welight

LEDtape RGBW 1200

IP00/IP65 · RoHS · CE

Highlights

- Ready-to-connect flexible LED-tape for professional colour mixing RGB+W (2700K CRI>90)
- Available in IP00 and IP65-version
- Optimized Individual colour calibration to generate white light with CRI>90 from RGB+W LEDs
- Multichip RGB LEDs placed under the same lens to achieve high quality colour mixing – no rainbow effects
- Excellent white colour consistency MacAdam SDCM ≤3
- Reflective white double-layered copper 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 ⑥
- 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/m) ②	Typ. Data per meter ① ② Luminous flux (lm) | Current (mA) | Wavelength (nm)					LED-quantity Pitch Distance (P) Cutting Length (C)	Dimensions LxWxH (mm)	Operating temp ta range (°C)
				Red	Green	Blue	White	Total			
LEDtape RGBW 927 1200 20W 24V	W1005-RGBW	24	20	76 lm 136 mA 625 nm	220 lm 136 mA 525 nm	46 lm 136 mA 465 nm	850 lm 408 mA 927 / 349 ⑤	1192 lm 816 mA -	96 per meter 9,6 mm 125 mm	5000x12x2	-20 °C / +50 °C ④
LEDtape RGBW 927 1200 20W 24V IP	W1005-RGBW-IP	24	20	72 lm 136 mA 625 nm	209 lm 136 mA 525 nm	44 lm 136 mA 465 nm	808 lm 408 mA 927 / 349 ⑤	1133 lm 816 mA -	96 per meter 9,6 mm 125 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 According to IEC 62717
⑥ 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.
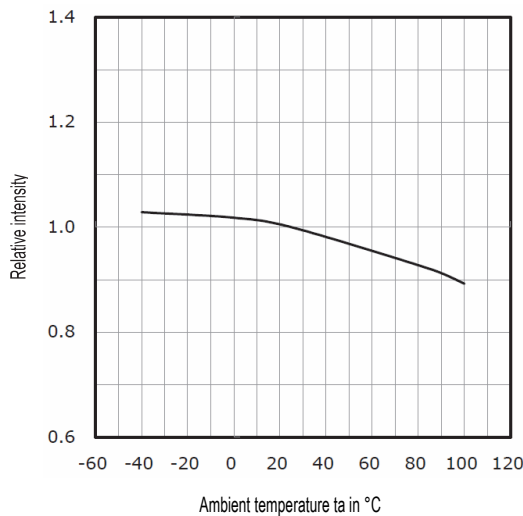
WELIGHT

Standards

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

Thermal behaviour

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

Relative luminous flux vs. ambient temperature

Ambient temperature ta in °C

⚠ 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 LEDtape 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 LEDtape will be greatly reduced or the LEDtape may be destroyed.

It might be necessary to mount the LEDtape onto a heat sink, e.g. an aluminium 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 1200 RGBW (per meter)

Ambient Temperature (Ta)	Reference Temperature (Tc)	Cooling Area (cm²)	Thermal Resistance R_{thHS-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	250	2,5 K/W	Z200-2 / Z201-2 / Z22W-2
50 °C	65 °C	350	1,9 K/W	Z22W-2

LEDtape 1200 RGBW IP (per meter)

Ambient Temperature (Ta)	Reference Temperature (Tc)	Cooling Area (cm²)	Thermal Resistance R_{thHS-A}	Recommended Aluminium profile
25 °C	65 °C	250	2,5 K/W	Z200-2 / Z201-2 / Z22W-2
35 °C	65 °C	350	1,9 K/W	Z22W-2
>35 °C	Not allowed	-	-	-

The temperature at tc reference point is crucial for the light output and life time of an LEDtape. For the welight LEDtape a tc temperature of 65 °C is recommended in order 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.
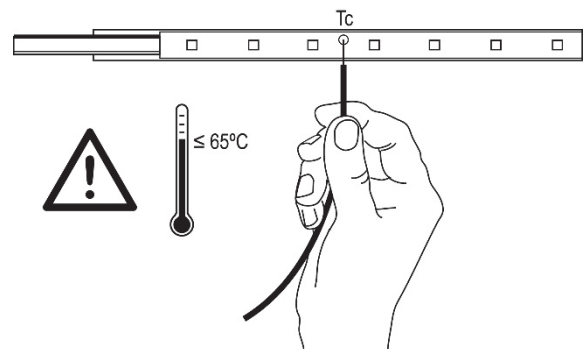
The L value is a statistical value and the lumen maintenance may vary over the delivered LEDtape. The B value defines the number of LEDs which are below the specific L value, e.g. L70B10 means 10 % of the LEDs are below 70 % of the initial luminous flux, respectively 90 % will be above 70 % of the initial 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.

