

# PHILIPS

## LED Modules

### Fortimo LED Line High Flux PR

2ft 4000lm 8xx 1R NA



Fortimo LED Line high flux PR is designed to provide top performance for high lumen and high temperature applications such as high-bay linear systems.

Together with the wide range of available Philips Advance Xitanium LED drivers, it offers piece of mind for both OEM and end-user, backed up by a five-year limited system warranty<sup>1</sup>.

Commercial Product Name	12NC
Fortimo Line 2ft PR 4000lm 830 1R NA LV3	929000797713
Fortimo Line 2ft PR 4000lm 835 1R NA LV3	929000797813
Fortimo Line 2ft PR 4000lm 840 1R NA LV3	929000797913
Fortimo Line 2ft PR 4000lm 850 1R NA LV3	929000798013

# Fortimo LED Line PR 2ft 4000lm 8xx 1R NA

## Features

- Tc Life of 90°C
- High energy efficiency of up to 185 lm/W
- Variation of color temperatures : 3000K, 3500K, 4000K and 5000K
- High color rendering of CRI>80
- High quality of light with 3 SDCM color consistency
- Lumen levels up to 2750lm/ft
- Zhaga compatible

## Benefits

- Enables LED fixture designs in thermally challenging applications of -40°C - +55°C ambient temperatures
- High energy efficacy and optimal total cost of ownership
- Flexible system design due to pairing with Philips Advance Xitanium window drivers with SimpleSet technology
- 5-year limited system warranty with Philips Advance Xitanium LED drivers<sup>2</sup>

## Applications

- High-bay industrial lighting
- High-bay big box retail lighting
- Vapor tight high temperature applications

## Optical Characteristics – at Tc of 55°C

Commercial Product Name	CCT (K)	CRI <sup>3</sup> (Ra)	R9	Color Consistency (SDCM) <sup>4</sup>	Radiation Angle
Fortimo Line 2ft PR 4000lm 830 1R NA LV3	3000	>80	>0	3	120°
Fortimo Line 2ft PR 4000lm 835 1R NA LV3	3500				
Fortimo Line 2ft PR 4000lm 840 1R NA LV3	4000				
Fortimo Line 2ft PR 4000lm 850 1R NA LV3	5000				

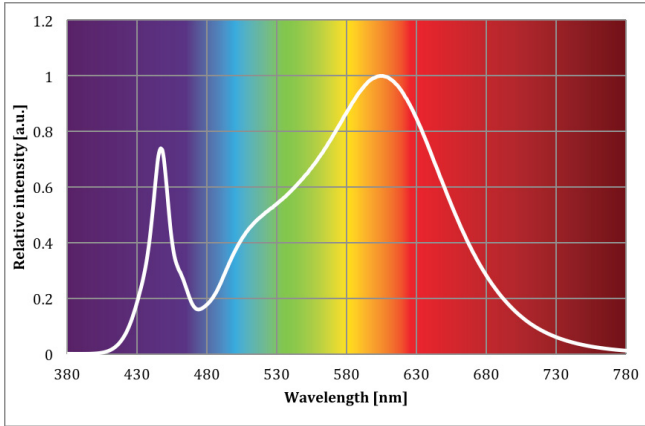
Commercial Product Name	Typical Current (mA)	Flux <sup>5</sup> (lm)			Efficacy <sup>6</sup> (lm/W)		
		Min.	Typ.	Max.	Min.	Typ.	Max.
Fortimo Line 2ft PR 4000lm 830 1R NA LV3	657	3560	3840	4130	154	171	189
Fortimo Line 2ft PR 4000lm 835 1R NA LV3		3640	3930	4230	157	175	193
Fortimo Line 2ft PR 4000lm 840 1R NA LV3		3700	4000	4300	160	178	196
Fortimo Line 2ft PR 4000lm 850 1R NA LV3		3790	4090	4400	163	182	201
Fortimo Line 2ft PR 4000lm 830 1R NA LV3	1000	5260	5690	6120	143	160	176
Fortimo Line 2ft PR 4000lm 835 1R NA LV3		5390	5820	6260	146	163	180
Fortimo Line 2ft PR 4000lm 840 1R NA LV3		5480	5920	6370	149	166	183
Fortimo Line 2ft PR 4000lm 850 1R NA LV3		5600	6050	6510	152	170	187
Fortimo Line 2ft PR 4000lm 830 1R NA LV3	325	1810	1960	2110	166	185	204
Fortimo Line 2ft PR 4000lm 835 1R NA LV3		1860	2000	2160	170	189	209
Fortimo Line 2ft PR 4000lm 840 1R NA LV3		1890	2040	2190	173	192	212
Fortimo Line 2ft PR 4000lm 850 1R NA LV3		1930	2080	2240	177	197	217

Footnotes on the last page.

