PHILIPS

LED

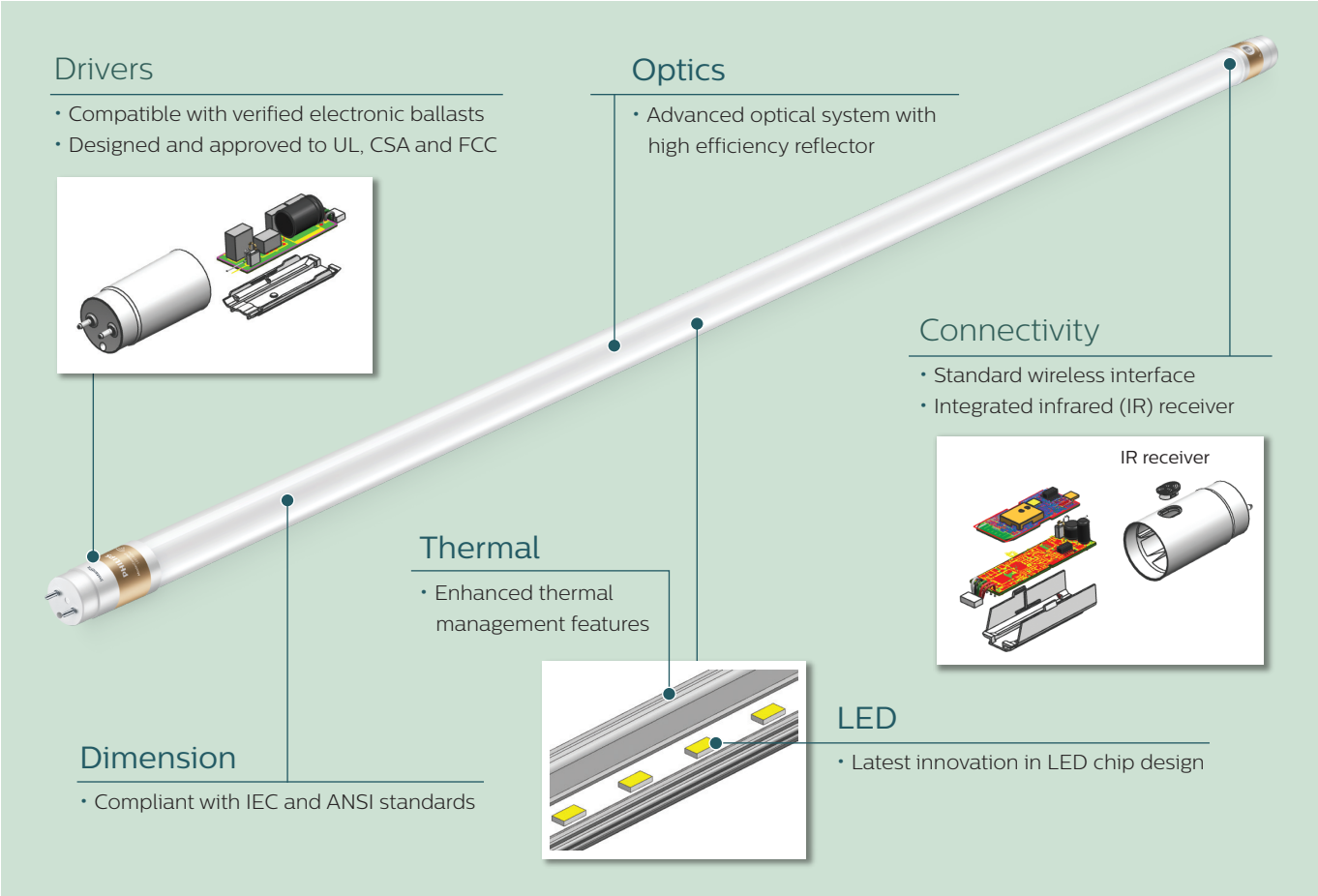
MasterConnect

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.

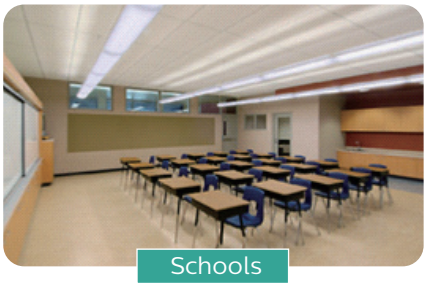
Reliability
- Reliable operation between -20°C (-4°F) and +45°C (133°F) ambient temperature.
- Tested to B50 L70 requirement. Lamps are rated for 50,000 hours.
- 200,000 wireless switching cycles.