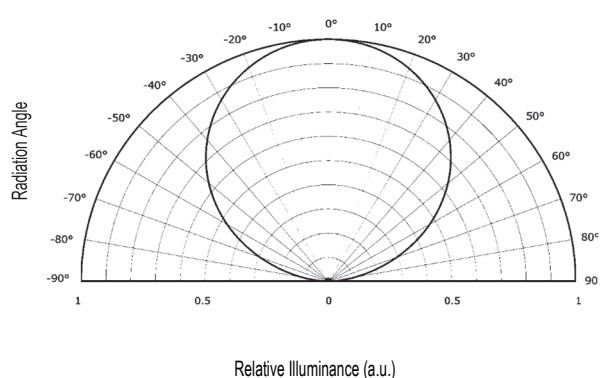| Type	Reference Temperature (Tc)	L90F10	L70F10
LEDtape 1200 RGBW	65°C	24 000 h	>50 000 h
	75°C	12 000 h	36 000 h
LEDtape 1200 RGBW IP	65°C	20 000 h	>50 000 h
	75°C	10 000 h	32 000 h

⚠ **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.
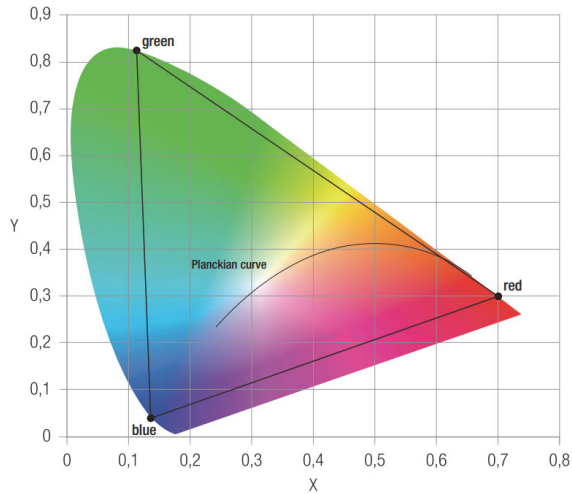

Light Distribution

Radiance Angle = 120°

Relative Illuminance (a.u.)

RGB chromaticity diagram

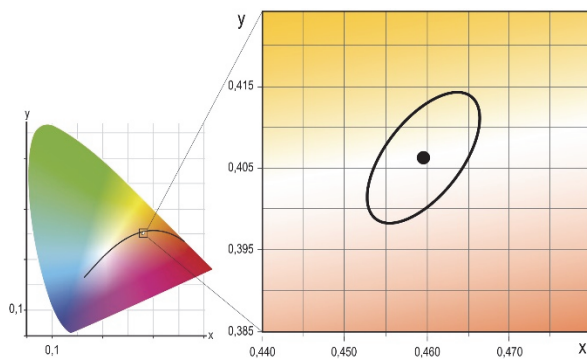| Colour	Dominant Wavelength (nm)
Red	625
Green	525
Blue	465

Photometric Code (according to EN 62717)

1st digit		2nd + 3rd digit	4th digit	5th digit	6th digit	
					Lumen maintenance after 25% of the lifetime (6000 h)	
Code	CRI	Colour temperature in Kelvin x 100	Initial MacAdam ellipse SDCM	Maintained MacAdam ellipse SDCM 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
Incandescent	2700 K	927 / 349

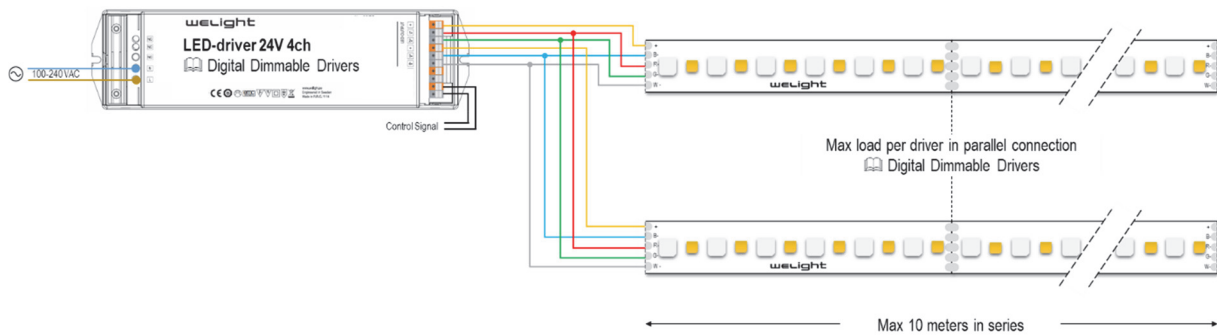| 2700 K		x0	y0
	Centre	0,4592	0,4060

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.

