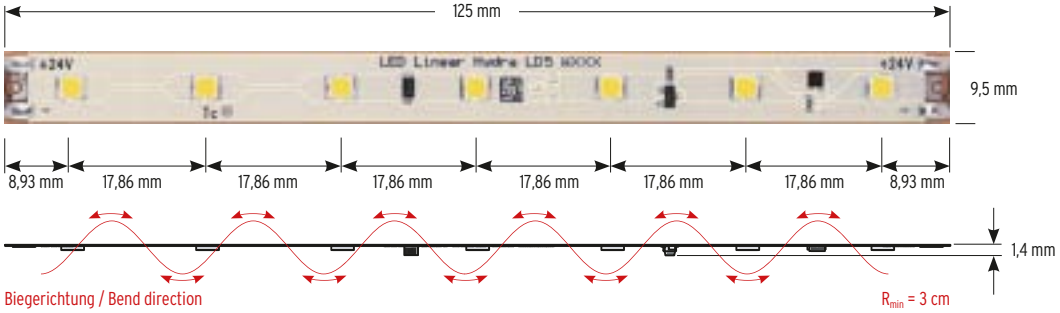
VarioLED™ Flex HYDRA LD White

! Ra/CRI up to 95
! up to 144 Lumen/Watt

White

- up to 40.3 Watt/m
- up to 4350 Lumen/m
- ! One Bin Only: 3 MacAdam
- up to Ra/CRI 95

Abmessungen & verfügbare Längen Dimensions & available lengths



Elektrische & Optische Betriebsdaten Electrical & output data

Teilungsmaß Step length	125 mm/7 LED
Spannung Voltage (V)	24 Volt (23 V_{min}, 25 V_{max})
Temperatur Temperature[2]	Tc_{min} = -25°C
Lagertemperatur Storage temperature	Ts_{min} = -30°C, Ts_{max} = 85°C
Außentemperatur Ambient temperature	Ta_{min} = -25°C
Ra CRI	bis zu up to 95
R9	bis zu up to 65

VarioLED™ Flex HYDRA	LD5	LD10	LD15	LD25	LD40
Leistung Power (W/m)[1]	4,8	9,6	15,4	25	40,3
Effizienz Efficacy (lm/W)[1] @ W850	144	144	144	144	108
max. Länge max. length (m)	7,5	5	4	3	2
Watt/VPE Watt/Reel (W)[1]	36	48	61,6	75	80,6
Anzahl LED/VPE Number LED/Reel	420	280	224	168	112
Strom Current	1,5 A/25 mA per Step	2 A/50 mA per Step	2,56 A/80 mA per Step	3,12 A/130 mA per Step	3,36 A/210 mA per Step
Temp. Tc-Punkt Temp. Tc-point (Tc_{max})[2]	70°C	70°C	70°C	75°C	85°C
max. Außentemp. max. Ambient temp. (Ta_{max})	50°C	50°C	50°C	45°C	35°C

Farbtemperatur Color temperature			LD5	LD10	LD15	LD25	LD40
			lumen/meter (lm/m)[1]				
W820		2000 K	400	800	1280	2090	-
W822		2200 K	460	920	1470	2380	-
W825		2500 K	520	1050	1680	2720	3440 (W824)
W827	W927	2700 K	470	1110	1780	2890	3740
W830	W930	3000 K	480	1180	1890	3070	3980
W835	W935	3500 K	490	1240	1980	3220	4230
W840	W940	4000 K	500	1270	2030	3290	4340
W850		5000 K	690	1380	2210	3600	4350

Tj Away®
LED LINEAR™ TECHNOLOGY

Up to 15 W/m no need for additional heat sinking on Al profile, more than 15 W/m VarioContour must be used to act as a heatsink (page 358).

