

Highlights

- Ready-to-connect flexible LED-strip with High Density and Efficiency – HDE
- Constant Current Driven IC for professional lighting applications
- 144 LEDs per meter – ideal for homogenous lighting at close distances
- Excellent white color consistency McAdams SDCM 5
- High color rendering index CRI > 80
- Perfect for shelf and accent lighting, e.g. slim linear profiles with opal cover
- 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

- Shelf Lighting
- General Lighting
- Food Lighting
- Accent 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

- Outdoor version IP65 with silicon casing
- 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 830 700 HDE	W1004-83002441441	24	3000	830 / 559	680	360	8,6	144	7 mm	42 mm	5040x10x2	-20 °C +55 °C
LEDtape 830 700 HDE IP65	W1104-83002441441	24	3000	830 / 559	646	360	8,6	144	7 mm	42 mm	5040x14x6	-20 °C +35 °C
LEDtape 840 700 HDE	W1004-84002441441	24	4000	840 / 559	720	360	8,6	144	7 mm	42 mm	5040x10x2	-20 °C +55 °C
LEDtape 840 700 HDE IP65	W1104-84002441441	24	4000	840 / 559	684	360	8,6	144	7 mm	42 mm	5040x14x6	-20 °C +35 °C
LEDtape 865 700 HDE	W1004-86502441441	24	6500	865 / 559	705	360	8,6	144	7 mm	42 mm	5040x10x2	-20 °C +55 °C
LEDtape 865 700 HDE IP65	W1104-86502441441	24	6500	865 / 559	670	360	8,6	144	7 mm	42 mm	5040x14x6	-20 °C +35 °C

① All values for ta = 25 °C / tc = 65 °C

② Tolerance range for electrical and optical data ±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 Self-cooling at ta = 35 °C

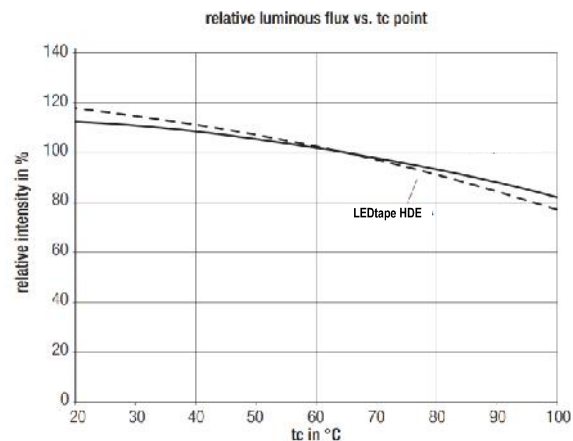
⑤ According to IEC 62717

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	-30/+60 °C
Operating Temperature	-20/+35/+55 °C
Tc max	75 °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 might be 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 (ta) of the application. The following tables should be seen as a guide to a recommended heat sink depending on different ta:

LEDtape 700 HDE (per meter)

Ambient Temperature (Ta)	Reference Temperature (Tc)	Cooling Area (cm²)	Thermal Resistance RthHS-A	Recommended Aluminum profile
25 °C	65 °C	Self-cooling	Self-cooling	Optional
35 °C	65 °C	Self-cooling	Self-cooling	Optional
45 °C	65 °C	300	2,1 K/W	Z200-2 / Z201-2 / Z22W-2
55 °C	65 °C	400	1,8 K/W	Z22W-2

LEDtape 700 HDE IP65 (per meter)

Ambient Temperature (Ta)	Reference Temperature (Tc)	Cooling Area (cm²)	Thermal Resistance RthHS-A	Recommended Aluminum profile
25 °C	65 °C	Self-cooling	Self-cooling	Optional
35 °C	65 °C	Self-cooling	Self-cooling	Optional
45 °C	Not allowed	-	-	-
55 °C	Not allowed	-	-	-

Rated life time

The temperature at tc reference point is crucial for the light output and life time of an LED-tape. For the weight LED-tape a tc 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 tc 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.

tc 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

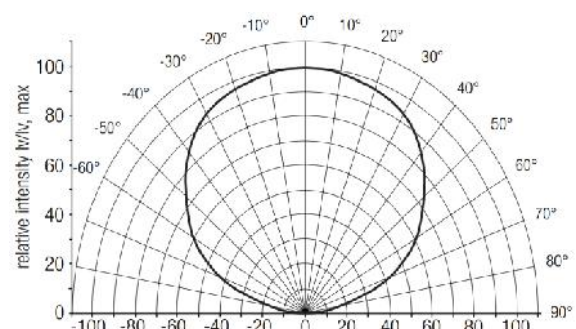
Failure fraction

The failure fraction (Fy) 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 (Fy)
LEDtape 700 HDE	1 meter	L70 = 50 000 h (tc = 65 °C)	5% (0,1% per 1000 hours of operation)

