

Highlights

- Short pitch flexible RGB LED-tape for professional lighting applications with high light output
- Available in IP00 and IP65-version
- Multichip RGB LEDs placed under the same lens to achieve high quality colour mixing – no rainbow effects
- Optimized Individual color calibration to generate white light from RGB LEDs
- 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

- Accent Lighting
- Ambient Lighting
- Display Lighting
- Wall Washing effects
- Edge and Injection Lighting of transparent or diffuse materials

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 ⑤
- Optimized for high resolution digital dimming 0.1-100% and RGB 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
- Solder-free connectors and bridges
- Optimised drivers to fit every need and application

→ page 4

Mounting Instructions

→ page 6

Type	Article Code	Supply Voltage (VDC) ③	Power (W/m) ②	Typ. Data per meter ① ②				LED-quantity Pitch Distance (P) Cutting Length (C)	Dimensions LxWxH (mm)	Operating temp ta range (°C)
				Luminous flux (lm) Current (mA) Wavelength (nm)						
				Red	Green	Blue	Total			
LEDtape RGB 1000 HDO 18W 24V	W1005-RGB	24	18	228 lm 250 mA 625 nm	660 lm 250 mA 525 nm	138 lm 250 mA 465 nm	1026 lm 750 mA -	144 per meter 6,9 mm 42 mm	5000x10x2	-20 °C / +50 °C ④
LEDtape RGB 1000 HDO 18W 24V IP	W1005-RGB-IP	24	18	217 lm 250 mA 625 nm	627 lm 250 mA 525 nm	131 lm 250 mA 465 nm	975 lm 750 mA -	144 per meter 6,9 mm 42 mm	5020x14x6	-20 °C / +35 °C ④

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 When connecting 10 meters 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.

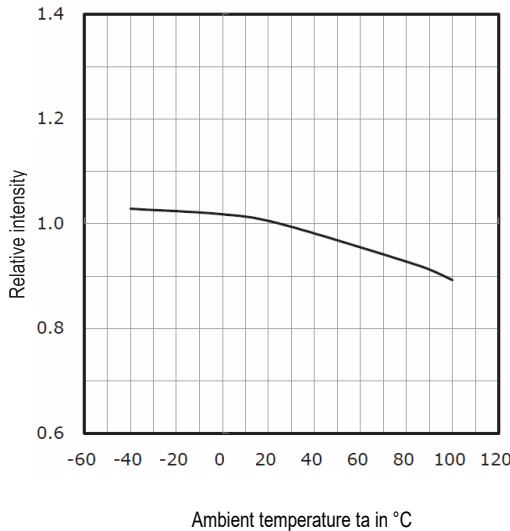
Standards

- 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 aluminium profile. The need for a 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 for the LEDtape:

LEDtape RGB 1000 HDO (per meter)

Ambient Temperature (T_a)	Reference Temperature (T_c)	Cooling Area (cm^2)	Thermal Resistance R_{thS-A}	Recommended Aluminium 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 KW	Z200-2 / Z201-2 / Z22W-2
50 °C	65 °C	400	1,8 KW	Z22W-2

LEDtape RGB 1000 HDO IP65 (per meter)

Ambient Temperature (T_a)	Reference Temperature (T_c)	Cooling Area (cm^2)	Thermal Resistance R_{thS-A}	Recommended Aluminium 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 t_c reference point is crucial for the light output and life time of a LEDtape. For the welight LEDtape a t_c 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

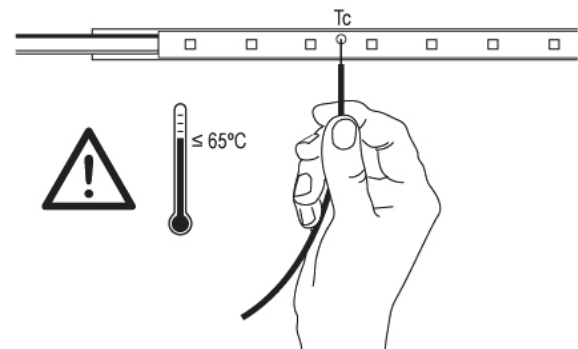
The light output of the LEDs on the tape decreases over the life-time, this is characterized with the L value. L70 means that the LEDtape will give 70 % of its initial luminous flux. This value is always related to the number of operation hours and therefore defines the lifetime of the LEDs.

