0.64	0.68	0.65	0.63	0.55	0.53	0.48	0.51	0.47	0.43
1.50	0.77	0.70	0.74	0.71	0.68	0.61	0.58	0.53	0.56	0.52	0.48
2.00	0.86	0.77	0.83	0.79	0.75	0.69	0.66	0.62	0.63	0.60	0.55
2.50	0.93	0.82	0.89	0.84	0.80	0.74	0.71	0.67	0.69	0.65	0.60
3.00	0.98	0.85	0.94	0.88	0.83	0.78	0.75	0.72	0.72	0.69	0.64
4.00	1.04	0.90	1.00	0.93	0.88	0.84	0.80	0.77	0.77	0.74	0.69
5.00	1.08	0.93	1.03	0.97	0.91	0.87	0.83	0.81	0.80	0.78	0.72

Ceiling mounted

Luminance Table

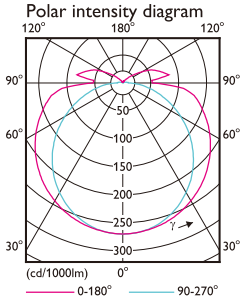
Plane / Cone	0.0	15.0	30.0	45.0	60.0	75.0	90.0
45.0	5018	4825	4602	4371	4252	4309	4593
50.0	5100	4858	4577	4286	4092	4131	4481
55.0	5218	4930	4583	4199	3920	3922	4359
60.0	5400	5032	4605	4121	3729	3677	4218
65.0	5665	5215	4686	4074	3505	3361	4065
70.0	6037	5494	4829	4066	3288	2980	3917
75.0	6641	5945	5081	4129	3050	2462	3813
80.0	7585	6655	5534	4258	2817	1774	3828
85.0	8616	7708	6276	4546	2605	882	4058
90.0	6539	5485	4456	3170	1522	0	3948

(cd/m²)

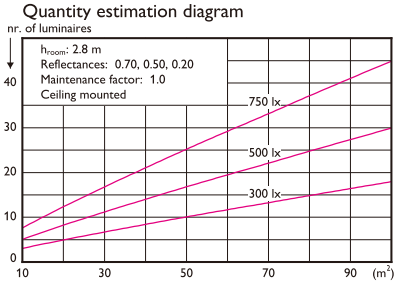
1 x TLED 15W 3500K 160D 9290013981

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	0.44	0.42	0.43	0.42	0.41	0.33	0.32	0.27	0.31	0.27	0.24
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4.00	1.04	0.90	1.00	0.93	0.88	0.84	0.80	0.77	0.77	0.74	0.69
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Ceiling mounted

Luminance Table

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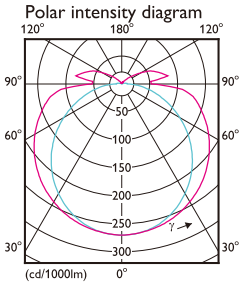
85.0	8616	7708	6276	4546	2605	882	4058
90.0	6539	5485	4456	3170	1522	0	3948

(cd/m²)

1 x TLED 15W 4000K 160D 9290013982

1 x 2100 lm

Polar intensity diagram



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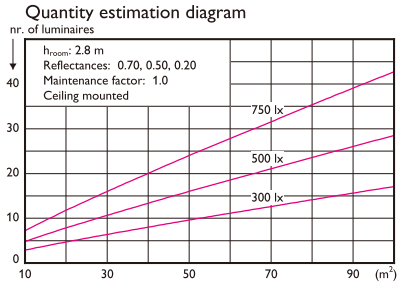

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	0.30	0.10	0.30	0.20	0.10	0.10	0.10	0.10	0.10	0.10	0.00
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0.80	0.54	0.51	0.52	0.51	0.49	0.42	0.40	0.35	0.39	0.34	0.31
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Ceiling mounted

