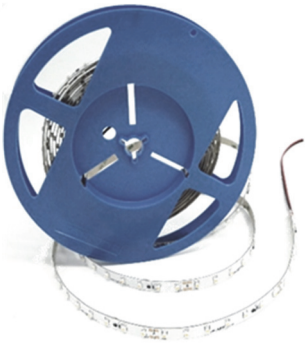
LEDtape 1000 HDE Tunable White 2400-6500K CRI>90

IP20/IP65



Highlights

- Short pitch flexible tunable white LED-tape for professional lighting applications
- Adjustable colour temperature 2400-6500K ⑥
- Simulate everything from a warm sunrise to a cool cloud reflection
- High colour rendering index CRI > 90
- Excellent white colour consistency MacAdam SDCM ≤3
- Constant Current Driven IC for professional lighting applications
- Reflective white double-layered PCB for optimal system efficiency
- High quality adhesive 3M-tape on backside for easy mounting on common surfaces
- Long lifetime: L70 = 50.000h ①

Applications

- Human Centric Lighting
- Accent Lighting
- Ambient Lighting
- Display Lighting
- Shelf Lighting

Electrical Properties

- Supplied with constant voltage 24 VDC
- Stable photometrics in combination with wide input voltage range 24-26 VDC
- Connect up to 10 meters in series ⑧
- Optimized for high resolution digital dimming 0.1-100% and tunable white control using Welight LED-driver W71XX-series.

Standards

page 2

Accessories/Options

- Outdoor version IP65 with silicon casing
- Aluminium profiles for linear and corner applications
- Wide variety of lenses and covers 15°/30°/60°/120°/Asymmetric/Batwing
- Fixed or adjustable mounting brackets
- Optimised drivers to fit every need and application

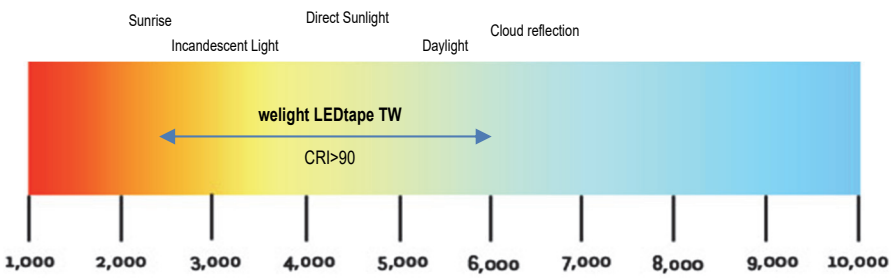
page 4

Mounting Instructions

page 6

Type	Article Code	Supply Voltage (VDC) ③	Power (W) per meter	Luminous flux (lm) per meter ⑦	Pitch Distance (P)	Cutting Length (C)	LxWxH (mm)	Operating temp (°C)	Energy Class	Colour (K)		Photometric Code ⑤	Typ. data per meter & colour		
													Luminous flux (lm)	Current (mA)	LED quantity
LEDtape 924-965 1000 HDE TW 10W 24V	W1004-924-965	24	10	1000	7 mm	100 mm	5000x10x2	-20 °C +50 °C ④	A+	WW	2400K	924 / 349	450	200	70
										CW	6500K	965 / 349	550	200	70
LEDtape 924-965 1000 HDE TW 10W 24V IP	W1004-924-965-IP	24	10	1000	7 mm	100 mm	5020x14x6	-20 °C +35 °C ④	A+	WW	2400K	924 / 349	450	200	70
										CW	6500K	965 / 349	550	200	70

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
⑥ The adjusted colour temperatures can shift slightly below B.B.L.
⑦ Value at 100% light level. Lumen is not constant along the B.B.L.
⑧ When connecting 10 meter in series, the supply voltage must be between 24-26V at the beginning of the tape. Lower voltage can cause a significant reduction in light output at the end of length.