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.

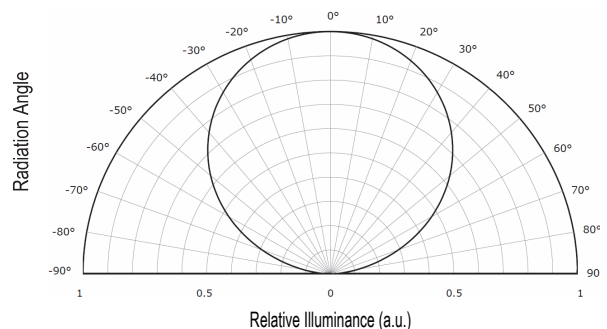
Type	Reference Temperature (T_c)	L90F10	L70F10
LEDtape RGB 1000 HDO	65 °C	26 000 h	>50 000 h
	75 °C	14 000 h	36 000 h
LEDtape RGB 1000 HDO IP65	65 °C	22 000 h	>50 000 h
	75 °C	12 000 h	34 000 h

NOTE! The temperature on the surface of the LEDtape (t_c) 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 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.



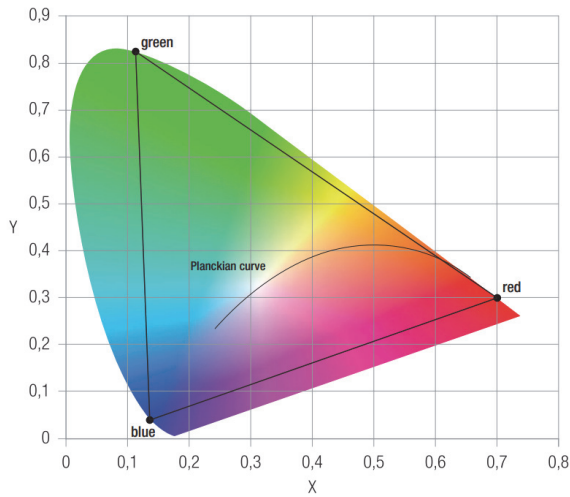
Light Distribution

Radiance Angle = 120°



RGB chromaticity diagram

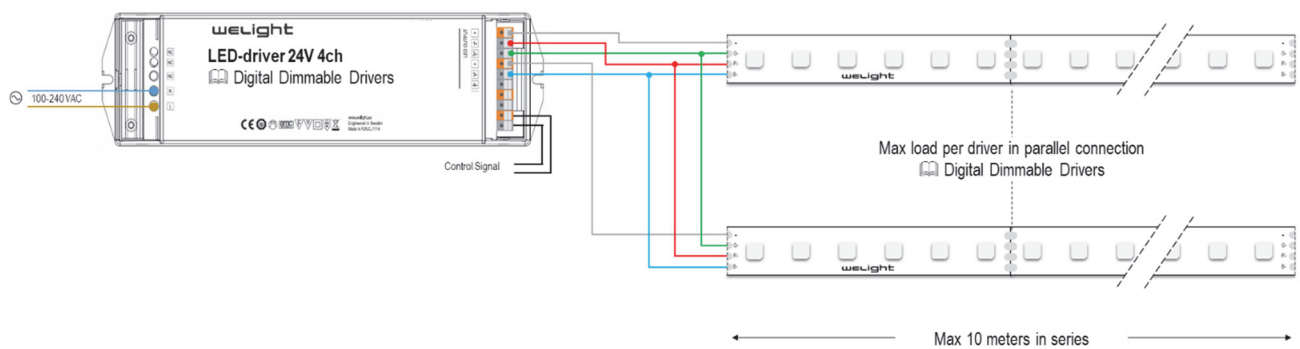
Colour	Dominant Wavelength (nm)
Red	625
Green	525
Blue	465



Wiring

Each reel of LED-tape is delivered with colour coded connection cable L=300mm, 4x0.5 mm². Do not connect more than 10 meters of the LED-tape in series and make sure that the voltage is $\geq 24V$ at the beginning of the LED-tape. 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	Function	Driver Output
WHITE	+ Common	+
RED	- Red	1-
GREEN	- Green	2-
BLUE	- Blue	3-



