

Highlights

- Ready-to-connect flexible LED-strip with extremely high light output – more than 2000 lumen per meter
- Industry leading efficiency – up to 90 lumen per watt
- Constant Current Driven IC for professional lighting applications
- Excellent white color consistency
McAdams SDCM 5
- High color rendering index CRI > 80
- Perfect for general lighting, e.g. slim linear profiles and luminaires
- Reflective white copper PCB for optimal system efficiency
- High quality adhesive 3M-tape on backside for easy mounting on clean surface or cooling profile
- Long lifetime: L70 = 50.000h ①

Applications

- General Lighting
- Office Lighting
- Indirect Lighting
- Area Lighting

Electrical Properties

- Supplied with constant voltage 24 VDC
- Connect up to 5 meters in series
- Optimized for high resolution dimming 0,1-100% using Tridonic and feno digital drivers controlled via switchDIM, DSI, DALI or DMX.

Standards

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Accessories/Options

- Aluminum profiles for linear and corner applications
- Wide variety of lenses and covers 15°/30°/60°/120°
- Fixed or adjustable mounting brackets
- Solder-free connectors and bridges
- Large selection of drivers and control systems to fit every need and application

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| Type | Article Code | Supply Voltage (VDC) ③ | Color (K) | Photometric Code ⑤ | Typ. Data per meter ① ② | | | | Pitch Distance (P) | Cutting Length (C) | LxWxH (mm) | Operating temp (°C) ④ |
|---------------------|-------------------|------------------------|-----------|--------------------|-------------------------|--------------|-----------|--------------|--------------------|--------------------|------------|-----------------------|
| | | | | | Luminous flux (lm) | Current (mA) | Power (W) | LED quantity | | | | |
| LEDtape 827 2000 HO | W1006-82702460601 | 24 | 2700 | 827 / 559 | 1784 | 1000 | 24 | 60 | 16 mm | 98 mm | 4900x10x2 | -30 °C +45 °C |
| LEDtape 830 2000 HO | W1006-83002460601 | 24 | 3000 | 830 / 559 | 2073 | 1000 | 24 | 60 | 16 mm | 98 mm | 4900x10x2 | -30 °C +45 °C |
| LEDtape 840 2000 HO | W1006-84002460601 | 24 | 4000 | 840 / 559 | 2184 | 1000 | 24 | 60 | 16 mm | 98 mm | 4900x10x2 | -30 °C +45 °C |

① All values for $t_a = 25\text{ °C} / t_c = 65\text{ °C}$

② Tolerance range for electrical and optical data $\pm 10\%$

③ Exceeding the maximum operating voltage leads to an overload on the tape. This may result in a significant reduction in lifetime or even destruction of the tape. Tolerance range for the supply voltage 24V: +2V / -0V

④ External cooling is required

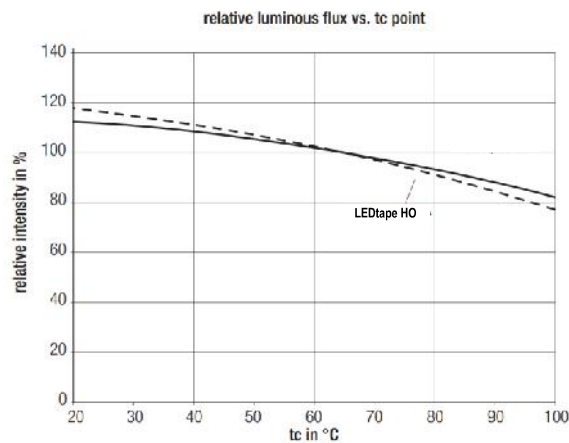
⑤ According to IEC 62717

Standards

- EN 55015:2006 + A1:2007 + A2:2009
- EN 61000-3-2:2006 + A1:2009 + A2:2009
- EN 61000-3-3:2008
- EN 61547:2009
- EN 62471:2008
- IEC/PAS 62717

Thermal behavior

| | |
|-----------------------|------------|
| Storage Temperature | -40/+85 °C |
| Operating Temperature | -30/+45 °C |
| Tc max | 85 °C |



Thermal design and heat sink

The rated life of LED-products depends to a large extent on the temperature. Weights excellent thermal design for the LED-tape products provides the lowest thermal resistance and therefore allowing new compact designs without sacrificing quality, safety and life time. However, if the permissible temperature limits are exceeded, the life of the LED-tape will be greatly reduced or the LED-tape may be destroyed.