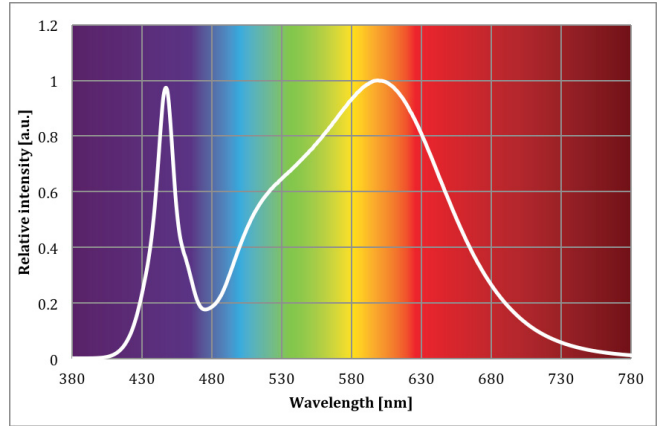
# Fortimo LED Line PR 2ft 4000lm 8xx 1R NA

Optical Characteristics – at Tc of 55°C

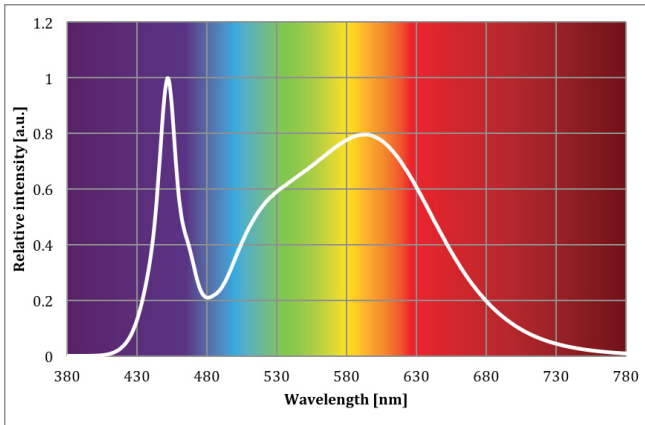
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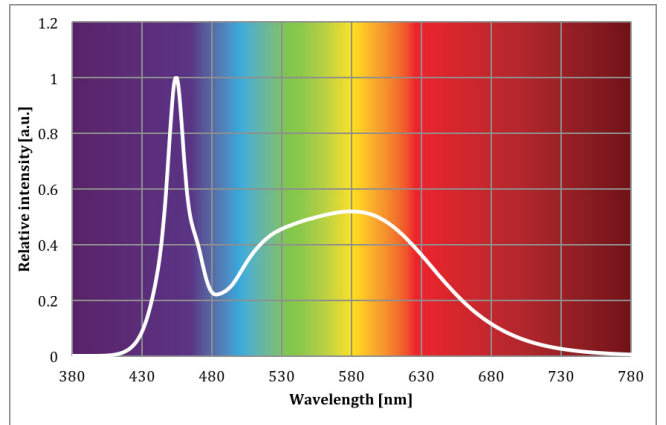
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840



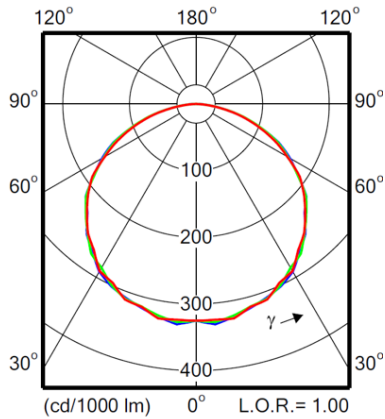
850



# Fortimo LED Line PR 2ft 4000lm 8xx 1R NA

## Beam Shape

The Philips Fortimo LED Line generates a Lambertian beam shape, which is a pragmatic starting point for OEMs wishing to design secondary optics.