ONE BIN ONLY

L80/B10 > 60.000 h — Lebensdauer Lifetime

Wx27/ 339 — Photometrischer Code Photometric code

LM 79 — LM 79 konform LM 79 compliant

LM 80 — LM 80 konform LM 80 compliant

[1] Die angegebenen Daten sind typische Werte. Aufgrund von Produktionstoleranzen und der Toleranzen der elektrischen Bauteile können die Werte der elektrischen Leistung und des Lichtstroms um bis zu 10% nach oben oder unten abweichen.

[2] Der Tc-Punkt ist auf jedem Step des LED-Modules gekennzeichnet. Der Tc-Punkt sollte im thermisch eingeschwungenen Zustand gemäß EN 60598-1 gemessen werden.

[1] The given data are typical values. Due to tolerances of the production process and the electrical components, values for light output and electrical power can vary up to 10%.

[2] The position of the Tc-point is marked on each step of the LED strip. The Tc-point should be measured in thermal equilibrium according to IEC EN 60598-1.

Nähere Erläuterungen zu Änderungen, Grenzwerten und Schwankungen im Herstellungsprozess finden Sie auf Seite 408.

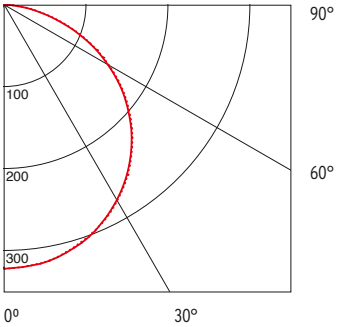
For more details regarding catalogue changes, min and max data sheet values and production tolerances please see page 409.

Sicherheits- und Montagehinweise siehe Seite 410 ff. Safety and assembly information please see page 412 ff.

Photo: Contagious Agency

24 V, flexible LED strip with reflective, white surface and 3M adhesive tape on the back. With a step measurement of 125 mm and a LED pitch of 17.86 mm the first choice for indirect cove lighting and other applications without direct top view. Japanese LEDs of the highest quality. 120° beam angle. Very good color reproduction up to CRI 96. "One Bin Only" within 3 MacAdam guarantees constant color temperature and high light quality at a lifetime of >60.000 hrs (L80/B10). Flexible circuit board material (FPCB) with LED Linear™ Tj Away® Technology for optimal heat management. Constant light output and extended lifetime thanks to an integrated constant current source on the circuit board. Protected against electrostatic discharge +/- 2,000 V. Made in Germany.

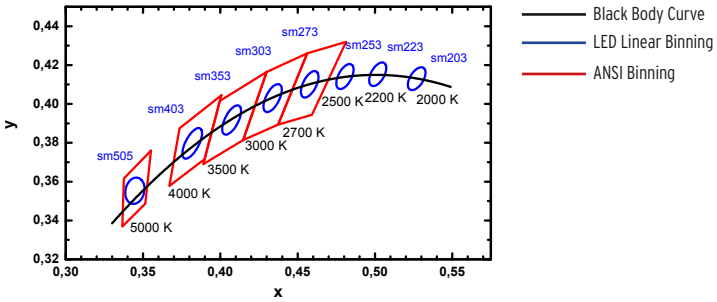
VarioLED™ Flex HYDRA LD



cd/1.000 lumen

C0/C180 ••••••• C90/C270

Binning



[3] valid for LD5, LD10; LD15, LD25; for LD40 please refer to the datasheet on www.led-linear.com

Bestellnummer Order code

	Flex tape	Variant	Color rendering	Color temperature
Ihre Bestellnummer Your order code	VarioLED Flex HYDRA	LD _ _	W _	_ _
Bestellnummer Beispiel Order code example	VarioLED Flex HYDRA	LD5	W9	27

Zubehör Accessories

erforderlich required

Konverter
Power supply unit
z. B. e. g.
Art.-# 16000075

Kabel 2-adrig
Cable mono
z. B. e. g.
Art.-# 14000030

Details siehe Seite 338 ff.
Details on page 338 ff.