It is necessary to mount the LED-tape onto a heat sink, e.g. an aluminum profile. The size of the heat sink is largely depending on the ambient temperature (t_a) of the application. The following tables should be seen as a guide to a recommended heat sink depending on different t_a :

LEDtape 2000 HO (per meter)

| Ambient Temperature (T_a) | Reference Temperature (T_c) | Cooling Area (cm^2) | Thermal Resistance R_{thHS-A} | Recommended Aluminum profile |
|-------------------------------|---------------------------------|-------------------------|---------------------------------|------------------------------|
| 25 °C | 65 °C | 250 | 2,5 K/W | Z200-2 / Z201-2 / Z22W-2 |
| 30 °C | 65 °C | 300 | 2,1 K/W | Z200-2 / Z201-2 / Z22W-2 |
| 35 °C | 65 °C | 350 | 1,8 K/W | Z22W-2 |
| 45 °C | 65 °C | 450 | 1,7 K/W | Z22W-2 |

Rated life time

The temperature at t_c reference point is crucial for the light output and life time of an LED-tape. For the welight LED-tape a t_c temperature of 65 °C is recommended in order to achieve an optimum between heat sink requirements, light output and life time. Compliance with the maximum permissible reference temperature at the t_c point must be checked under operating conditions in a thermally stable state. The maximum value must be determined under worst-case conditions for the relevant application.

| t_c temperature in °C | luminous flux in % | lifetime in h |
|-------------------------|--------------------|---------------|
| 25 | 80 | 60,000 |
| | 70 | 81,000 |
| | 50 | 132,000 |
| 45 | 80 | 44,000 |
| | 70 | 64,000 |
| | 50 | 110,000 |
| 65 | 80 | 32,000 |
| | 70 | 50,000 |
| | 50 | 91,000 |

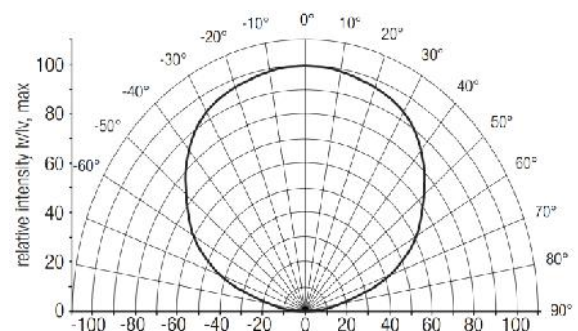
Failure fraction

The failure fraction (F_y) corresponds to the rated life of the LED. The percentage (y) of a number of LEDs of the same type at their rated life designates the percentage (fraction) of failures. This failure fraction expresses the combined effect of all components of the LED-tape including mechanical, as far as the light output is concerned. The effect of the LED could either be less light than claimed or no light at all.

| Type | Unit | Rated Life | Failure fraction (F_y) |
|-----------------|---------|------------------------------------|--|
| LEDtape 2000 HO | 1 meter | L70 = 50 000 h ($t_c = 65$ °C) | 5% (0,1% per 1000 hours of operation) |

Light Distribution

Radiance Angle = 120°



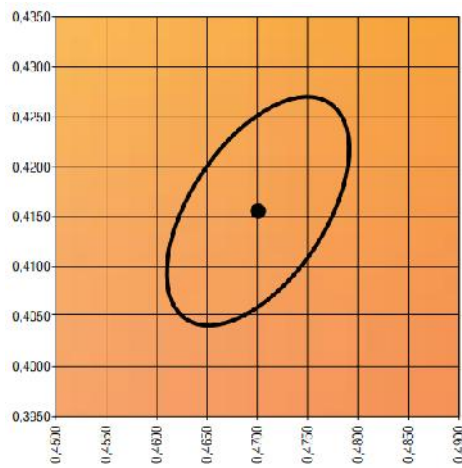
Chromaticity coordinates and tolerances according to CIE 1931

| Color | Photometric Code |
|--------|------------------|
| 2700 K | 827 / 559 |
| 3000 K | 830 / 559 |
| 4000 K | 840 / 559 |

| 1 st digit | 2 nd + 3 rd digit | 4 th digit | 5 th digit | 6 th digit | |
|-----------------------|---|------------------------------------|-----------------------|--------------------------------|---|
| Code | CRI | Colour temperature in Kelvin x 100 | McAdams initial | 2% of the lifetime (max 6000h) | Lumen maintenance after 25% of the lifetime (max 6000h) |
| / | 87 - 76 | | | 7 | > 70 % |
| 8 | 77 - 86 | | | 8 | ≥ 80 % |
| 9 | 87 > 90 | | | 9 | > 90 % |