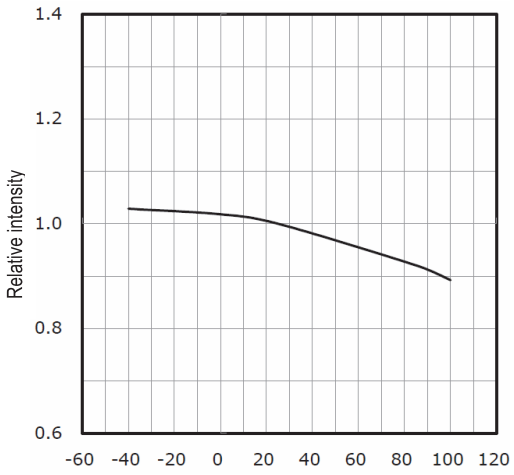
Standards

- IEC 62031
- IEC 62471
- IEC 62717
- IEC 6100-4-2

Thermal behaviour

Storage Temperature	-30/+80 °C
Operating Temperature	-20/+35/+50 °C
Tc max	75 °C

Relative luminous flux vs. ambient temperature



⚠ Thermal design and heat sink

The rated life of LED-products depends to a large extent on the temperature. Welight's 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 often recommended to mount the LED-tape onto a heat sink, e.g. an aluminum profile. The need for a 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 for the LEDtape:

LEDtape 1000 HDE TW (per meter)

Ambient Temperature (Ta)	Reference Temperature (Tc)	Cooling Area (cm^2)	Thermal Resistance R_{thHS-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
50 °C	65 °C	400	1,8 K/W	Z22W-2

LEDtape 1000 HDE TW IP65 (per meter)

Ambient Temperature (Ta)	Reference Temperature (Tc)	Cooling Area (cm^2)	Thermal Resistance R_{thHS-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	-	-	-
50 °C	Not allowed	-	-	-

The temperature at tc reference point is crucial for the light output and life time of a LEDtape. For the welight LEDtape a tc temperature of 65 °C is recommended to achieve an optimum between heat sink requirements, light output and life time.

Life time, lumen maintenance and failure fraction

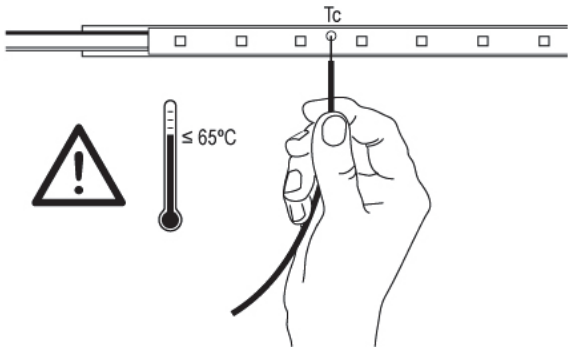
The light output of the LEDs on the tape decreases over the life-time, this is characterized with the L value. L70 means that the LEDtape will give 70 % of its initial luminous flux. This value is always related to the number of operation hours and therefore defines the lifetime of the LEDs.

The L value is a statistical value and the lumen maintenance may vary over the delivered LEDtape. The B value defines the amount of LEDs which are below the specific L value, e.g. L70B10 means 10 % of the LEDs are below 70 % of the initial luminous flux, respectively 90 % will be above 70 % of the initial value.

In addition the percentage of failed LEDs (fatal failure) is characterized by the C value. The F value is the combination of the B and C value. That means for F degradation and complete failures are considered, e.g. L70F10 means 10 % of the LEDs on the tape may fail or be below 70 % of the initial luminous flux.