ACCESSORIES

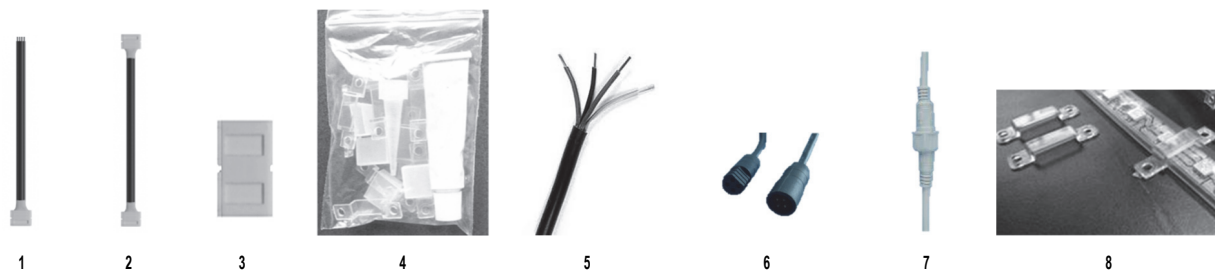
Digital Dimmable Drivers

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



Control Signal	Art. Code	Driver Type	LEDtape RGB (max length)
DALI	W7101	LEDdriver LCV 100W 24V 1-4CH DALI SR	5,5 m
KNX	W7102	LEDdriver LCV 100W 24V 1-4CH KNX SR	5,5 m
DMX	W7103	LEDdriver LCV 100W 24V 1-4CH DMX SR	5,5 m

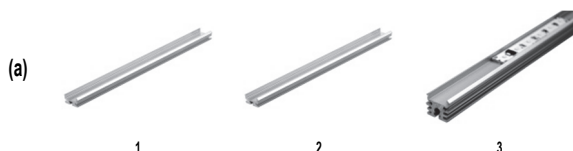
Cable & Connection accessories



Type	Art. Code	Description	Suitable for LEDtape	
			RGB	RGB IP
1 LEDaccessory RGB Supply Cable 10/200	W8401	Supply cable with solder-free PCB-connection, L=200 mm	●	○
2 LEDaccessory RGB Bridge Cable 10/200	W8402	Bridge two LEDtapes with solder-free PCB-connection, L=200 mm	●	○
3 LEDaccessory RGB Bridge 10	W8403	Bridge two LEDtapes directly to each other with solder-free PCB-connection	●	○
4 LEDaccessory IP Assembly Kit 10	W8901	End Caps, Mounting Brackets & Silicon (one kit is included on delivery)	○	●
5 LEDaccessory RGB Cable 100m	W8408	R2KB 4X0.35 Yd=4,8mm, Dark Grey, 100 m	●	●
6 LEDaccessory RGB CON IP20 kit F+M	W8412-A2	Quick Connector kit with female and male plug including 30 cm cable, black	●	○
7 LEDaccessory RGB CON IP68 kit F+M	W8411-A4	Quick Connector kit with female and male plug including 30 cm cable, white	○	●
8 LEDtape Accessory IP Clips 100-pack	W8902	Plastic mounting clips for all IP65-rated LEDTapes, 100 pcs per bag.	○	●

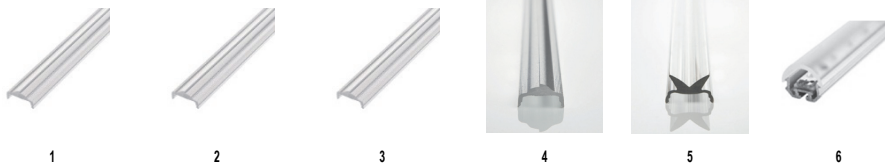
Profile Systems & Lenses

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



(a)	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)	Mounting Method	Typ. application	Profile		
						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 / Cove	●	●	●

(c)



(c)	Type	Art. Code	Profile		
			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 RGB 1000 HDO with lenses & covers

Allow for ≥ 20 mm distance from the lens to the surface you want to illuminate to achieve an optimal colour mix of the different colours. Without any lens, the equivalent distance is ≥ 30 mm.

When using the narrow beam lens (24166409), we recommend single colour operation for optimal optical effect, i.e. only light one colour at the time. When mixing colours with the narrow beam lens, please allow for ≥ 2 m distance from the lens to the surface you want to illuminate to achieve an optimal mixed colour.

We also have complete profile systems for IP66 protection for demanding outdoor environments. Please contact us at info@welight.se for further details.