

**PHILIPS**

**Fortimo**

**LED**

Fortimo LED Strip CES  
1ft 1100lm LV5



Datasheet

# A true Human Centric Lighting solution for office applications

## Fortimo LED Strip CES 1ft 1100lm LV5 F

The impact of lighting on the human body is the subject of many research studies. Several studies have proven that the light spectrum influences the body's creation of the sleep hormone melatonin. In this area of human centric lighting (HCL) the Fortimo LED Strip CES HV/LV5 provides the right spectrum of light to help the human body to suppress the creation of melatonin during the day. This is being achieved by adding cyan light to the LED modules and combine them with white LEDs to create a neutral white color temperature. This technology is called Cyan Enhanced Static (CES) and is based on the Fortimo LED Strip platform. CES technology helps to achieve the highest MDER possible at a comfortable light quality.

### Key features and benefits

- Upgrade your existing fixture easily to an HCL solution by applying Fortimo LED Strip CES
- MDER  $\geq 0.86$  possible at 500lux with comfortable light quality
- 4200K, CRI > 80, R9 >50
- Available in 1ft and 2ft
- Choose from high voltage or low voltage boards
- Highly efficient HCL solution: 162 Lm/W
- Excellent color consistency of 3 SDCM
- Long lifetime solution: >70.000 hours
- Five years system warranty

September 2020



## Ordering data

| Commercial product name                | EOC               | 12NC           | Box quantity |
|--|-------------------|----------------|--------------|
| Fortimo LED Strip CES 1ft 1100lm LV5 F | 8718699 768171 00 | 9290 021 99006 | 168          |

## Drive currents

| Parameter                            | Nominal* | Life** | Max*** | Unit |
|--------------------------------------|----------|--------|--------|------|
| Fortimo LED Strip CES 1ft 1100lm LV5 | 250      | 500    | 600    | mA   |

## Module temperatures

| Parameter   | Nominal* | Life** | Max*** | Unit |
|---|----------|--------|--------|------|
| T <sub>c</sub> (case temperature at T <sub>c</sub> point) | 45       | 70     | 85     | °C   |

\* Nominal value at which typical performance is specified

\*\* Value at which life time is specified

\*\*\* Maximum value for safe operation, do not operate above this value

## Optical characteristics - table per color (CCT)

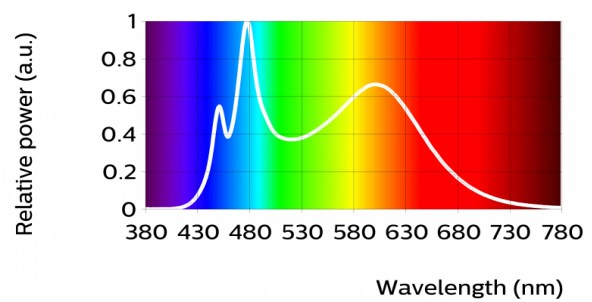
### Fortimo LED Strip CES 1ft 1100lm LV5 F

| Parameter                          | Min  | Typ            | Max           | Unit |
|------------------------------------|------|----------------|---------------|------|
| Luminous flux                      | 1045 | 1100           | 1155          | lm   |
| Module efficacy                    | 152  | 161            |               | lm/W |
| Correlated color temperature (CCT) |      | 4200           |               | K    |
| Color coordinates (CIEx, CIEy)     |      | (0.368, 0.360) |               | -    |
| Color consistency                  |      |                | 3             | SDCM |
| CRI                                |      | 80             |               |      |
| R9                                 | 50   |                |               |      |
| Photometric code                   |      | 842/359        |               |      |
| Photobiological safety             |      |                | RG1 unlimited |      |



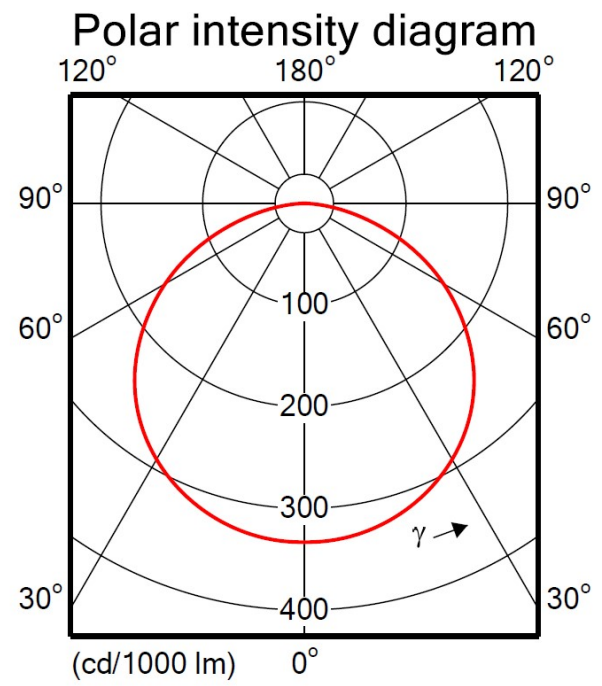
Measurement precision for flux +/- 5%. Measurement precision for x, y +/- 0.005. Measurement precision for CRI 1.5

| Operation point | 42              | lm       | lm/W |
|-----------------|-----------------|----------|------|
|                 | 80% I-nom 200mA | Tc 25 °C | 902  |
| Tc-nom 45 °C    |                 | 891      | 165  |
| Tc-max 85 °C    |                 | 863      | 162  |
| I-nom 250mA     | Tc 25 °C        | 1113     | 162  |
|                 | Tc-nom 45 °C    | 1100     | 161  |
|                 | Tc-max 85 °C    | 1066     | 158  |
| I-max 600mA     | Tc 25 °C        | 2478     | 139  |
|                 | Tc-nom 45 °C    | 2449     | 139  |
|                 | Tc-max 85 °C    | 2377     | 136  |