Light Distribution

Radiance Angle = 120°



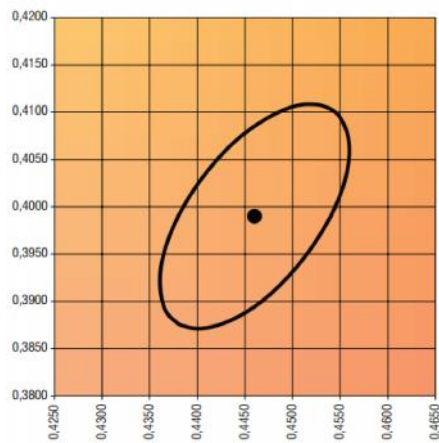
Chromaticity coordinates and tolerances according to CIE 1931

Color	Photometric Code
3000 K	830 / 559
4000 K	840 / 559
6500 K	865 / 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	McAams initial	McAams after of the lifetime (max.6000h) 2% of the lifetime (max.6000h)
7	87 - 76			Lumen maintenance after 25%
8	77 - 86			Code
9	87 - 90			Remaining lumen
				7
				8
				9

3,000 K

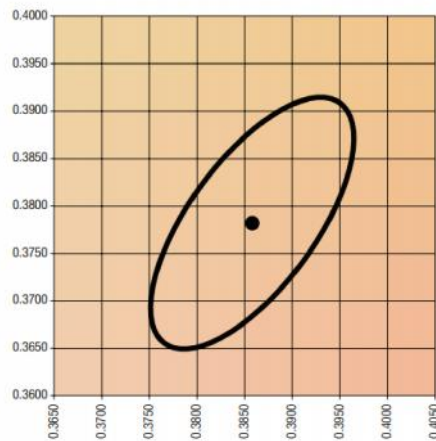
	x0	y0
Centre	0.4460	0.3990



MacAdam ellipse: 5SDCM

4,000 K

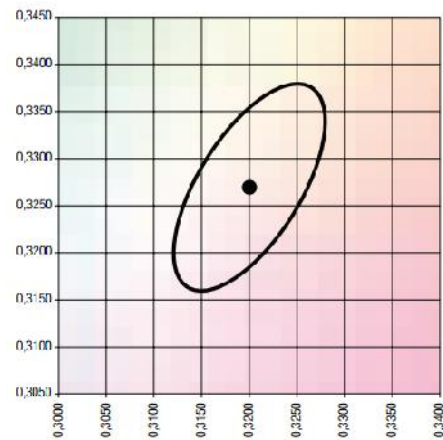
	x0	y0
Centre	0,3860	0,3780



MacAdam ellipse: 5SDCM

6.500 K

	x0	y0
Centre	0,3200	0,3270



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 $t_a = 25^\circ\text{C}$. 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.

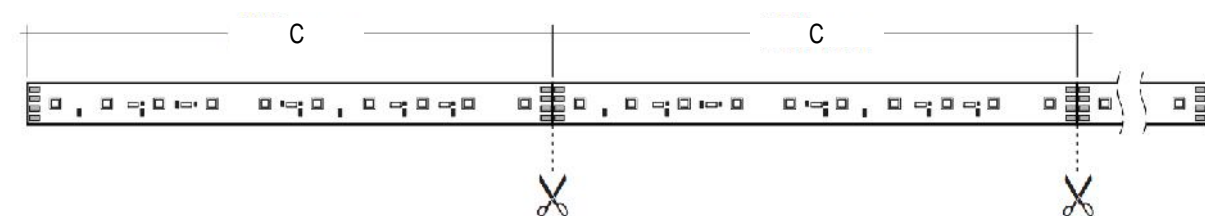
The fixing/cooling surface must be properly cleaned to remove grease, dirt and silicon before application, e.g. using Isopropyl alcohol. When fixing the LED-tape to a surface, apply an even but gentle pressure and try to avoid applying pressure directly on the LED itself (the maximum allowed pressure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

Soldering

Without heat sink:

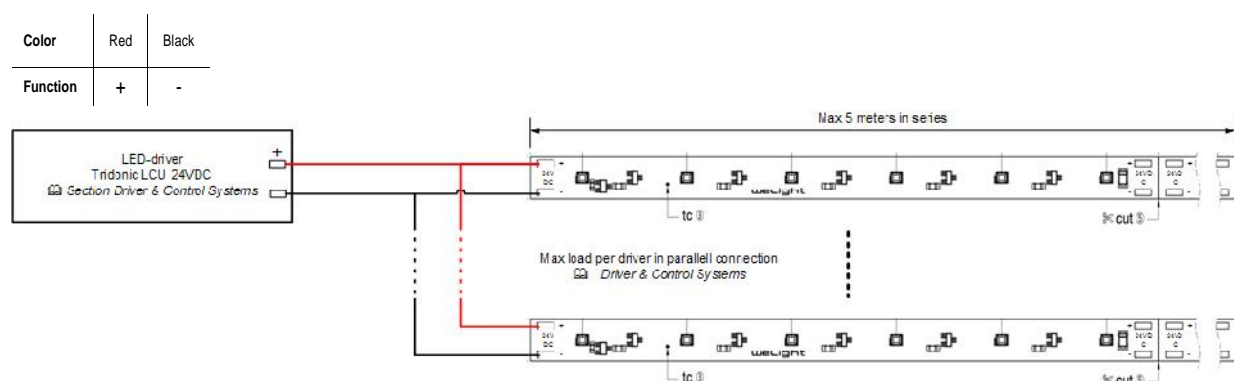
- Pre-tin the cables only
- Soldering temperature max 300 °C during 4 seconds

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.

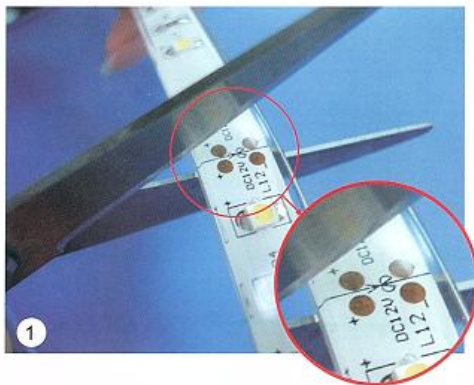


Electrical connection

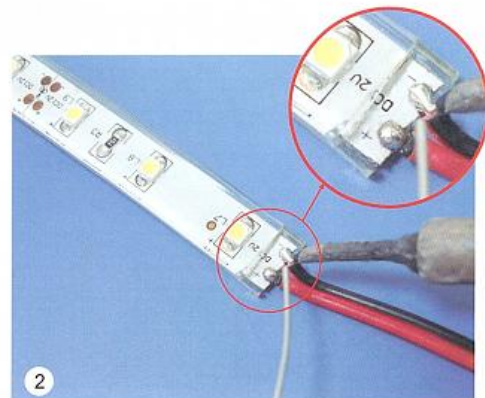
In order to drive weight LED-tapes safely, it is absolutely necessary to operate them with an electronically stabilized power supply protecting against short circuits, overload and overheating. Always use our approved drivers and controls to power the LED-tape – refer to *Driver & Control Systems*. If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

How to cut and rejoin the LED strip:



1. Please cut the LED strip at the cutting line.



2. Rejoin the cables to the strip by soldering, please do not reverse the polarity.



3. Get the end-caps from the accessory bag, make a small hole on each end-cap.



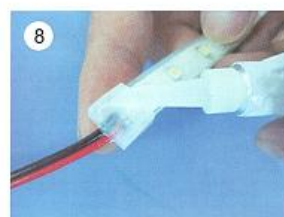
4. Put the end-cap on the end of LED strip, get the wires through the small hole.



5. Twist off the cap of glue tube, make a hole on the tube with the awl of the cap or other sharp objects.



6-7. Put the needle on the top of glue tube, cut the top of the needle at an angle of 45~60 degrees.



8-9. Dispense the glue on the gap between the end-cap and LED strip, and the small hole on the end-cap. Please wait for 30 minutes till the glue gets solidified.

Accessories

Cable & Connection accessories



	Type	Art. Code	Description	LEDtape	
				IP20	IP65
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 IP Assembly Kit 10	W8901	5 End Caps, 10 Mounting Brackets & Silicon (one kit is included on delivery)	○	●
5	LEDaccessory LED Cable 100m Indoor	W8407	H03VVH 2X0.75 Rd/Bl, White Insulation, 100 m	●	○
6	LEDaccessory LED Cable 100m Outdoor	RKKB2X1	RKKB 2X1 Rd/Bl Yd 5,8mm Black Insulation 100 m	○	●
7	LEDaccessory CON IP20 kit F+M	W8412-A1	Quick Connector kit with female and male plug including 30 cm cable, black	●	○
8	LEDaccessory CON IP68 kit F+M	W8411-A2	Quick Connector kit with female and male plug including 30 cm cable, white	○	●

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	16 meter	Yes
2	DALI one4all ①	feno fd multi 1-24e	00000303	16 meter	Yes
3	DALI one4all integrated ①②	Tridonic K210	86455937	2,9 meter	Yes
4	DMX	feno fd dmx 1-24e	00002100	16 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)



(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)



(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)



(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)



1



2



3



4



5

(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	○	○	●