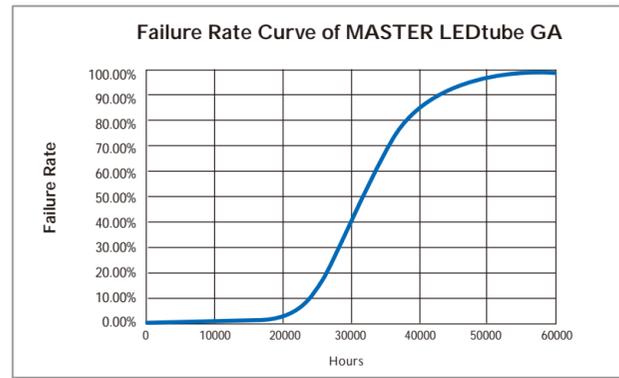


## Lifetime + Sustainability



- Philips MASTER LEDtube GA 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.
- Lifetime estimation based on application environment condition; at room temperature (25°C), free air burning, base down burning position, and at rated voltage.

## Temperature

MASTER LEDtube's thermal management is designed for operation in all G13 bi-pin based lighting installations.

Operating temperature	T operating	min -20C	max +45C
Storage temperature	T storage	min -40C	max +65C
Maximum surface temperature of metal parts at t <sub>amb</sub> = 25 C° (not fulfilling specifications)	T surface		max +55C

## Approbation / compliances and approvals

The Philips MASTER LEDtube complies with all the applicable legislation, such as RoHS (Restriction of Hazardous Substances) and WEEE (Waste Electrical and Electronic Equipment). This means all components used are lead-free and soldered in a lead-free soldering process. Summarizing: **CE, KEMA, RoHs compliant, WEEE, EMC.**



# New Generation of Energy Saving Light

Philips MASTER LEDtube for General Application



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sense and simplicity

# Introduction



Philips MASTER LEDtube integrates LED light source with frosted cover design into traditional linear fluorescent form factor. The new light source offers naturally light colors while consuming 22W system energy when replacing TLD 36W with electromagnetic ballast, and offers energy saving up to 50%

The MASTER LEDtube saves you a lot on replacement and maintenance cost with a new, green image.



## Design Highlights

- Completely SAFE fluorescent replacement lamp, no risk on electric shock when installing. EMP050 Protector for complete system safety in case of mis-uses by customers.
- Uniform light distribution on task, no noise, no flicker, instant on, no discomfort glare.
- Easy installation, great usability due to “click twist and go” principle. Operating on 100-240V mains voltage with integrated driver.
- Options for multiple white color temperature: 4000K (840) & 6500K (865)
- Long lifetime of 30,000 hours (B50, L70) reduces maintenance cost.
- Complete new green image with Philips LED technology, no mercury, no UV or IR, improved sustainability due to lower energy consumption up to 50%, compared to TLD fluorescent lamps with electromagnetic ballast.
- Applicable legislation and approbation: CE, KEMA, WEEE, EMC and RoHs compliant

## Application Areas

Philips MASTER LEDtube, energy saving up to 50% compared to TLD fluorescent lamp with electromagnetic ballast, has a long lifetime of 30,000 hours (or equivalent to 4.5 years if lit continuously for 18hrs a day) ensuring minimum maintenance and corrective replace costs. Philips MASTER LEDtube is an advanced alternative to the classic linear fluorescent lamp and is designed for multiple general lighting applications such as:

- Offices
- Industrial
- Parking lots
- Railway stations
- Ware houses
- Supermarket / Shops

## Application Notes

- Operation temperature range is between -20°C and +45°C ambient.
- Only to apply in dry indoor usage and environments, outdoor applications requires an IP rated fixtures e.g. Philips Pacific due to minimum IP20 rating of the MASTER LEDtube itself.
- Not intended for use with emergency light fixtures or exit lights.
- For use in fixtures which consist of IEC compliant G13 bi-pin lampholders which can support 500 gram.

# Product Specification

## Technical Specifications

Product name	Length (mm)	Power* (W)	End cap base	Voltage (Vac)	Power Factor	Luminous Flux (lm)	CCT (K)	Beam Angle (°)	CRI*	Lifetime (hrs)
MASTER LEDtube GA 600mm 11W 840 G13	600	11	G13	100-240	>0.9	750	4000	120	85	30,000
MASTER LEDtube GA 900mm 17W 840 G13	900	17	G13	100-240	>0.9	1150	4000	120	85	30,000
MASTER LEDtube GA 1200mm 22W 840 G13	1200	22	G13	100-240	>0.9	1500	4000	120	85	30,000
MASTER LEDtube GA 600mm 11W 865 G13	600	11	G13	100-240	>0.9	750	6500	120	85	30,000
MASTER LEDtube GA 900mm 17W 865 G13	900	17	G13	100-240	>0.9	1150	6500	120	85	30,000
MASTER LEDtube GA 1200mm 22W 865 G13	1200	22	G13	100-240	>0.9	1500	6500	120	85	30,000

\* typical value.