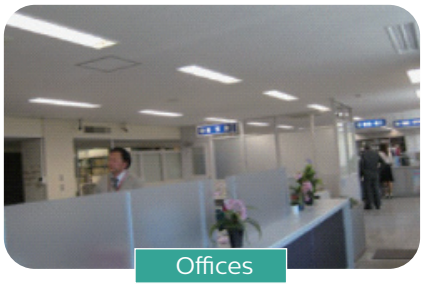
Safety
- Over voltage and over temperature protection.
- Complies with relevant UL and CSA safety requirements.
- Shatterproof polycarbonate (PC) material.

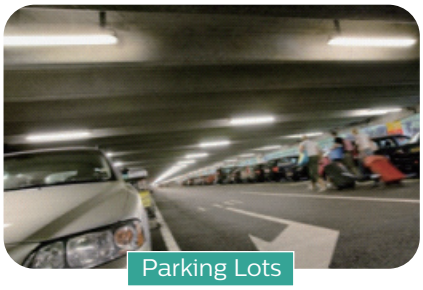
Environment
- No Mercury.
- Low Carbon Footprint.

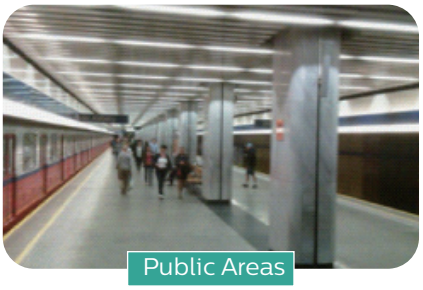
* *50% energy savings compared to an F32T8 with Philips reference ballast. Lamps are set at 100% light level.*