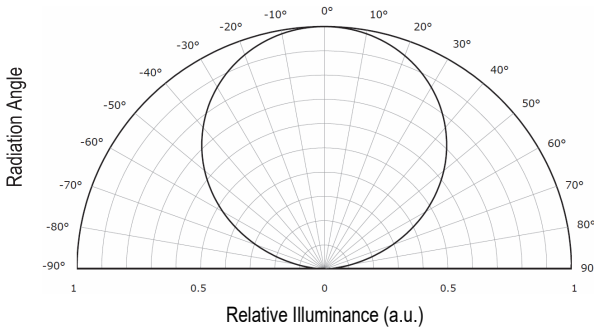
Type	Reference Temperature (Tc)	L90F10	L70F10
LEDtape 1000 HDE TW	65°C	24 000 h	>50 000 h
	75°C	12 000 h	36 000 h
LEDtape 1000 HDE TW IP65	65°C	20 000 h	>50 000 h
	75°C	10 000 h	32 000 h

NOTE! The temperature on the surface of the LEDtape (tc) may under no circumstances be higher than 65 °C if the expected lifetime of the LEDtape is to be met. 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.



Light Distribution

Radiance Angle = 120°



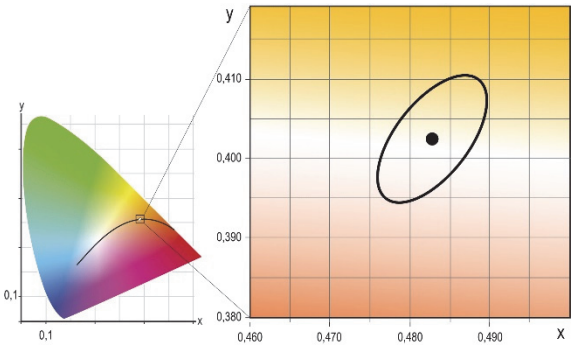
Photometric Code (according to EN 62717)

1 st digit		2nd + 3rd digit	4th digit	5th digit	6th digit	
Code	CRI	Colour temperature in Kelvin x 100	Initial MacAdam ellipse SDCM	Maintained MacAdam ellipse SDCM after 25%of the lifetime (6000 h)	Lumen maintenance after 25%of the lifetime (6000 h)	
					Code	Light Output
7	67 – 76				7	≥ 70 %
8	77 – 86				8	≥ 80 %
9	87 – ≥90				9	≥ 90 %

Chromaticity coordinates and tolerances (according to CIE 1931)

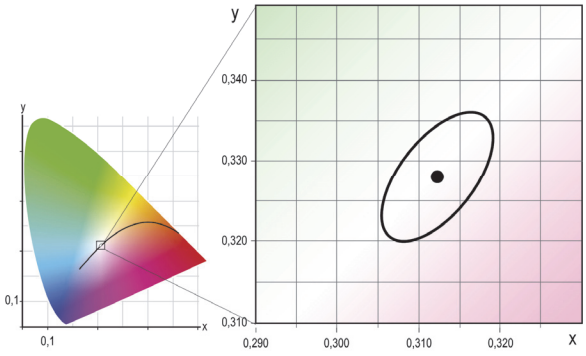
White Tone	CCT	Photometric Code
Sunrise	2400 K	924 / 349
Daylight	6500 K	965 / 349

2400 K	x0	y0
Centre	0,4829	0,4027



MacAdam ellipse: 3 SDCM

6500 K	x0	y0
Centre	0.3125	0,3275



MacAdam ellipse: 3 SDCM

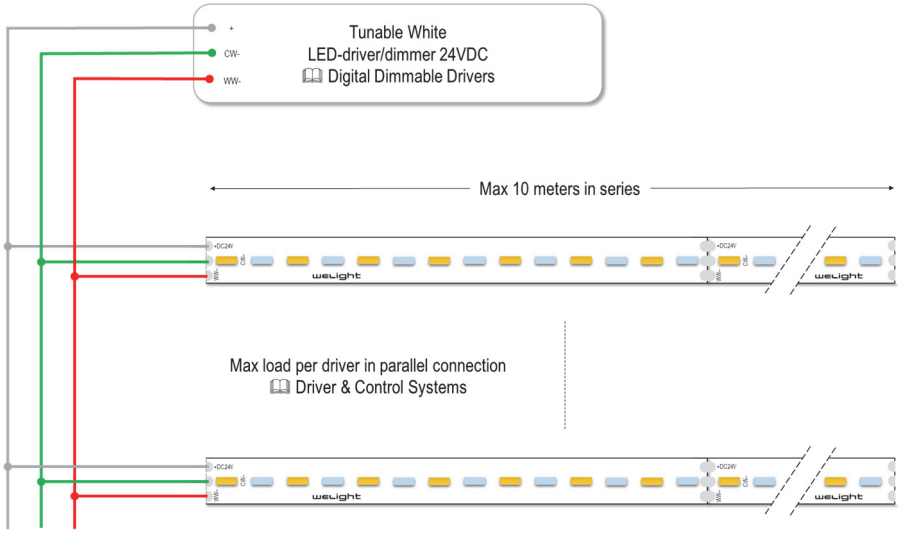
The specified colour coordinates are measured by a current impulse with nominal values of module after a settling time of 100 msec. The ambient temperature of the measurement is ta = 25 °C. The measurement tolerance of the colour coordinates are ± 0.01.