Luminance Table

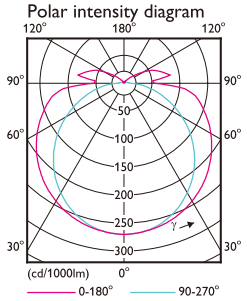
Plane / Cone	0.0	15.0	30.0	45.0	60.0	75.0	90.0
45.0	5269	5067	4832	4590	4465	4524	4823
50.0	5355	5101	4806	4501	4296	4337	4705
55.0	5479	5176	4812	4410	4115	4118	4576
60.0	5670	5283	4835	4326	3917	3860	4429
65.0	5948	5475	4921	4278	3680	3529	4268
70.0	6339	5769	5071	4269	3453	3129	4112
75.0	6973	6242	5335	4336	3204	2585	4005
80.0	7963	6988	5809	4471	2958	1862	4019
85.0	9048	8092	6589	4774	2735	926	4263
90.0	6866	5762	4679	3330	1594	0	4147

(cd/m²)

1 x TLED 15W 5000K 160D 9290013983

1 x 2100 lm

Polar intensity diagram



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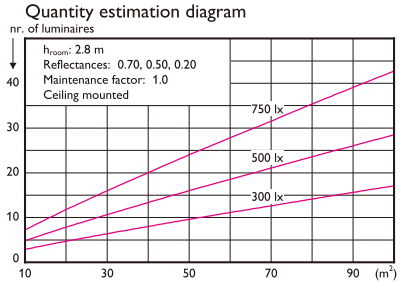

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4.00	1.04	0.90	1.00	0.93	0.88	0.84	0.80	0.77	0.77	0.74	0.69
5.00	1.08	0.93	1.03	0.97	0.91	0.87	0.83	0.81	0.80	0.78	0.72

Ceiling mounted

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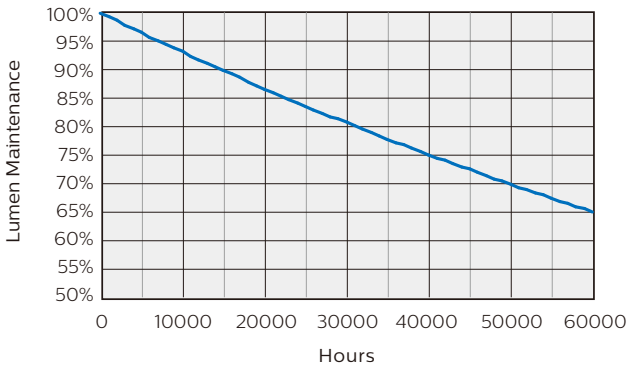
50.0	5355	5101	4806	4501	4296	4337	4705
55.0	5479	5176	4812	4410	4115	4118	4576
60.0	5670	5283	4835	4326	3917	3860	4429
65.0	5948	5475	4921	4278	3680	3529	4268
70.0	6339	5769	5071	4269	3453	3129	4112
75.0	6973	6242	5335	4336	3204	2585	4005
80.0	7963	6988	5809	4471	2958	1862	4019
85.0	9048	8092	6589	4774	2735	926	4263
90.0	6866	5762	4679	3330	1594	0	4147

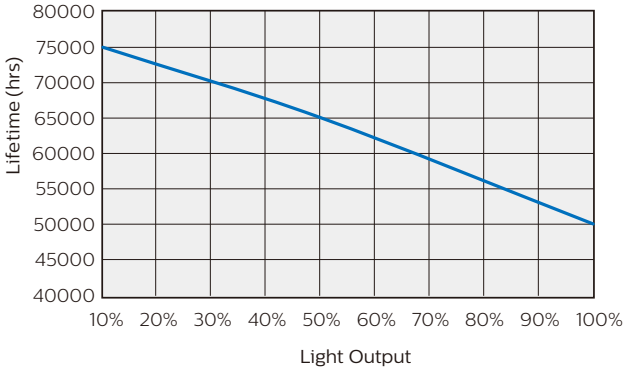
(cd/m²)

Lifetime and Lumen Maintenance



The product has a lifetime of 50,000 hours. This is defined as the number of hours when 50% of a large group of identical lamps drop below 70% of its initial lumen.

