



# LED revolution in functional street lighting

Philips Fortimo LED Linear Light Module system – a breakthrough in energy efficient, comfortable and high-quality diffuse white light.

**PHILIPS**  
sense and simplicity

# Fortimo LED Linear Module (LLM) systems provide high quality natural white light and make people feel safe and comfortable.

The Fortimo LLM system consists of a light module and an electronic driver, designed for use in existing or new luminaires together with a heatsink and reflector.

The module is based on a breakthrough remote phosphor technology, delivering energy-efficient, high quality diffuse white light. The Fortimo system is very efficient, resulting in an initial system efficacy (LED module and driver) of up to 82lm/W with a colour rendering of 70, which is unique in the LED market place.

The bare LED technology is continuously improving in efficacy, and these improvements will be incorporated into the Fortimo LED module without changing the physical dimensions, optical distribution or lumen output of the system. This makes Fortimo LLM a truly future-proof solution, enabling luminaire manufactures to adapt existing luminaires and design new products with confidence.



## Benefits

- Future-proof lighting solution
- High visual comfort, less glare
- Good facial recognition
- High quality white light
- Suitable for dimming and telemanagement systems
- Easy to design into existing or new luminaires
- Environmentally friendly:
  - Light pollution management (no sky glow)
  - High system efficacy reduces energy consumption and CO<sub>2</sub> impact

## Features

- Breakthrough efficacy of up to 82lm/W on system level (module + driver)
- Remote phosphor technology:
  - 3000K, 4000K, Ra 70, no binning issues
- Entire Fortimo module portfolio has identical physical characteristics and optical distribution, which will not change
- LED technology improvements will always be incorporated
- High system reliability
- Dedicated driver developed to optimize the performance of the Fortimo LLM module
- Dimming features: 1-10V, LumiStep

## Applications

- Residential areas
- Urban street lighting
- Parks
- City centers
- Parking lots
- Squares
- Cycle – footpaths
- Off grid (solar powered)

### Product specifications (module)

Type	Power Module initial	Power Module avg over life time	Power Module @50K hrs	Module Efficacy initial	Module Efficacy avg over life time	Module Efficacy @50K hrs	Light Output	Colour Temp.	Colour Rendering	Colour Consistency	Lumen Maintenance @50K hrs
	(W)	(W)	(W)	(Lm/W)	(Lm/W)	(Lm/W)	(lm)	(K)	(Ra)	(SDCM)	(%)
Fortimo LED LLM 1100lm 13W/730	13	14	16	85	77	71	1100	3000	70	< 7	100
Fortimo LED LLM 1100lm 11W/740	11	12	13	100	91	83	1100	4000	70	< 7	100
Fortimo LED LLM 1800lm 20W/730	20	22	24	90	82	75	1800	3000	70	< 7	100
Fortimo LED LLM 1800lm 18W/740	18	20	22	100	91	83	1800	4000	70	< 7	100
Fortimo LED LLM 3000lm 34W/730	34	38	41	87	79	73	3000	3000	70	< 7	100
Fortimo LED LLM 3000lm 33W/740	33	36	39	92	83	76	3000	4000	70	< 7	100
Fortimo LED LLM 4500lm 53W/730	53	58	63	85	77	71	4500	3000	70	< 7	100
Fortimo LED LLM 4500lm 50W/740	50	55	60	89	81	74	4500	4000	70	< 7	100