Applications

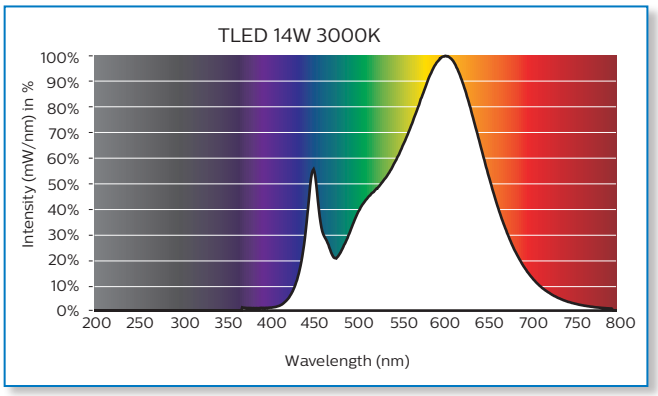


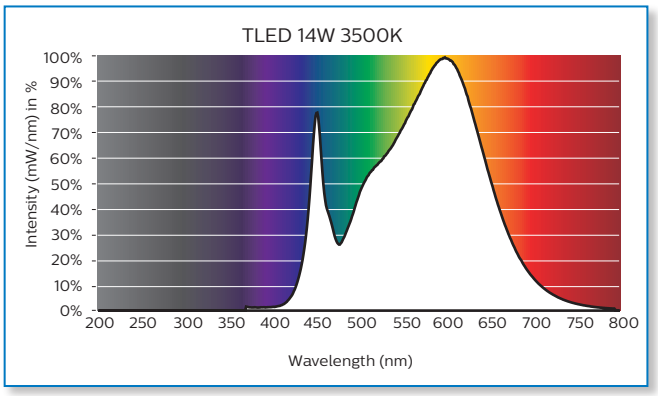


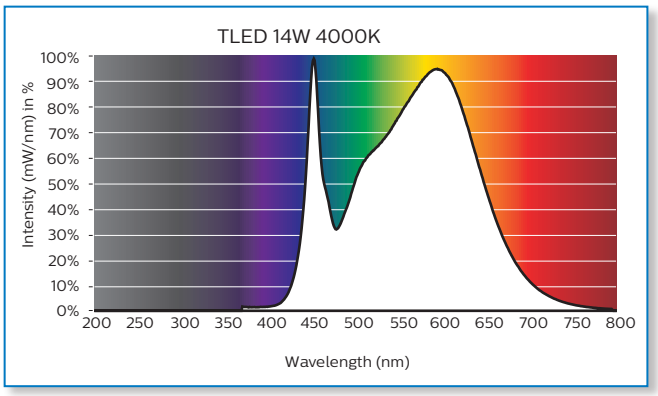


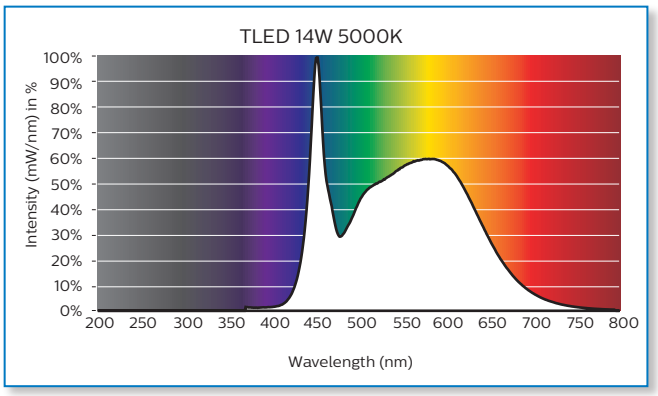


Spectral Power Distribution





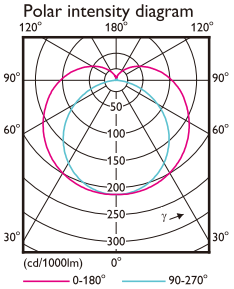




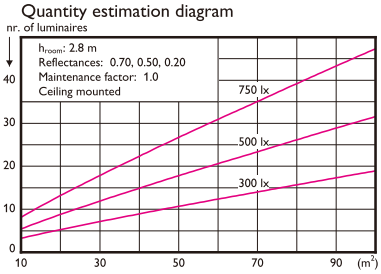
Photometric Diagrams

1 x 14T8/48-830/IF20/MAScon IA 10/1 — 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	0.41	0.39	0.40	0.39	0.38	0.30	0.29	0.24	0.27	0.23	0.19	
0.80	0.51	0.48	0.49	0.47	0.46	0.38	0.36	0.31	0.34	0.29	0.25	
1.00	0.59	0.55	0.56	0.54	0.53	0.45	0.42	0.37	0.39	0.35	0.30	
1.25	0.67	0.61	0.64	0.61	0.59	0.51	0.48	0.43	0.45	0.41	0.36	
1.50	0.73	0.66	0.70	0.67	0.64	0.57	0.53	0.48	0.50	0.45	0.40	
2.00	0.82	0.74	0.78	0.75	0.71	0.65	0.61	0.56	0.57	0.53	0.47	
2.50	0.89	0.79	0.85	0.80	0.76	0.70	0.66	0.61	0.61	0.58	0.52	
3.00	0.94	0.82	0.89	0.84	0.79	0.74	0.69	0.66	0.65	0.62	0.55	
4.00	1.00	0.87	0.95	0.89	0.84	0.79	0.74	0.71	0.70	0.67	0.60	
5.00	1.04	0.90	0.99	0.92	0.87	0.83	0.78	0.75	0.73	0.70	0.63	

Ceiling mounted

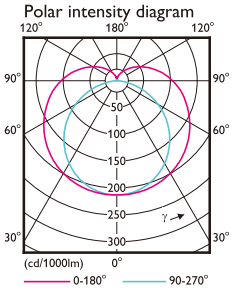
Luminance Table

Plane / Cone	0.0	15.0	30.0	45.0	60.0	75.0	90.0
45.0	7599	7581	7657	7880	8359	9339	11372
50.0	7316	7283	7328	7506	7914	8849	11068
55.0	7056	7012	7030	7135	7458	8302	10681
60.0	6826	6790	6753	6805	7004	7704	10184
65.0	6622	6585	6507	6485	6561	7049	9537
70.0	6455	6399	6303	6220	6150	6331	8693
75.0	6347	6265	6162	6010	5782	5564	7521
80.0	6269	6195	6058	5826	5463	4761	5812
85.0	6200	6119	5959	5694	5216	4050	3289
90.0	6158	6060	5890	5602	5052	3628	1531