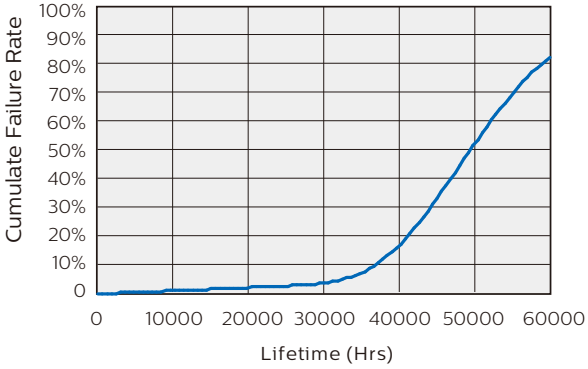
Lifetime and Dimming



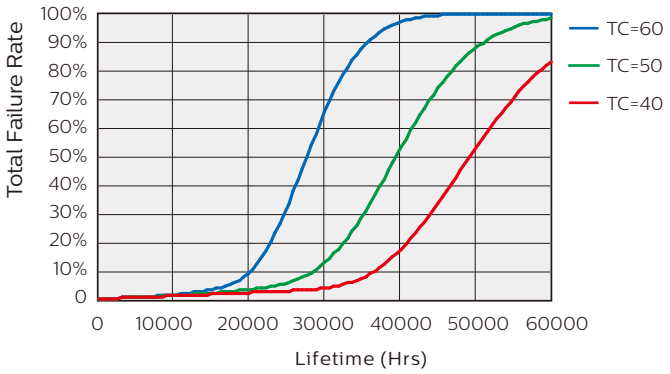
Dimming can help extend lifetime (ie: dimming 30% can extend lifetime by 9,000hrs)