### Product specifications (system)

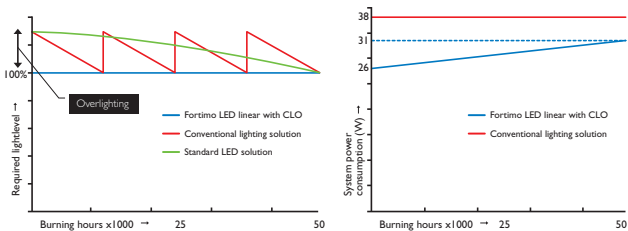
Type	Power System initial	Power System avg over life time	Power System @50K hrs	System Efficacy initial	System Efficacy avg over life time	System Efficacy @50K hrs	Input Voltage	Class	Power Factor Full load	Power Factor Dimmed 50%	Harmonic Distortion
	(W)	(W)	(W)	(Lm/W)	(Lm/W)	(Lm/W)	(V)		(Pf)	(Pf)	(%)
Fortimo LED LLM 1100lm 13W/730	16	18	19	69	63	57	220-240	II	>0,87	>0,74	< 20
Fortimo LED LLM 1100lm 11W/740	14	15	17	79	71	65	220-240	II	>0,87	>0,74	< 20
Fortimo LED LLM 1800lm 20W/730	24	26	29	75	68	63	220-240	II	>0,90	>0,86	< 20
Fortimo LED LLM 1800lm 18W/740	22	24	26	82	74	68	220-240	II	>0,90	>0,86	< 20
Fortimo LED LLM 3000lm 34W/730	40	43	47	76	69	63	220-240	II	>0,85	>0,80	< 15
Fortimo LED LLM 3000lm 33W/740	38	42	45	79	72	66	220-240	II	>0,85	>0,80	< 15
Fortimo LED LLM 4500lm 53W/730	59	65	71	76	69	64	220-240	II	>0,85	>0,80	< 15
Fortimo LED LLM 4500lm 50W/740	56	62	68	80	73	67	220-240	II	>0,85	>0,80	< 15

### Product specifications (module, system, control)

Type	Tc min System*	Tc life System	Tc max Operating System	Tc thermal cut off Module**	Tc thermal cut off Driver**	Life time @ max 10% failures	Constant Lumen Output	LumiStep Dimming 6 - 8 hrs	I - 10V Dimming
	(°C)	(°C)	(°C)	(°C)	(°C)	(hrs)	(CLO)		
Fortimo LED LLM 1100lm 13W/730	-20	55	75	75	85	50000	yes	yes	no
Fortimo LED LLM 1100lm 11W/740	-20	55	75	75	85	50000	yes	yes	no
Fortimo LED LLM 1800lm 20W/730	-20	55	75	75	85	50000	yes	yes	no
Fortimo LED LLM 1800lm 18W/740	-20	55	75	75	85	50000	yes	yes	no
Fortimo LED LLM 3000lm 34W/730	-20	55	75	75	85	50000	yes	no	yes
Fortimo LED LLM 3000lm 33W/740	-20	55	75	75	85	50000	yes	no	yes
Fortimo LED LLM 4500lm 53W/730	-20	55	75	75	85	50000	yes	no	yes
Fortimo LED LLM 4500lm 50W/740	-20	55	75	75	85	50000	yes	no	yes

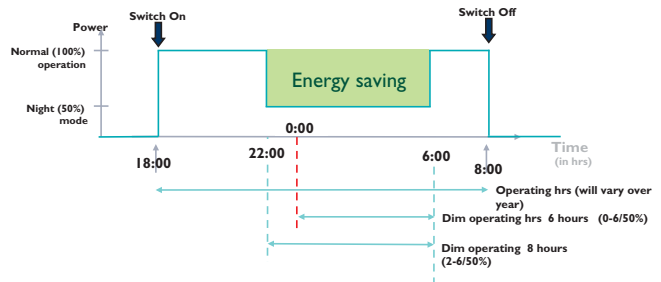
\* start up -40°C  
 \*\* starts dimming  
 \*\*\* Dimming to max

### CLO (Constant Lumen Output) = extra energy savings



\*To realize CLO the Fortimo LED linear light module system makes use of a predictive algorithm, which increases the current over time.

### LumiStep dimming = extra energy savings



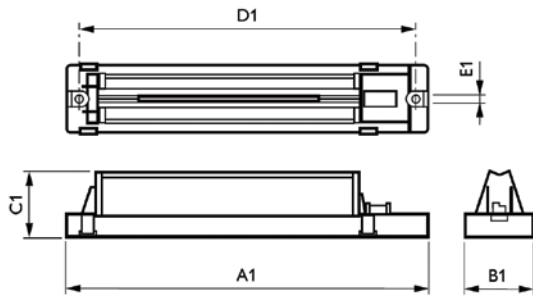
\*The Titanium driver detects 3 days in a row the on and off switching off the mains, based on that information it determines the points when the system should dim down and up.