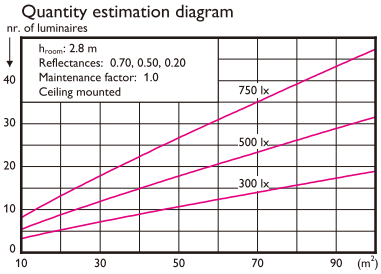
(cd/m²)

1 x 14T8/48-835/IF20/MAScon IA 10/1 — 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	0.41	0.39	0.40	0.39	0.38	0.30	0.29	0.24	0.27	0.23	0.19	
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1.00	0.59	0.55	0.56	0.54	0.53	0.45	0.42	0.37	0.39	0.35	0.30	
1.25	0.67	0.61	0.64	0.61	0.59	0.51	0.48	0.43	0.45	0.41	0.36	
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2.50	0.89	0.79	0.85	0.80	0.76	0.70	0.66	0.61	0.61	0.58	0.52	
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4.00	1.00	0.87	0.95	0.89	0.84	0.79	0.74	0.71	0.70	0.67	0.60	
5.00	1.04	0.90	0.99	0.92	0.87	0.83	0.78	0.75	0.73	0.70	0.63	

Ceiling mounted

Luminance Table

Plane / Cone	0.0	15.0	30.0	45.0	60.0	75.0	90.0
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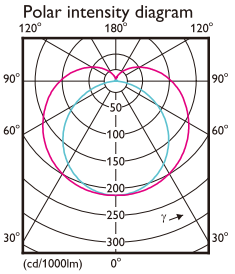
(cd/m²)

1 x 14T8/48-840/IF21/MAScon IA 10/1 — 1 x 2100 lm

Polar intensity diagram



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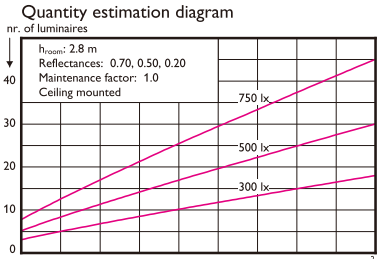

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	0.50	0.50	0.50	0.50	0.50	0.30	0.30	0.10	0.30	0.10	0.00	
	0.30	0.10	0.30	0.20	0.10	0.10	0.10	0.10	0.10	0.10	0.00	
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1.00	0.59	0.55	0.56	0.54	0.53	0.45	0.42	0.37	0.39	0.35	0.30	
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Ceiling mounted

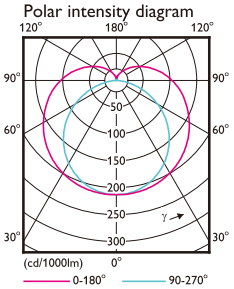
Luminance Table

Plane / Cone	0.0	15.0	30.0	45.0	60.0	75.0	90.0
45.0	7978	7959	8040	8273	8777	9805	11940
50.0	7681	7646	7694	7881	8309	9293	11623
55.0	7409	7361	7382	7492	7833	8717	11218
60.0	7166	7129	7090	7143	7355	8092	10693
65.0	6954	6914	6832	6811	6891	7401	10013
70.0	6778	6719	6617	6529	6458	6645	9126
75.0	6666	6578	6468	6311	6071	5845	7902
80.0	6582	6503	6359	6115	5736	5005	6100
85.0	6511	6427	6259	5978	5477	4252	3451
90.0	6464	6363	6185	5886	5304	3819	1531

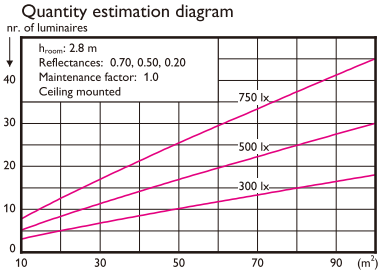
(cd/m²)

1 x 14T8/48-850/IF21/MAScon IA 10/1 — 1 x 2100 lm

Polar intensity diagram



Quantity estimation diagram



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5.00	1.04	0.90	0.99	0.92	0.87	0.83	0.78	0.75	0.73	0.70	0.63	