## Ballast compatibility

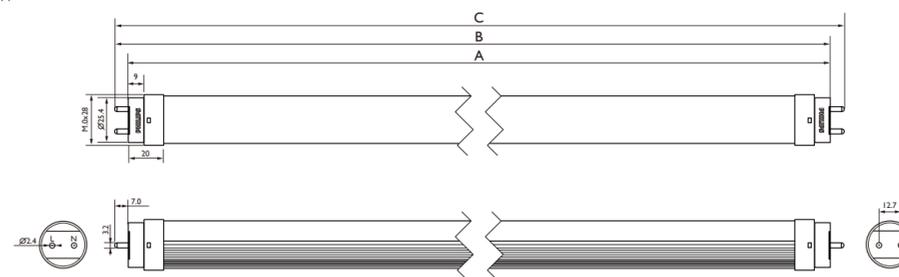
Fluorescent tubes operate on ballasts; two different ballast technologies appear on the market hence the Electro Magnetic (EM) ballast and the High Frequency electronic (HF) ballast. However, Philips MASTER LEDtube operates on mains input voltage therefore both the EM ballast and HF ballast the ballast needs to be rewired or bypassed according the quick installation/application guide

## Fixture Compatibility

Philips MASTER LEDtube is compatible with all the lighting fixtures with standard G13 bi-pin lampholders. In some cases it may require to remove none-standard G13 bi-pin lampholders from the fixtures.

Product	Length (mm)	Power* (W)	Length A (mm)	Length B (mm)	Length C (mm)	Weight * (gram)
MASTER LEDtube GA 600mm 11W 840/865 G13	600	11	588.5	595.5	602.5	210
MASTER LEDtube GA 900mm 17W 840/865 G13	900	17	893.5	900.5	907.5	285
MASTER LEDtube GA 1200mm 22W 840/865 G13	1200	22	1198.0	1205.0	1212.0	360

\* typical value

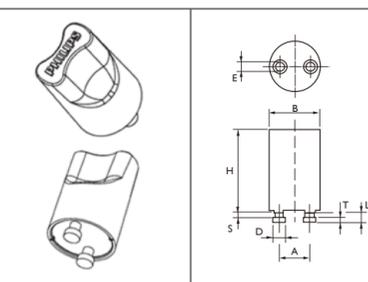


IEC Compliant G13 bi-pin lampholders



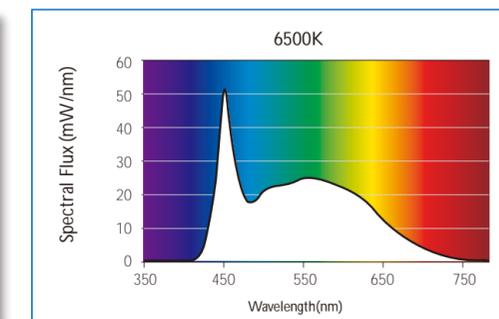
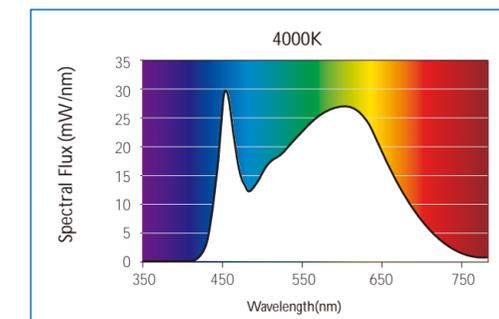
To ensure application safety, the new EMP050 Protector needs to be added to the system. This device switches off in case the MASTER LEDtube fails or a mis-use caused by the customer. EMP050 Protector is compatible with all the standard starter connections.

mm	Min	Max
A	12.5	12.9
B	–	21.5
D	4.7	5.0
E	2.8	3.2
H	33.0	36.0
L	–	4.3
S	1.7	–
T	1.9	2.0



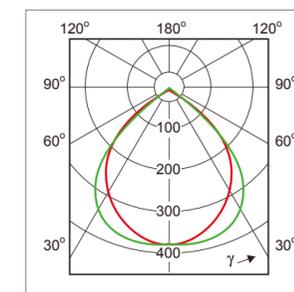
## Spectral Power Distribution

Light may be precisely characterized by giving the power of the light at each wavelength in the visible spectrum. The resulting spectral power distribution (SPD) of the MASTER LEDtube contains all the basic physical data about the light.

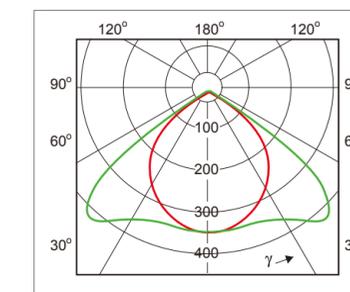


## Photometric Diagrams

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 two photometric diagrams of a typical Philips luminaire. Light distribution depends on the optics inside the luminaire which can result in a devious light distribution.



a. Luminaire TCS398 2xTL-D36W D6



b. Luminaire TCS398 2xMASTER LEDtube GA D6