## Electrical Characteristics

Commercial Product Name	Typical Current (mA)	Forward Voltage (V)			Power (W)		
		Min.	Typ.	Max.	Min.	Typ.	Max.
Fortimo Line 2ft PR 4000lm 830 1R NA LV3	657	33.3	34.2	35.1	21.8	22.5	23.0
Fortimo Line 2ft PR 4000lm 835 1R NA LV3							
Fortimo Line 2ft PR 4000lm 840 1R NA LV3							
Fortimo Line 2ft PR 4000lm 850 1R NA LV3							
Fortimo Line 2ft PR 4000lm 830 1R NA LV3	1000	34.8	35.7	36.6	34.8	35.7	36.6
Fortimo Line 2ft PR 4000lm 835 1R NA LV3							
Fortimo Line 2ft PR 4000lm 840 1R NA LV3							
Fortimo Line 2ft PR 4000lm 850 1R NA LV3							

System configuration : 12s6p

## Lifetime

Parameter	Nominal <sup>7</sup>	Life <sup>8</sup>	Max. <sup>9</sup>
Tc (°C)	55	90	100
Current (mA)	657	1000	1120
Δu'v' at 6000 Hours <sup>10</sup>			0.007

# Fortimo LED Line PR 2ft 4000lm 8xx 1R NA

## Warranted Number of Full Thermal Product Cycles @ 25°C Ambient Temperature

Warranted number of full thermal product cycles at which the survival rate of the population  $\geq 90\%$ , at 25°C ambient temperature.

Case Temperature Tc [°C]	Amount of Cycles
25	>100,000
35	>100,000
45	>100,000
55	93,000
65	37,000
75	17,000
85	9,000
90	7,000

## Abs Max Ratings

Parameter	Min.	Max.	Unit
Current through the LED Module (I-max)		1120	mA
Case Temperature (Tc Max)		100	°C
ESD (Direct Contact)		8	kV
ESD (Air)		15	kV
Isolation Breakdown Voltage	700		Vdc
Ambient Temperature	-40	55	°C
PCB Reflectivity	70%		
Number of Modules per Chain		2	

## Application Information

### Compliance and Approval

UL8750 (UL recognized)

### Environmental

RoHS / REACH

### Application Information

IP Rating	No IP rating
Overheating Protection	No protection
Luminaire Class	UL Class 2

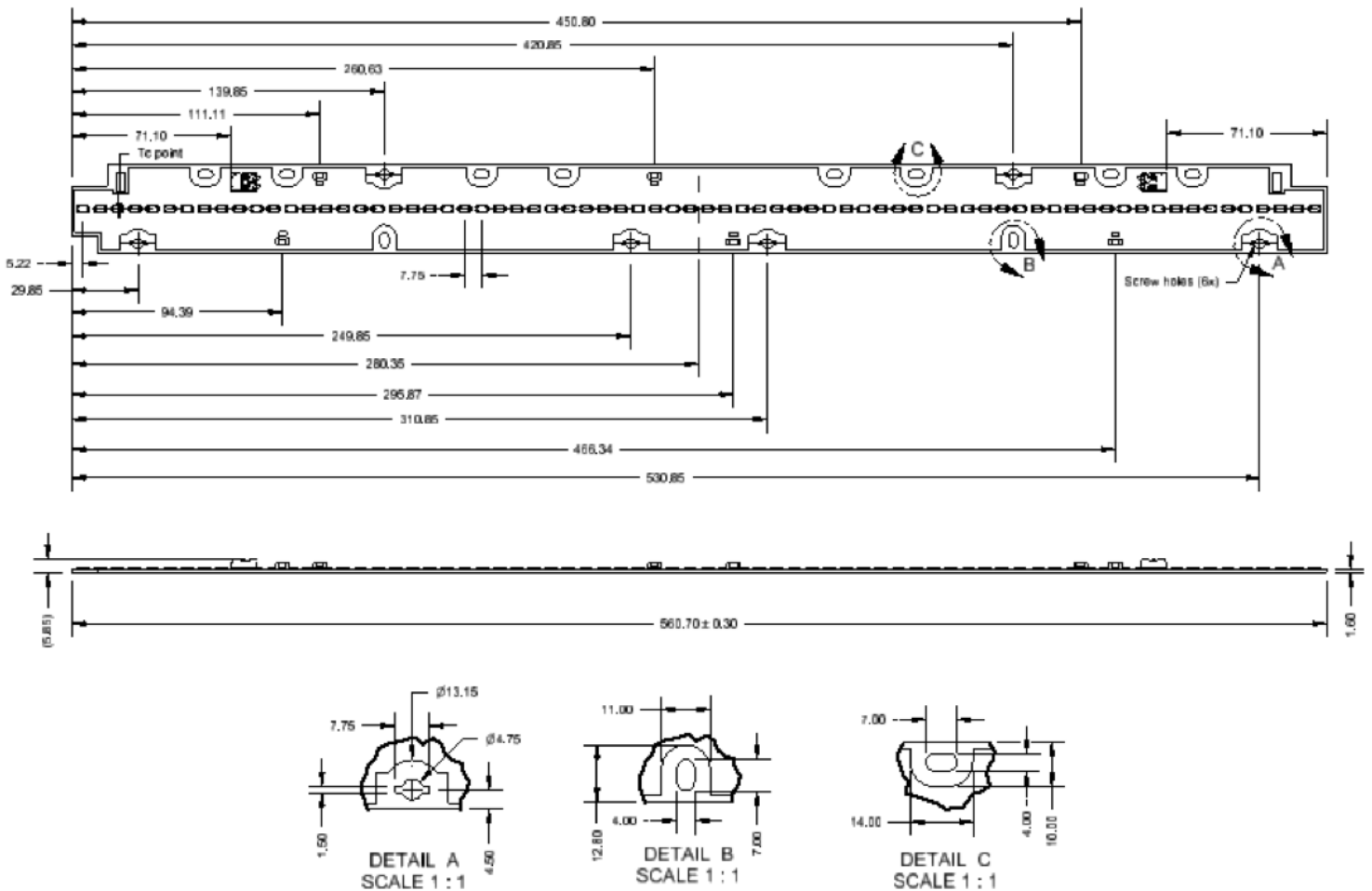
# Fortimo LED Line PR 2ft 4000lm 8xx 1R NA