## Beam shape

The module has a Lambertian light distribution



## Electrical characteristics

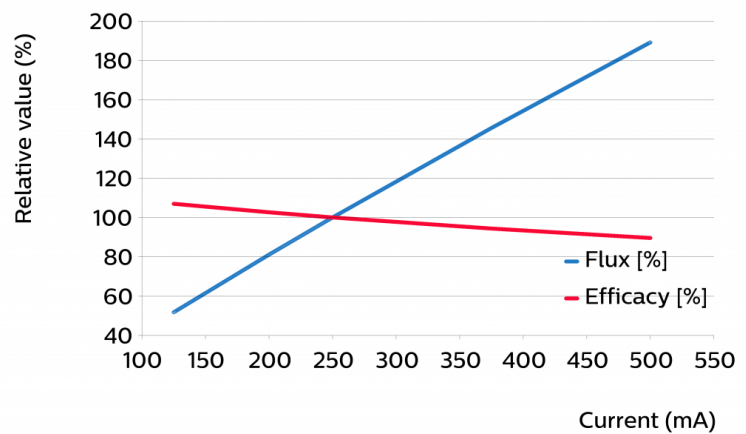
| Parameter                               | Min  | Typ  | Max  | Unit          |
|---|------|------|------|---------------|
| Forward voltage                         | 26.2 | 27.3 | 28.4 | V             |
| Power consumption                       | 6.6  | 6.8  | 7.1  | W = kWh/1000h |
| Number of modules in series per chain   |      |      | 1    |               |
| Number of modules in parallel per chain |      |      | 4    |               |

Measurement precision for Vf +/- 3%. Measurement precision for power +/- 3.3%.

## Tuning information

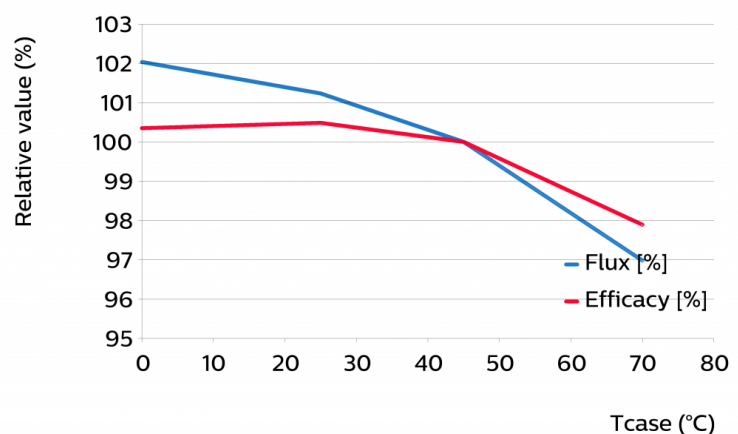
Flux and efficacy versus current (at Tc nominal)

| I [mA] | Flux [%] | Efficacy [%] |
|--------|----------|--------------|
| 500    | 189      | 90           |
| 375    | 146      | 94           |
| 250    | 100      | 100          |
| 200    | 81       | 103          |
| 125    | 52       | 107          |



Flux and efficacy versus temperature at Tc (at I nominal)

| Tc [°C] | Flux [%] | Efficacy [%] |
|---------|----------|--------------|
| 70      | 97       | 98           |
| 45      | 100      | 100          |
| 25      | 101      | 100          |
| 0       | 102      | 100          |