optional optional

Steuerprotokoll
Power control system
z. B. e. g.
Art.-# 17000037

Al-Profil
Al profile

Cover Clear
-15 % Lumen

Cover Diffuse
-25 % Lumen

Cover Opal
-40 % Lumen

Linsen Lenses
-12 % Lumen

Profile/Optiken Profiles / Optics

90°

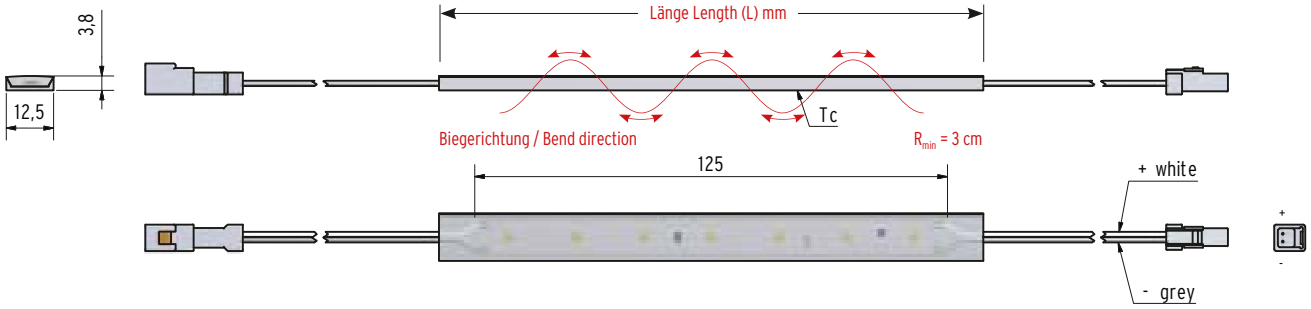
VarioContour	002	004	005	007	013	016
B x H mm (ohne Optiken) W x H mm (without optics)	19,5 x 15	19,5 x 19,5	19,5 x 12,5	25 x 32		
Maximale elektrische Leistung Maximum electrical power (W/m)	25 W/m	40 W/m	15 W/m	40 W/m	25 W/m	40 W/m
Profile kompatibel zur gleichen elektrischen Leistungsklasse und ggfs. Optik Profiles compatible to same electrical power rating and optics (if applicable)	001, 011, 012	020	019	015		
Linearlinse* (klar, diffus, 10° ... 90°) **Linear optic*** (clear, diffuse, 10° ... 90°)						
Runde Abdeckung* (klar, diffus, opal) **Round cover*** (clear, diffuse, opal)						
Flache Abdeckung* (klar, diffus, opal) **Low square/L² cover*** (clear, diffuse, opal)						
Hohe Abdeckung* (klar, diffus, opal) **High square cover*** (clear, diffuse, opal)						
Reflektor* (25°, 65°, Wandfluter) **Reflector*** (25°, 65°, Wall washer)						

weitere Profile auf Seite 358 ff more profiles please see page 358 ff

VarioLED™ Flex HYDRA LD White IP67

Water & UV resistant flexible linear LED luminaire in up to 7,5 m length in polyurethane encapsulation with white casing and with 200 mm IP67 mini connectors on both ends.

Abmessungen & verfügbare Längen Dimensions & available lengths



L = N x 125 + 19; L_{min} = 1 x 125 + 19 = 144 mm; LD5 ≙ L_{max} = 7.519 mm; LD10 ≙ L_{max} = 5.019 mm; LD15 ≙ L_{max} = 4.019 mm
(LD5 ≙ N = 1... 60, LD10 ≙ N = 1... 40, LD15 ≙ N = 1... 32)

Tc-point: Entire encapsulated flexboard rear side

Electrical & output data

Farbtemperatur Color temperature[2]					LD5	LD10	LD15
					lumen/meter (lm/m)[1]		
W820		2500 K			340	680	1090
W822		2900 K			390	780	1250
W825		3300 K			450	890	1430
W827	W927	3800 K	3600 K		400	950	1510
W830	W930	4300 K	4300 K		400	1000	1600
W835	W935	5100 K	4900 K		420	1050	1690
W840	W940	6100 K	6600 K		430	1080	1720
W850		9600 K			590	1180	1880

[1] The given data are typical values. Due to tolerances of the production process and the electrical components, values for light output and electrical power can vary up to 10%.