Wiring

Each reel of LED-tape is delivered with colour coded connection cable L=350mm, 3x0,5 mm². Do not connect more than 10 meters of the LED-tape in series and make sure that the voltage is ≥24V at the beginning of the LEDtape. When connecting several sections in parallel please refer to the table *Driver & Control Systems* for the allowed total length connected to one controller/dimmer.

CABLE COLOUR CODING

Colour	White	Green	Red
Function	+	CW -	WW -



ACCESSORIES

Digital Dimmable Drivers

Welight offers a range of suitable LED-drivers especially designed for Tunable White applications.



Control Signal	Art. Code	Driver Type	LEDtape TW (max length)
DALI	W7101	LEDdriver LCV 100W 24V 1-4CH DALI SR	10 meter
KNX	W7102	LEDdriver LCV 100W 24V 1-4CH KNX SR	10 meter
DMX	W7103	LEDdriver LCV 100W 24V 1-4CH DMX SR	10 meter

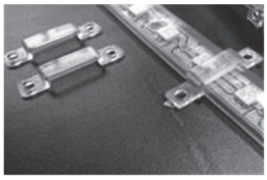
Cable & Connection accessories


1


2


3


4


5

	Type	Art. Code	Description	TW	TW IP
1	LEDaccessory IP Assembly Kit 10	W8901	End Caps, Mounting Brackets & Silicon (one kit is included on delivery)	○	●
2	LEDaccessory RGB Cable 100m	W8408	R2KB 4X0.35 Yd=4,8mm, Dark Grey, 100 m	●	●
3	LEDaccessory RGB CON IP20 kit F+M	W8412-A2	Quick Connector kit, 4-poles, with female and male plug including 30 cm cable, black	●	○
4	LEDaccessory RGB CON IP68 kit F+M	W8411-A4	Quick Connector kit, 4-poles, with female and male plug including 30 cm cable, white	○	●
5	LEDtape Accessory IP Clips 100-pack	W8902	Plastic mounting clips for all IP65-rated LEDtapes, 100 pcs per bag.	○	●

Profile Systems & Lenses

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

(a)


1


2


3

									Optional accessories			
(a)	Type	Art. Code	L (mm)	W (mm)	H (mm)	W (mm) incl. lens cover	H (mm) incl. lens cover	Application	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)


1


2


3


4

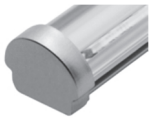

5


6


7

						Profile		
(b)	Type	Art. Code	L (mm)	Mounting Method	Typ. application	Z200-2	Z201-2	Z22W-2
1	15°	24166409	2000	Slide-on	Wall wash	●	●	●
2	30°	24166410	2000	Slide-on	Wall wash	●	●	●
3	60°	24166411	2000	Slide-on	Shelf	●	●	●
4	30° x 60°	24166412	2020	Snap-on	Asymmetric	●	●	●
5	Batwing	24166120	2000	Snap-on	Side-emitting	●	●	●
6	120°	24138737	2000	Snap-on	Accent	●	●	●
7	120° opal	24138736	2000	Snap-on	Lines	●	●	●

(c)


1


2


3


4


5

			Profile		
(c)	Type	Art. Code	Z200-2	Z201-2	Z22W-2
1	End cap Grey PMMA	24166334	○	●	○
2	End Cap Aluminium	24139174	○	○	●
2	End Cap Aluminium 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	○	○	●

⚠ Application Notes for using LEDtape 1000 HDE Tunable White with lenses & covers

Allow for ≥ 10mm distance from the lens to the surface you want to illuminate to achieve an optimal colour mix of the warm and cold white light.