welight

Wiring

Each reel of LED-tape is delivered with colour coded connection cable L=350mm, 5x0,5 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	Function	Driver Output
YELLOW	+ Common	+
RED	– Red	1 –
GREEN	– Green	2 –
BLUE	– Blue	3 –
WHITE	– White 2700K	4 –

Max load per driver in parallel connection
📖 Digital Dimmable Drivers

Max 10 meters in series

ACCESSORIES

Digital Dimmable Drivers

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

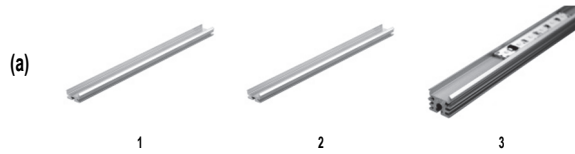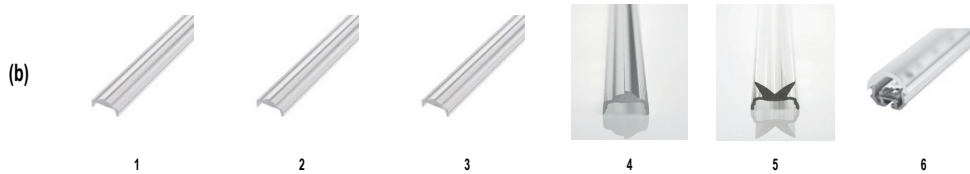| Control Signal	Art. Code	Driver Type	LEDtape RGBW (max length)
DALI	W7101	LEDdriver LCV 100W 24V 1-4CH DALI SR	5 meter
KNX	W7102	LEDdriver LCV 100W 24V 1-4CH KNX SR	5 meter
DMX	W7103	LEDdriver LCV 100W 24V 1-4CH DMX SR	5 meter

Connection accessories

1   2

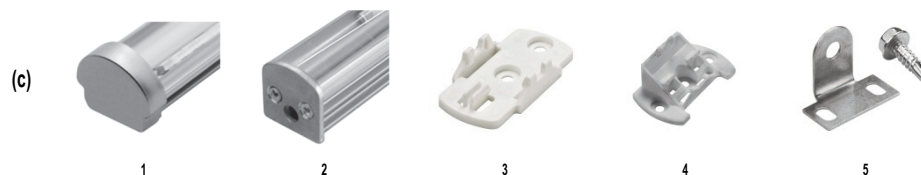|	Type	Art. Code	Description	HE	HE IP	HO
1	LEDaccessory IP Assembly Kit 10	W8901	End Caps, Mounting Brackets & Silicon (one kit is included on delivery)	○	●	○
2	LEDtape Accessory IP Clips 100-pack	W8902	Plastic mounting clips for all IP65-rated LEDtapes, 100 pcs per bag.	○	●	○

Profile Systems & Lenses

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

(a)

								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)

						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°	24138743	2000	Snap-on	Accent / Cove	●	●	●

(c)

			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 1200 RGBW with lenses & covers**

Allow for ≥ 20mm 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 ≥ 30mm.

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 ≥ 2m 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.

SAFETY INSTRUCTIONS

EN Read these instructions carefully before starting the installation and save for future reference. All connections to the device must be made by a qualified electrician or person with the necessary expertise in electrical installation in accordance with relevant rules and standards. Make sure that the mains voltage is disconnected before installation or maintenance.

SE Läs dessa instruktioner innan installationen påbörjas och lämna dem vidare till brukaren av anläggningen. All anslutning till enheten får endast utföras av behörig elektriker eller person med kännedom om elektrisk installation i enlighet med gällande regler och standard. Se till att spänningen är frånslagen före installation eller underhåll.

FI Lue nämä ohjeet ennen asentamista ja luovuta ohjeet valaisimen seuraavalle käyttäjälle. Kytkennät ohjaimeen saa tehdä ainoastaan pätevä sähköasentaja tai sähköasennukset hallitseva henkilö voimassa olevien määräysten ja standardien mukaisesti. Varmista, että jännite on kytketty päältä ennen asennusta ja huoltoa.

NO Les disse instruksjonene før du starter installeringen, og gi den deretter videre til anleggets bruker. All tilkobling til enheten skal utføres av godkjent elektriker eller person med nødvendig kunnskap om elektrisk installasjon i henhold til gjeldende forskrifter og standard. Sørg for at strømmen er koblet fra før installering og ved vedlikehold.

DK Læs disse anvisninger før du starter installationen og aflever vejledningen til anlæggets bruger. Alle tilslutninger på enheden skal udføres af en autoriseret elinstallatør i overensstemmelse med gældende regler og standarder. Afbryd spænding før installation og vedligeholdelse.