2,700 K

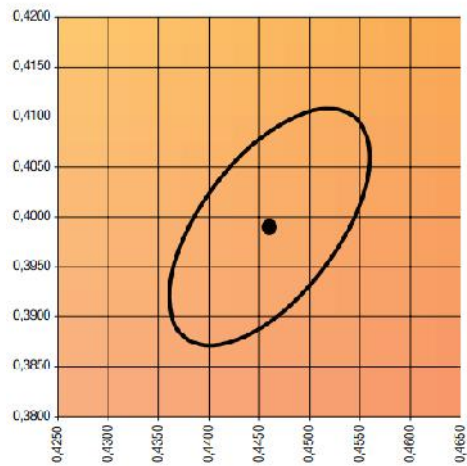
| | x0 | y0 |
|--------|--------|--------|
| Centre | 0.4700 | 0.4160 |



MacAdam ellipse: 5SDCM

3,000 K

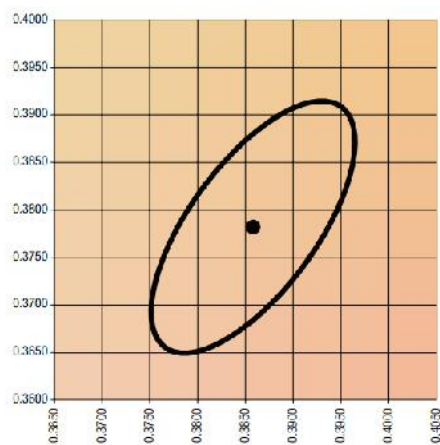
| | x0 | y0 |
|--------|--------|--------|
| Centre | 0.4460 | 0.3990 |



MacAdam ellipse: 5SDCM

4,000 K

| | x0 | y0 |
|--------|--------|--------|
| Centre | 0,3860 | 0,3780 |



MacAdam ellipse: 5SDCM

The specified color coordinates are measured by a current impulse with nominal values of module after a settling time of 100 msec. The ambient temperature of the measurement is $t_a = 25\text{ }^\circ\text{C}$. The measurement tolerance of the color coordinates are ± 0.01 .

Mounting Instructions

Mechanical

Never bend the LED-tape at a radius smaller than 50 mm. Assembly must not damage or destroy conducting paths on the circuit board.

The LED module itself and all its components must not be mechanically stressed.

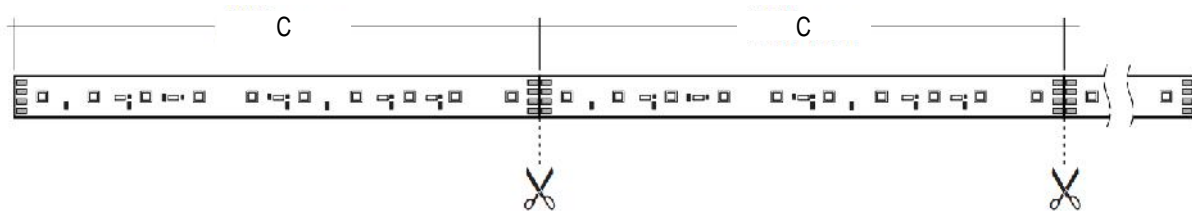
The fixing/cooling surface must be properly cleaned to remove grease, dirt and silicon before application, e.g. using Isopropyl alcohol. When fixing the LED-tape to a surface, apply an even but gentle pressure and try to avoid applying pressure directly on the LED itself (the maximum allowed pressure is 20 N/cm²).

After assembly always check that the entire length of the tape has attached properly to the surface and that there is no air pockets underneath the PCB.

The thermal length expansion coefficient of the PCB is 17*10⁻⁶cm/cm/K. When installing in environments with large variations in temperature (e.g. outdoor applications) and operating length of more than 2 m, the use of metallic mounting surfaces is necessary. Otherwise it is advisable to use an additional thicker adhesive tape to absorb the stress of any mismatch in expansion coefficients, e.g. 3M 9119-140 mic.

Cutting

The LED-tape is separable at every 6 LEDs or multiple thereof with the full function of each LED segment. It is only allowed to cut the LED-tape at the indicated cutting line.



It is recommended to use the connection accessories listed in section *Accessories* to split, connect and bridge the LED-tape.