## Lumen maintenance

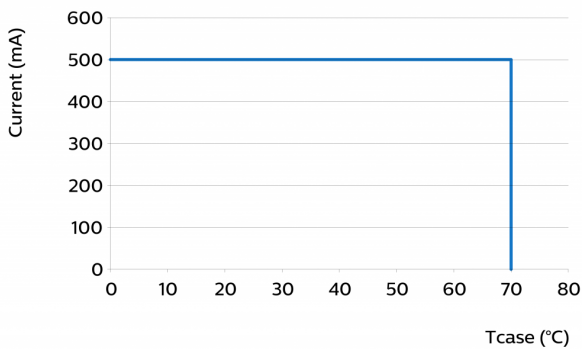
| Operation point            | Lumen maintenance<br>x 1000 hours | L70 |     |     | L80 |     |     | L90 |     |     |
|----------------------------|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                            |                                   | B50 | B20 | B10 | B50 | B20 | B10 | B50 | B20 | B10 |
| 80% I <sub>nom</sub> 200mA | Tc 25°C                           | >70 | >70 | >70 | >70 | >70 | >70 | 52  | 52  | 51  |
|                            | Tc <sub>nom</sub> 45°C            | >70 | >70 | >70 | >70 | >70 | >70 | 44  | 43  | 43  |
|                            | Tc <sub>life</sub> 70°C           | >70 | >70 | >70 | >70 | >70 | >70 | 38  | 38  | 38  |
| I <sub>nom</sub> 250 mA    | Tc 25°C                           | >70 | >70 | >70 | >70 | >70 | >70 | 52  | 52  | 51  |
|                            | Tc <sub>nom</sub> 45°C            | >70 | >70 | >70 | >70 | >70 | >70 | 44  | 43  | 43  |
|                            | Tc <sub>life</sub> 70°C           | >70 | >70 | >70 | >70 | >70 | >70 | 38  | 38  | 38  |
| I <sub>life</sub> 500 mA   | Tc 25°C                           | >70 | >70 | >70 | >70 | >70 | >70 | 49  | 49  | 48  |
|                            | Tc <sub>nom</sub> 45°C            | >70 | >70 | >70 | >70 | >70 | >70 | 43  | 42  | 42  |
|                            | Tc <sub>life</sub> 70°C           | >70 | >70 | >70 | >70 | >70 | >70 | 36  | 35  | 35  |

## Lifetime

| Parameter      | Value  | Unit  |
|----------------|--------|-------|
| M70F50 nominal | >70000 | hours |
| M70F50 life    | >70000 | hours |

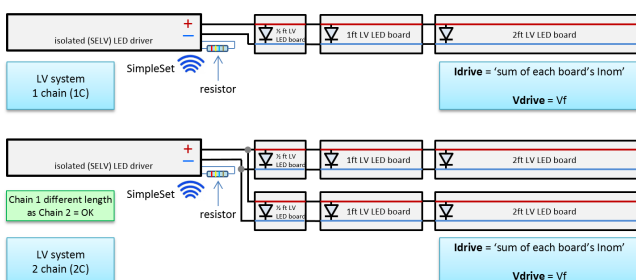
Switching cycles in accordance to EU 1194/2012: >15000.

## Performance Window



## Wiring

| Specification item       | Value       | Unit            | Condition     |
|--------------------------|-------------|-----------------|---------------|
| Input wire cross-section | 0.25...0.75 | mm <sup>2</sup> | solid wire    |
|                          | 18...24     | AWG             | solid wire    |
| Input wire strip length  | 7.5...8.5   | mm              |               |
| Input wire cross-section | 0.33...0.5  | mm <sup>2</sup> | stranded wire |
|                          | 20...22     | AWG             | stranded wire |
| Input wire strip length  | 7.5...8.5   | mm              |               |

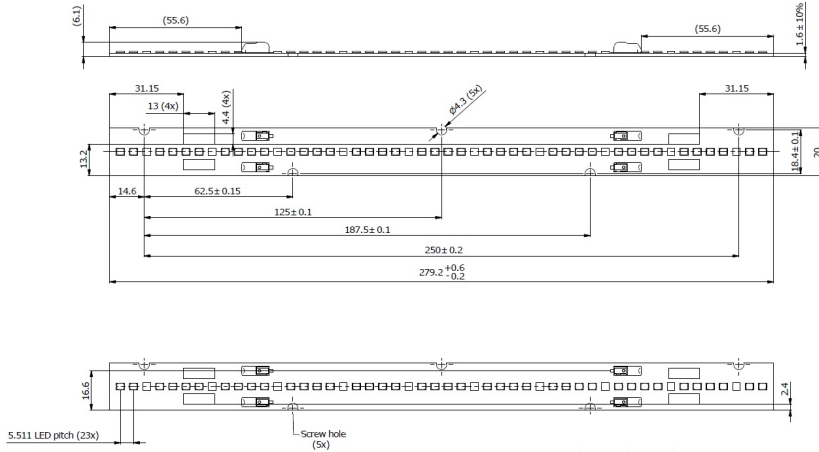


More information in the design-in guide of LED Linear modules.



## Mechanical characteristics

| Parameter    | Min  | Typ   | Max   | Unit |
|--------------|------|-------|-------|------|
| Length       | 279  | 279.2 | 279.8 | mm   |
| Width        | 19.8 | 20    | 20.2  | mm   |
| Height PCB   | 1.44 | 1.6   | 1.76  | mm   |
| Height total |      | 6.1   |       | mm   |
| Product mass |      | 19    |       | gram |



## Absolute ratings

| Parameter                              | Min | Max | Unit            |
|--|-----|-----|-----------------|
| Current through the LED module (I-max) |     | 600 | mA              |
| Case temperature (Tc-max)              |     | 85  | °C              |
| ESD (direct contact)                   |     | 8   | kV              |
| Working voltage                        |     | 120 | V <sub>dc</sub> |
| Ambient temperature                    | -20 |     | °C              |

## Application information

### Certificates and Standards

CE  
 ENEC  
 ENEC+  
 UL

### Environmental

RoHS/REACH

### Application

Dimming | Yes



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