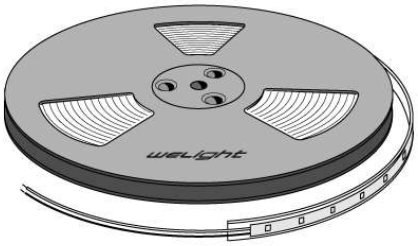
When using the opal cover (24138736), there could be a slightly visible colour separation when looking directly at the cover depending on the intensity and mix of each individual colour channel.

⚠ We also have complete profile systems for IP66 protection for demanding outdoor environments.

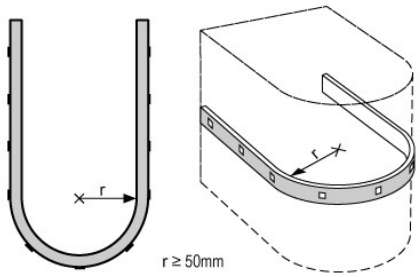
Please contact us at info@welight.se for further details.

LEDtape Indoor & Outdoor Series IP00/IP65

INSTRUKTIONER
INSTRUCTIONS
ANLEITUNG
ISTRUZIONI
INSTRUCCIONES

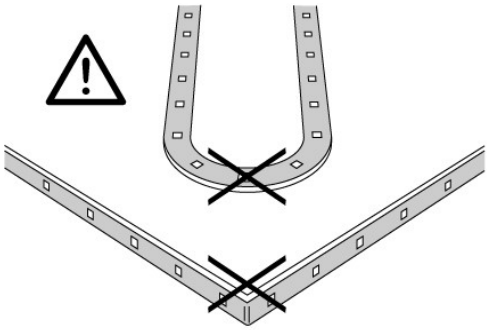


1.



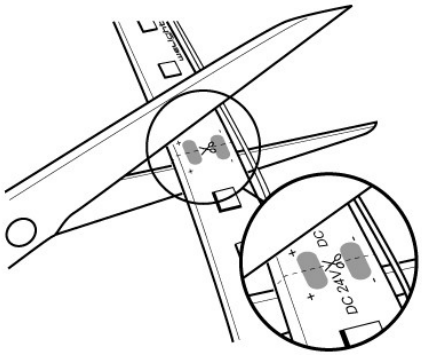
Never bend the LEDtape at a radius smaller than 50 mm.

2.



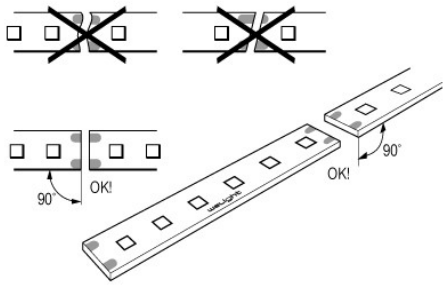
Assembly must not damage or destroy conducting paths on the circuit board.

3.



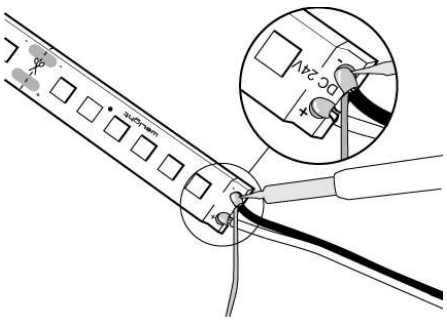
The LED-tape is separable at every 4, 6, 7 or 14 LEDs (depending on type) or multiple thereof with the full function of each LED segment. It is only allowed to cut the LED-tape at the indicated cutting line.