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60.0	7166	7129	7090	7143	7355	8092	10693
65.0	6954	6914	6832	6811	6891	7401	10013
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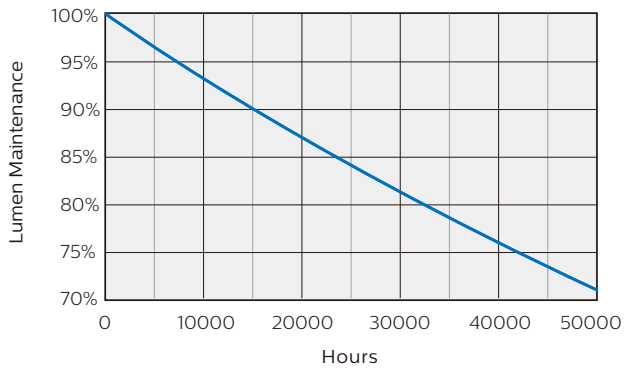
90.0	6464	6363	6185	5886	5304	3819	1531

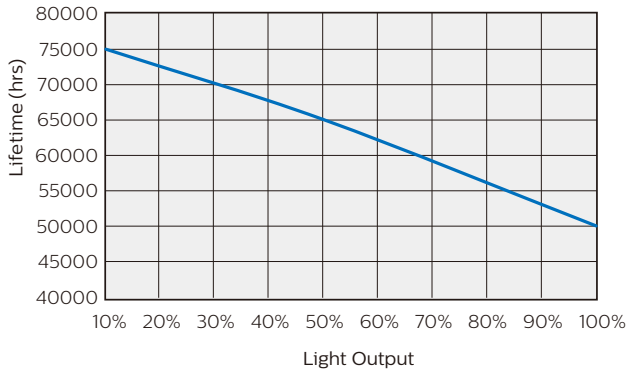
(cd/m²)

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.

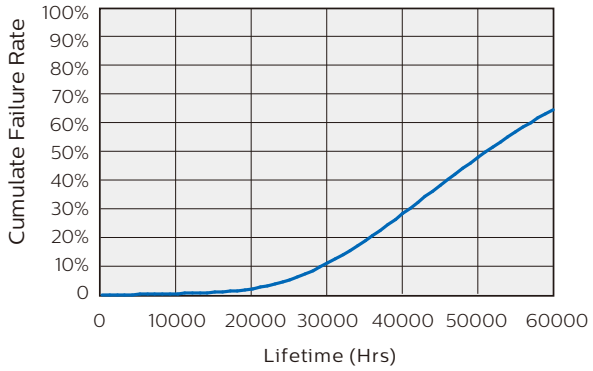
Lifetime and Dimming



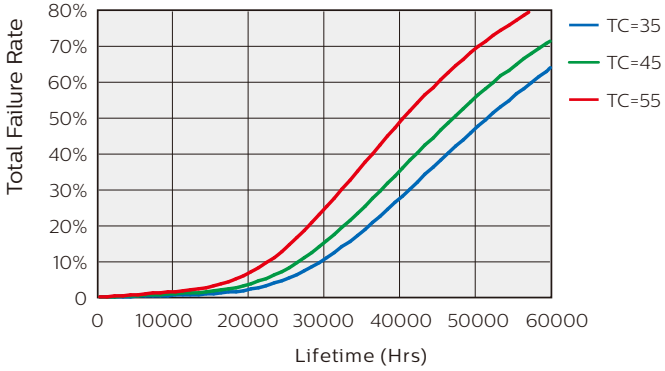
Dimming can help extend lifetime (ie: dimming 30% can extend lifetime by 9,000hrs)