Soldering

Without heat sink:

- Pre-tin the cables only
- Soldering temperature max 300 °C during 4 seconds

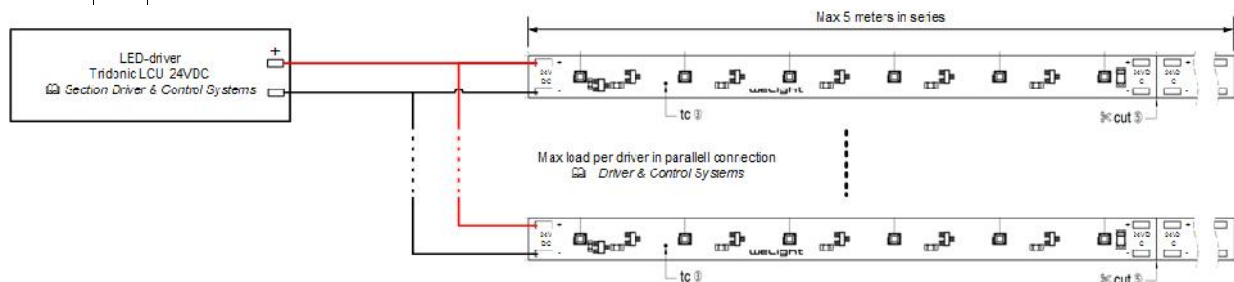
With heat sink:

- Pre-tin solder pads and cables
- Soldering temperature max 350 °C during 3 seconds

Wiring

Each reel of LED-tape is delivered with color coded connection cable L=350mm, 2x0,5 mm². Do not connect more than 5 meters of the LED-tape in series. When connecting several sections in parallel please refer to the table *Driver & Control Systems* for the allowed total length connected to one controller/dimmer.

| Color | Red | Black |
|----------|-----|-------|
| Function | + | - |



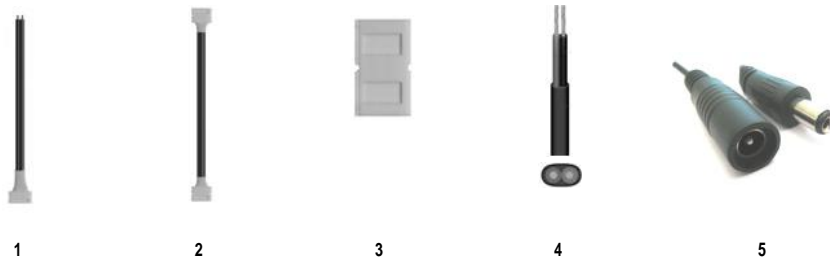
Electrical connection

In order to drive welight LED-tapes safely, it is absolutely necessary to operate them with an electronically stabilized power supply protecting against short circuits, overload and overheating. Always use our approved drivers and controls to power the LED-tape – refer to *Driver & Control Systems*. If the wrong type of driver is used the product warranty is void.

Electronic control gear for LED should carry the CE mark and ENEC certified. In Europe the declarations of conformity must include the following standards: CE: EC 61347-2-13, EN 55015, IEC 61547 and IEC 61000-3-2 - ENEC: 61347-2-13 and IEC/EN 62384. Also check for the mark of an independent authorized certification institute. Tridonic electronic control gear complies with all relevant standards and guarantees safe operation.

Accessories

Cable & Connection accessories



| | Type | Art. Code | Description |
|---|------------------------------------|-----------|--|
| 1 | LEDaccessory Supply Cable 10/200 | W8404 | Supply cable with solder-free PCB-connection, L=200 mm |
| 2 | LEDaccessory Bridge Cable 10/200 | W8405 | Bridge two LEDtapes with solder-free PCB-connection, L=200 mm |
| 3 | LEDaccessory Bridge 10 | W8406 | Bridge two LEDtapes directly to each other with solder-free PCB-connection |
| 4 | LEDaccessory LED Cable 100m Indoor | W8407 | H03VVH 2X0.75 Rd/Bl, White Insulation, 100 m |
| 5 | LEDaccessory CON IP20 kit F+M | W8412-A1 | Quick Connector kit with female and male plug including 30 cm cable, black |

Driver & Control Systems

(a) Select the way you want to control your system and (b) chose a driver that matches your LED-power.



| (a) | Control Signal | Dimmer Type | Art. Code | Max length per dimmer | Multiple dimmers allowed |
|-----|----------------------------|----------------------|-----------|-----------------------|--------------------------|
| 1 | 1-10V | feno fd analog 1-24e | 00000066 | 6 meter | Yes |
| 2 | DALI one4all ① | feno fd multi 1-24e | 00000303 | 6 meter | Yes |
| 3 | DALI one4all integrated ①② | Tridonic K210 | 86455937 | 1 meter | Yes |
| 4 | DMX | feno fd dmx 1-24e | 00002100 | 6 meter | Yes |
| 5 | IP44 Dimmer Protection Kit | All of the above | 24138842 | - | - |

① one4all supports switchDIM (dimming via phase impulse), DSI and DALI in the same dimmer.