4.



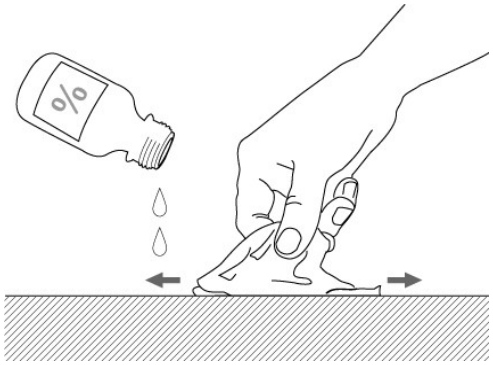
Always cut the LEDtape in a straight line – 90 degrees in relation to the PCB edges. Failure to do so can result in damage of the internal conducting paths. It is recommended to use welight's official connection accessories to split, connect, bridge and re-seal the LED-tape.

5.



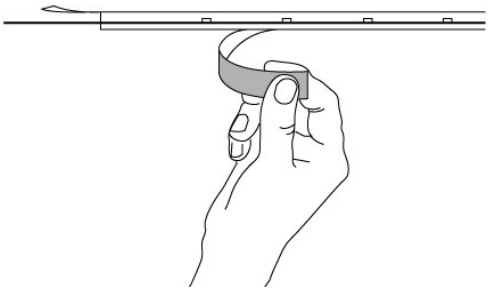
If you need to cut the LEDtape, re-join the supply cables to the strip by soldering. Please do not reverse polarity. Pre-tin the cables only. Soldering temperature max 300 °C during 4 seconds.

6.



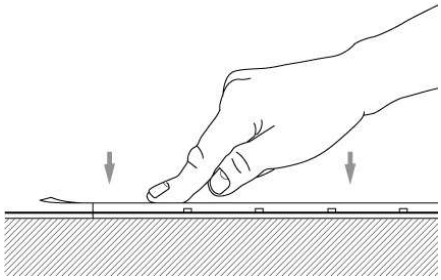
The fixing/cooling surface must be properly cleaned to remove grease, dirt and silicon before application, e.g. using Isopropyl alcohol.

7.



Remove the adhesive tape from the backside of the PCB and fix the LEDtape on the cleaned fixing/cooling surface.

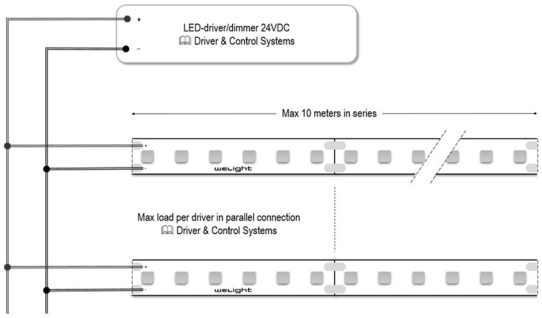
8.



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.

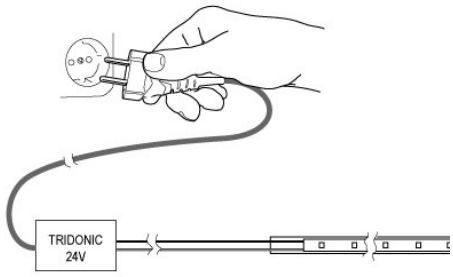
9.



Each reel of LED-tape is delivered with colour coded connection cable L=350mm. Please take care about the polarity (+) Red and (-) Black. Do not connect more than 10 meters of the LED-tape in series.

When connecting multi-coloured LEDtapes and/or several sections in parallel please refer to the datasheet for the correct colour coding of cable and allowed total length connected to one driver/dimmer.

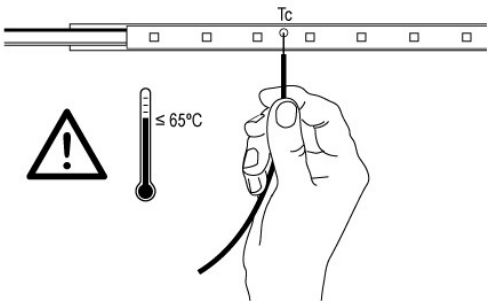
10.