## Dimensions (mm)

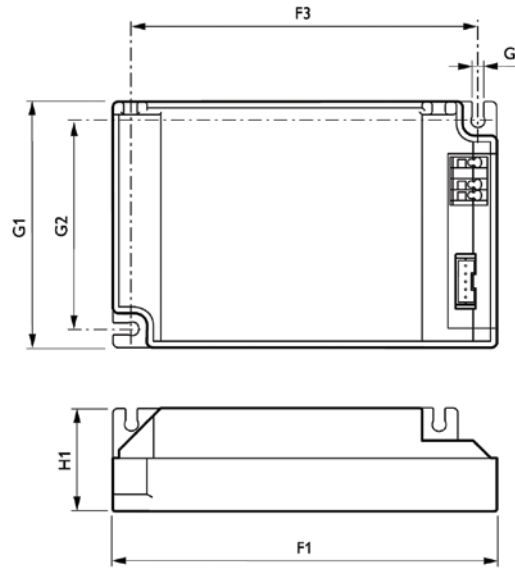
A1	B1	C1	D1	E1
230.0	45.0	42.0	214.5	4.5

F1	F3	G1	G2	G3	H1
123.0	110.0	79.0	67.0	4.5	33.0

### Fortimo LLM module



### Xitanium 35W 0.20-0.70A\*

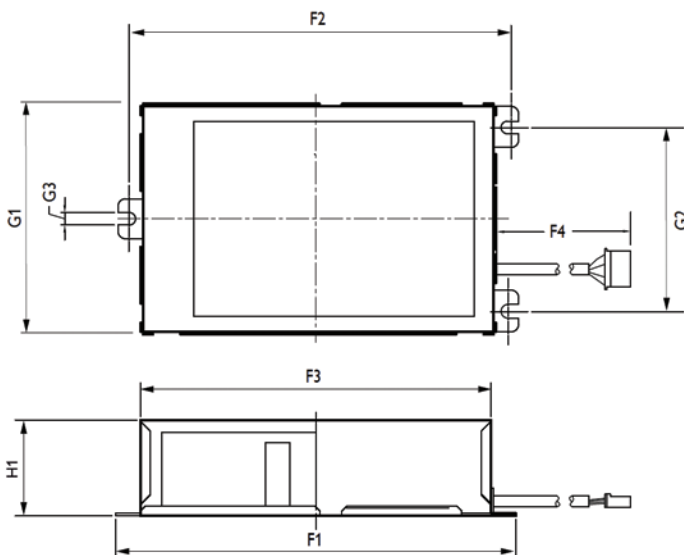


\* for Fortimo LLM 1100lm/1800lm  
\*\* dimming LumiStep 6-8 hrs

## Dimensions (mm)

F1	F2	F3	F4	G1	G2	G3	H1
160.5	153.2	140.5	485	92	73.4	5.0	38.4

### Xitanium 75W 0.35-0.70A\*



\* for Fortimo LLM 3000lm/4500lm  
\*\* dimming I-10V

## Ordering data

Product description	I2 NC
Fortimo LED LLM 1100lm 13W/730	929000634903
Fortimo LED LLM 1100lm 11W/740	929000616103
Fortimo LED LLM 1800lm 20W/730	929000635003
Fortimo LED LLM 1800lm 18W/740	929000615903
Fortimo LED LLM 3000lm 33W/740	929000611403
Fortimo LED LLM 3000lm 34W/730	929000611303
Fortimo LED LLM 4500lm 50W/740	929000611203
Fortimo LED LLM 4500lm 53W/730	929000611103
Xitanium 35W 0.20-0.70A 230V Otd	929000634003
Xitanium 35W 0.20-0.70A LS6 230V Otd	929000634103
Xitanium 35W 0.20-0.70A LS8 230V Otd	929000634203
Xitanium 75W 0.35-0.70A I-10V 230V sXt	913701217502

For more information, visit:  
[www.philips.com/fortimo](http://www.philips.com/fortimo)

LED technology is continuously improving. For latest updated information on efficacy range and wattages, please check [www.philips.com/fortimo](http://www.philips.com/fortimo)



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