## Wiring

Specification Item	Value	Unit	Condition
Input Wire Cross-Section	0.2...0.75	mm <sup>2</sup>	solid
	18...24	AWG	
	0.45...0.7	mm <sup>2</sup>	stranded
	20...22	AWG	
Input Wire Strip Length	7.5...8.5	mm	

## Mechanical Characteristics

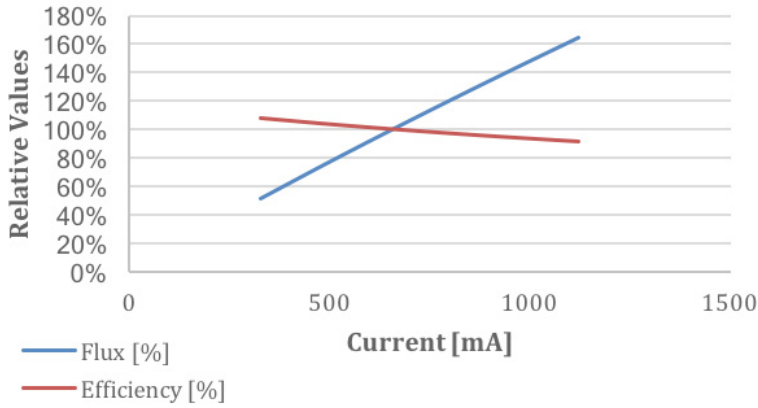
Parameter	Min.	Typ.	Max.	Unit
Length	560.4	560.7	561.0	mm
Width	39.8	40.0	40.2	mm
Height Excl. Connector	1.45	1.60	1.75	mm
Height Incl. Connector	5.50	5.85	6.20	mm
Warpage (IPC-TM-650)			0.75	mm