② The dimmer has a 25W integrated LED-driver and cannot be used together with external LED-driver in table (b).

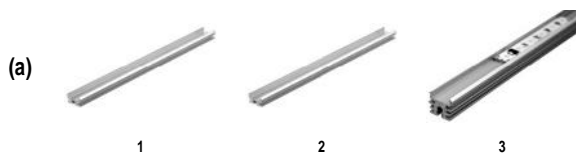


| (b) | Power | Driver | IP20 Art. Code | IP67 Art. Code |
|-----|-------|----------------------|----------------|----------------|
| 1 | 25 W | Tridonic LCU 025/24 | 86453418 | - |
| 2 | 35 W | Tridonic LCU 035/24 | 24166320 | - |
| 3 | 60 W | Tridonic LCU 060/24 | 24166324 | 22185184 |
| 4 | 100 W | Tridonic LCU 100/24 | 24166328 | 22185185 |
| 5 | 150 W | Tridonic LCU 0150/24 | 24166333 | 22185186 |

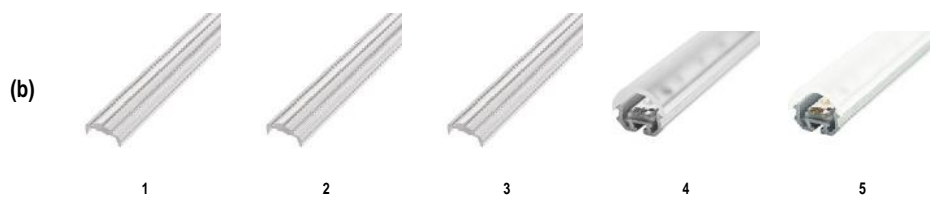
LED-drivers <25 W available on request. Please contact us at info@ljuskontroll.com for information about suitable end-user control interfaces, e.g. touch panels, color mixing software, potentiometers, push-buttons, etc.

Aluminum Profile Systems

Start by selecting an aluminum profile (a) and a suitable lens cover (b) and then add optional accessories (c).



| (a) | Type | Art. Code | L (mm) | W (mm) | H (mm) | W (mm) incl. lens cover | H (mm) incl. lens cover | Application | Optional accessories | | | |
|-----|--------|-----------|--------|--------|--------|-------------------------|-------------------------|-------------|----------------------|---------|-------------|------------------|
| | | | | | | | | | Lens Cover | End Cap | Fixed Mount | Adjustable Mount |
| 1 | Z200-2 | 24166148 | 2000 | 18 | 9 | 21 | 16 | Corner | ● | ○ | ○ | ○ |
| 2 | Z201-2 | 24166149 | 2000 | 18 | 9 | 21 | 16 | Linear Slim | ● | ● | ● | ○ |
| 3 | Z22W-2 | 24166150 | 2000 | 18 | 16 | 21 | 24 | Linear | ● | ● | ● | ● |



| (b) | Type | Art. Code | L (mm) | Typ. application | Profile | | |
|-----|-----------|-----------|--------|------------------|---------|--------|--------|
| | | | | | Z200-2 | Z201-2 | Z22W-2 |
| 1 | 15° | 24166409 | 2000 | Wall wash | ● | ● | ● |
| 2 | 30° | 24166410 | 2000 | Wall wash | ● | ● | ● |
| 3 | 60° | 24166411 | 2000 | Shelf | ● | ● | ● |
| 4 | 120° | 24138737 | 2000 | Accent | ● | ● | ● |
| 5 | 120° opal | 24138736 | 2000 | Lines | ● | ● | ● |



| (c) | Type | Art. Code | Profile | | |
|-----|------------------------------|-----------|---------|--------|--------|
| | | | Z200-2 | Z201-2 | Z22W-2 |
| 1 | End cap Grey PMMA | 24166334 | ○ | ● | ○ |
| 2 | End Cap Aluminum | 24139174 | ○ | ○ | ● |
| 2 | End Cap Aluminum Cable Entry | 24139173 | ○ | ○ | ● |
| 3 | Mounting Bracket 0° | 88166859 | ○ | ● | ● |
| 4 | Mounting Bracket 15° | 88167372 | ○ | ● | ● |
| 4 | Mounting Bracket 30° | 88167373 | ○ | ● | ● |
| 4 | Mounting Bracket 45° | 88167374 | ○ | ● | ● |
| 4 | Mounting Bracket 60° | 88167375 | ○ | ● | ● |
| 5 | Mounting Bracket Adjustable | 24166024 | ○ | ○ | ● |