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 LEDtape – refer to Driver & Control Systems section in the datasheet.

If the wrong type of driver is used the product warranty is void.

11.



The temperature on the surface of the LEDtape (tc) may under no circumstances be higher than 65 °C if the expected lifetime of the LEDtape is to be met.

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.

LEDtape Outdoor Series IP65

TILLKOMMANDE INSTRUKTIONER
ADDITIONAL INSTRUCTIONS
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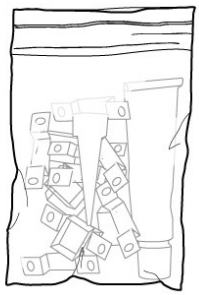
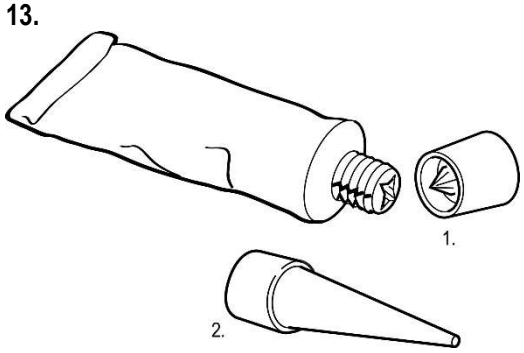
INSTRUCTIONS SUPPLÉMENTAIRES
ULTERIORI ISTRUZIONI
INSTRUCCIONES ADICIONAL

12.



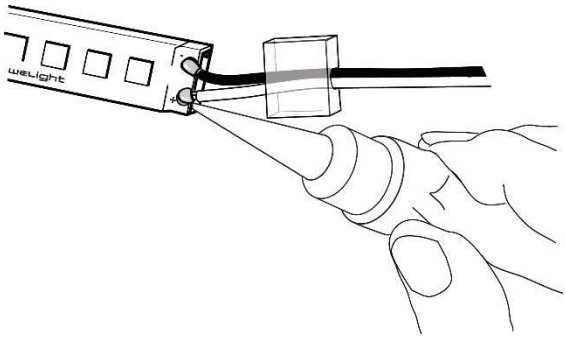
If you have cut the silicon casing and need to re-seal the LEDtape Outdoor Series IP65, locate the accessories bag located inside the LEDtape IP65 box.

13.



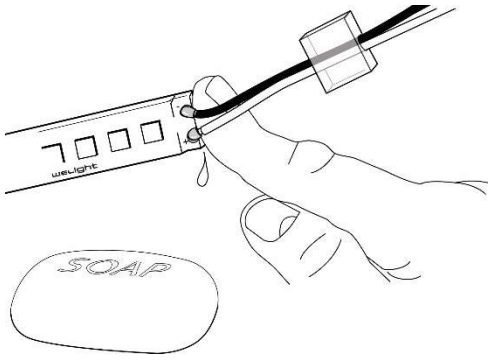
Twist the cap of the silicon tube in the accessories bag. Puncture the seal of the tube using the backside of the tube cap. Screw the dispersion needle onto the tube. Cut the top of the needle at an angle of 45-60 degrees.

14.



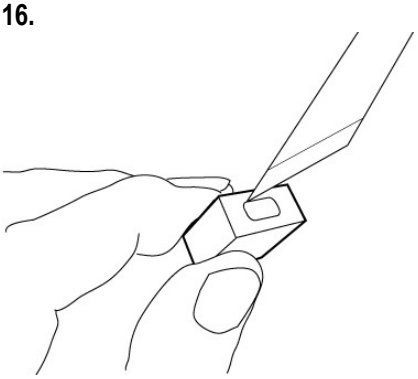
Dispense the silicone inside the open end of the LEDtape.

15.