# Fortimo LED Line PR 2ft 4000lm 8xx 1R NA

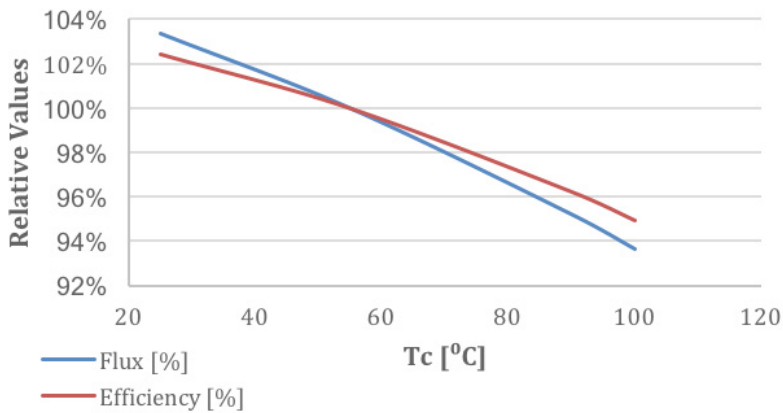
## Tuning Information

### Flux and Efficacy Vs. Current



I [A]	Flux [%]	Efficacy [%]
328	52	108
493	76	104
<b>657</b>	<b>100</b>	<b>100</b>
811	122	97
966	143	94
1120	164	91

### Flux and Efficacy Vs. Temperature at Tc



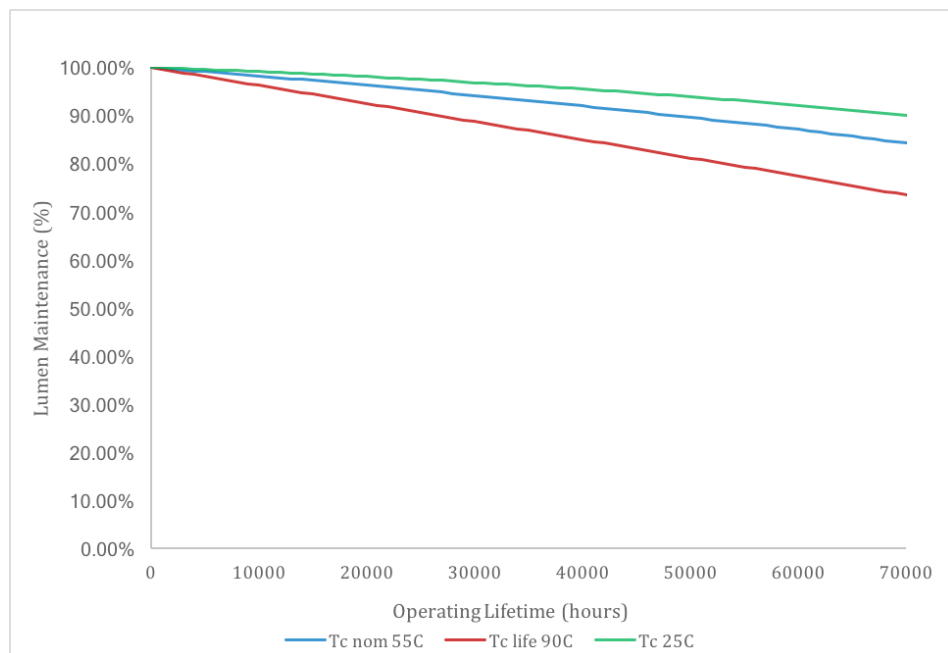
Tc [°C]	Flux [%]	Efficacy [%]
100	94	95
90	95	96
<b>55</b>	<b>100</b>	<b>100</b>
25	103	102

# Fortimo LED Line PR 2ft 4000lm 8xx 1R NA

## Lumen Maintenance

### Lumen Maintenance: at I Life and Tc Life Conditions

Fortimo LED Line PR 2ft 4000lm 8xx 1R NA LV



## Precautions in Handling and Use

See Philips design-in guide on the My Technology Portal. <https://www.na.mytechnologyportal.lighting.philips.com>.



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1. Average rated life is based on engineering data and probability analysis. The hours are at the B50, L70 point – 50,000 hours life with 70% lumen maintenance at Tc point.
2. View limited warranty at [http://www.usa.lighting.philips.com/connect/tools\\_literature/warranties.wpd](http://www.usa.lighting.philips.com/connect/tools_literature/warranties.wpd) for details and restrictions.
3. Measurement tolerance is  $\pm 1.5$  for CRI
4. Measurement tolerance is  $\pm 0.003$  for the color coordinates data
5. Measurement tolerance is  $\pm 5\%$  for the flux
6. Measurement tolerance is  $\pm 5\%$  for efficacy
7. Nominal value at which performance is specified
8. Value at which lifetime is specified (maximum conditions for warranty)
9. Maximum value for safety
10. Specifications stated while  $T_c < 90^\circ\text{C}$  and  $I < 1120\text{mA}$



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