Lifetime and Failure Rate

Lifetime vs. Failure rate @Ta 25°C

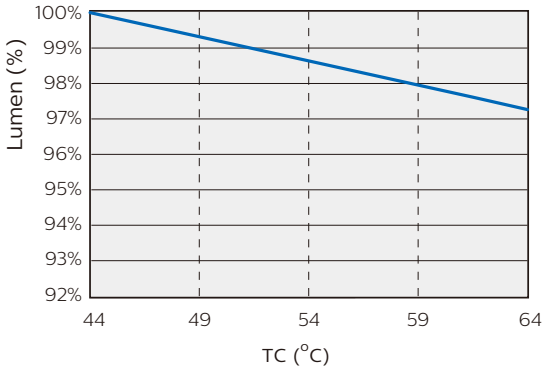


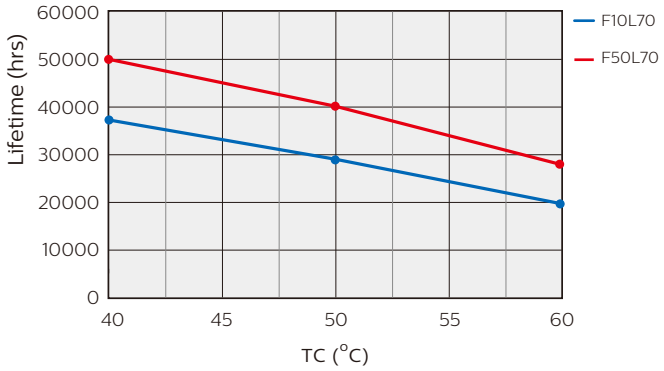
Lifetime vs. Failure Rate vs. Tcase

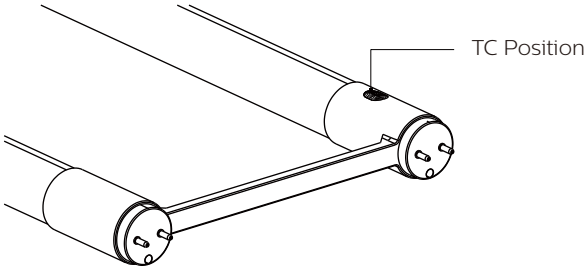


Temperature

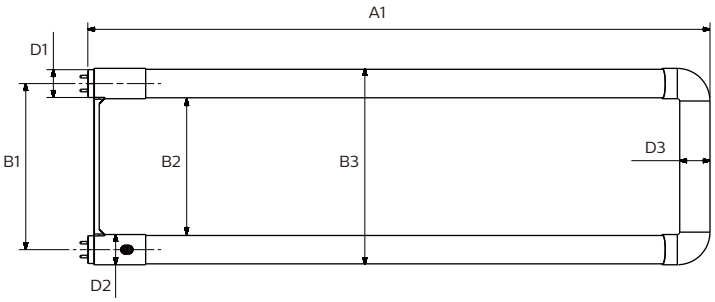
Operating temperature	$T_{operating}$	min -20°C	max +45°C
Storage temperature	$T_{storage}$	min -40°C	max +65°C
Maximum case temperature of tube at Tamb.=25°C	T_{case}		+40°C







Dimensions



Dimensions (mm)

Product	A1	B1	B2	B3	D1	D2	D3
U-bent	570	152	124.4	179.6	25.5	27.6	27.8

Technical Specification

Product Description	Bare Lamp Watts (W)			Average System Watts (W)			Inital Lumens			Volt (V)	Cap Bases
	Low Ballast Factor (0.78)	Normal Ballast Factor (0.88)	High Ballast Factor (1.18)	Low Ballast Factor (0.78)	Normal Ballast Factor (0.88)	High Ballast Factor (1.18)	Low Ballast Factor (0.78)	Normal Ballast Factor (0.88)	High Ballast Factor (1.18)		
15T8/24-830/IF20-6U/MAScon IA 10/1	13.00	15.00	15.00	16.00	18.00	18.00	1835	2000	2000	120/277	G13
15T8/24-835/IF20-6U/MAScon IA 10/1	13.00	15.00	15.00	16.00	18.00	18.00	1835	2000	2000	120/277	G13
15T8/24-840/IF21-6U/MAScon IA 10/1	13.00	15.00	15.00	16.00	18.00	18.00	1925	2100	2100	120/277	G13
15T8/24-850/IF21-6U/MAScon IA 10/1	13.00	15.00	15.00	16.00	18.00	18.00	1925	2100	2100	120/277	G13

* Test based on reference electronic ballast with normal ballast factor (0.88).

Product Description	Bulb Type	CCT	Lifetime	Beam Angle	Length	CRI	RF Range	Standby Power	Product number	Order Code
		(K)	(Hrs)	(°)	(In)		(Ft)	(W)		
15T8/24-830/IF20-6U/MAScon IA 10/1	T8	3000	50000	160	24	82	40	<=0.5	9290013980	537217
15T8/24-835/IF20-6U/MAScon IA 10/1	T8	3500	50000	160	24	82	40	<=0.5	9290013981	537225
15T8/24-840/IF21-6U/MAScon IA 10/1	T8	4000	50000	160	24	82	40	<=0.5	9290013982	537233
15T8/24-850/IF21-6U/MAScon IA 10/1	T8	5000	50000	160	24	82	40	<=0.5	9290013983	537241

Control Compatibility

Philips MasterConnect LED T8 InstantFit now works with:

Product must be used with compatible control devices. Please visit our website for latest information on control compatibility.

Approbation & Certificates

The product strictly follows applicable legislation and standard.
The product complies with **UL**, **CSA**, **NSF** and **RoHS**.

Product is **DLC** qualified.

Application Notes

- Product is dimmable by wireless control
- Suitable for damp locations
- Reliable operation between -20°C to + 45°C ambient temperature
- Suitable to replace T8 fluorescent lamps that operate on instant-start ballasts
  Please refer to www.lighting.philips.com for latest ballast compatibility list
- Require use of shunted lamp holders
- Not intended for use in emergency luminaires
- Not compatible with luminaires that use a remote starter
- Modifications to the product void the limited warranty.
  For warranty information, please see www.lighting.philips.com
- You are required to read and understand the Quick Installation Guide and all warnings, cautions and other materials related to installation published at: www.lighting.philips.com before commencing installation work.

Footnotes

[1]Verified as compatible by Philips. Visit www.lighting.philips.com for latest ballast compatibility guide.

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