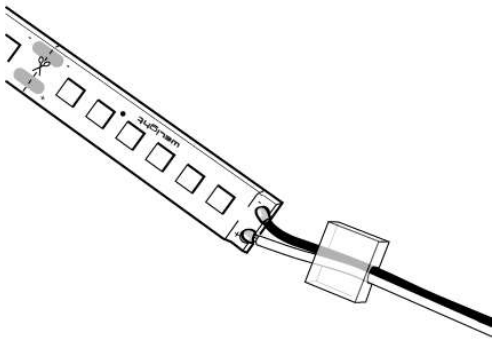
Then use your finger dipped in soapy water to smoothen out the opening creating a solid wall of silicon.

16.



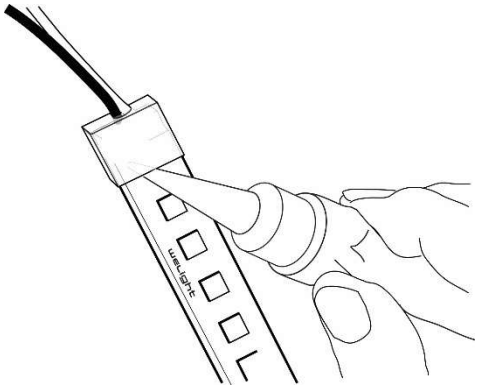
Using a sharp knife or blade, make a small hole in the end cap.

17.



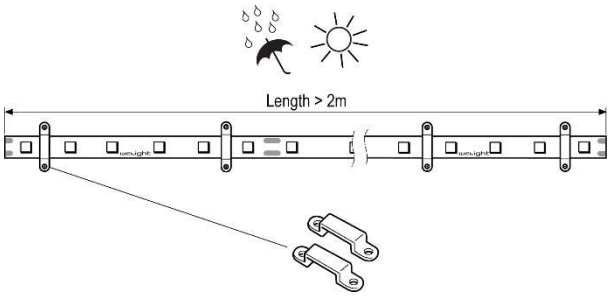
Thread the connection cable through the hole of the end cap.

18.



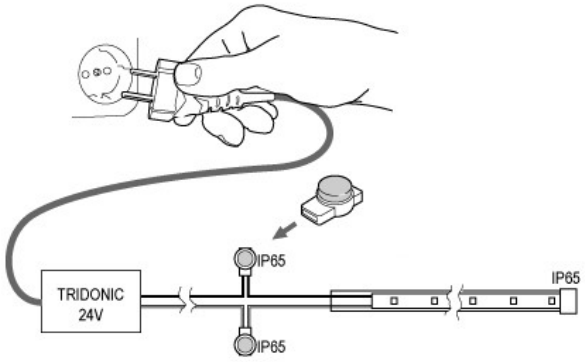
Dispense a small portion of silicon inside the end cap and then slide it into place over the end of the LEDtape. Please wait 60 minutes for the silicone to solidify.

19.



If the operating length is longer than 2 meters or when used in environments with large variations in temperature (e.g. outdoor applications) it is recommended to use the included screw mounting clips in addition to the adhesive tape.

20.

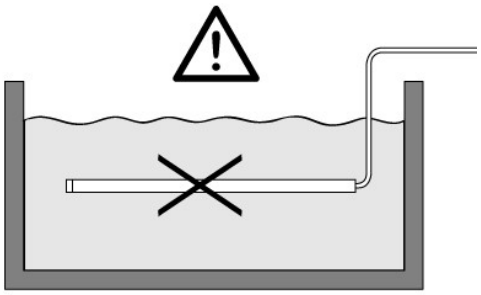


Before you connect the power supply, make sure all cable connections have been properly sealed using weather proof connectors, e.g. 3M Scotchlok (not included).

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 LEDtape – refer to Driver & Control Systems section in the datasheet.

If the wrong type of driver is used the product warranty is void.

21.



All of welight's outdoor LEDtapes are IP65 certified. This means they can withstand low-pressure pouring or running water for longer periods of time, e.g. rain.

Never install the LEDtape in such a way that it can be submerged in water as it will penetrate the silicon casing and the warranty will be void.