Lifetime and Failure Rate

Lifetime vs. Failure rate @Ta 25°C

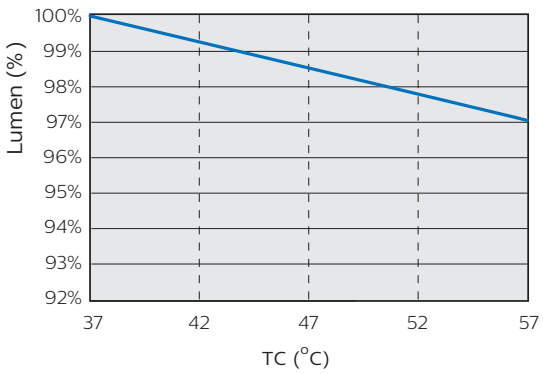


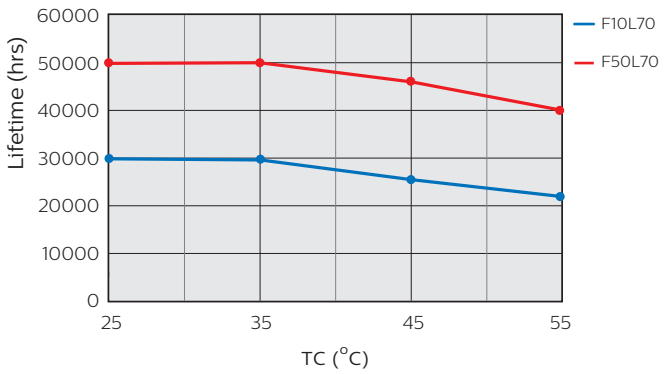
Lifetime vs. Failure Rate vs. Tcase



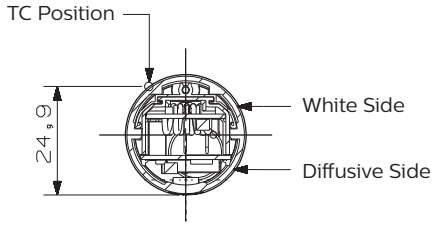
Temperature

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}		+37°C

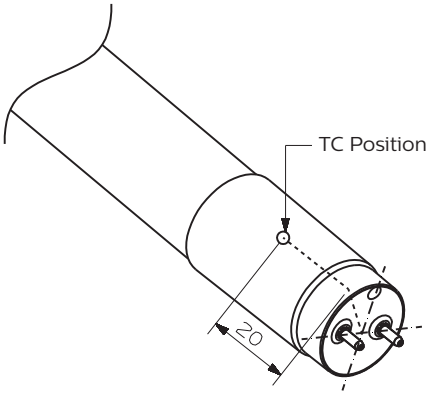


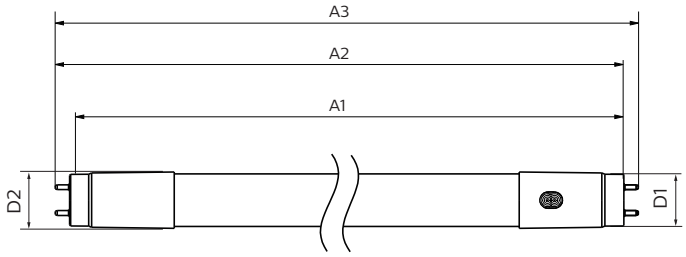


Dimensions



SECTION B-B





Dimensions (mm)

Product	A1	A2	A3	D1	D2
14T8/48	1198.1	1205.2	1212.3	25.6	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)		
14T8/48-830/IF20/MAScon IA 10/1	12.00	14.00	14.00	15.00	17.00	17.00	1800	2000	2000	120/277	G13
14T8/48-835/IF20/MAScon IA 10/1	12.00	14.00	14.00	15.00	17.00	17.00	1800	2000	2000	120/277	G13
14T8/48-840/IF21/MAScon IA 10/1	12.00	14.00	14.00	15.00	17.00	17.00	1900	2100	2100	120/277	G13
14T8/48-850/IF21/MAScon IA 10/1	12.00	14.00	14.00	15.00	17.00	17.00	1900	2100	2100	120/277	G13

* Test based on reference instant-start ballast

Product Description	Bulb Type	CCT	Lifetime	Beam Angle	Length	CRI	RF Range	Standby Power	Product number	Order Code
		(K)	(Hrs)	(°)	(In)		(Ft)	(W)		
14T8/48-830/IF20/MAScon IA 10/1	T8	3000	50000	160	48	82	40	<=0.5	9290012811	537175
14T8/48-835/IF20/MAScon IA 10/1	T8	3500	50000	160	48	82	40	<=0.5	9290012812	537183
14T8/48-840/IF21/MAScon IA 10/1	T8	4000	50000	160	48	82	40	<=0.5	9290012813	537191
14T8/48-850/IF21/MAScon IA 10/1	T8	5000	50000	160	48	82	40	<=0.5	9290012814	537209

Control Compatibility

Philips MasterConnect LED T8 InstantFit now works with:

interact

LEVITON®

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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