[2] In case of IP67 products, tolerances in the color temperature can occur. For further explanation, please see page 476.

Same data as for VarioLED™ Flex HYDRA LD apply, except: 30% light loss and color shift compared to non encapsulated LED strip.

Please ask for custom specific adaptions like cable length and plugs.

Order code

	Flex tape	Variant	Color rendering	Color temperature	Length	Ingress protection
Ihre Bestellnummer Your order code	VarioLED Flex HYDRA	LD _ _	W _	_ _	_ _ _ _	IP67
Bestellnummer Beispiel Order code example	VarioLED Flex HYDRA	LD5	W9	27	7519	IP67

Accessories

erforderlich required

optional optional

Konverter
Power supply unit
z. B. e. g.
Art.-# 16000154

Buchse
Female connector
z. B. e. g.
Art.-# 15000142

Steuerprotokoll
Power control system
z. B. e. g.
Art.-# 17000037

3M Klebeband
3M Adhesive tape
Art.-# 18200035

Transparenter Montageclip
Transparent mounting clip
Art.-# 13000115

Details siehe Seite 338 ff. Details on page 338 ff.

Sicherheits- und Montagehinweise siehe Seite 410 ff. Safety and assembly information please see page 412 ff.

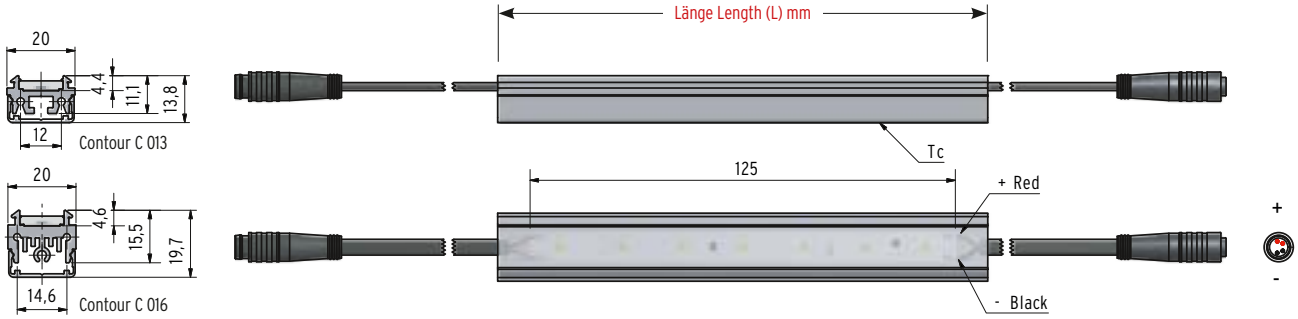
VarioLED™ HYDRA LD White IP67

VarioLED™ HYDRA LD5 IP67, Contour 013

VarioLED™ HYDRA LD25 IP67, Contour 016

Water & UV resistant linear LED luminaire in aluminum profile with up to 4 m length, polyurethane encapsulation and 110 mm IP67 connectors on both ends.

Dimensions & available lengths



L = N x 125 + 19; L_{min} = 1 x 125 + 19 = 144 mm; LD5/LD10/LD15 ≙ L_{max} = 4.019 mm; LD25 ≙ L_{max} = 3.019 mm
(LD5/LD10/LD15 ≙ N = 1... 32, LD25 ≙ N = 1... 15)

Tc-point: Entire Al-profile rear side

Electrical & output data

Color temperature[2]				LD5 in C 013	LD10 in C 013	LD15 in C 016	LD25 in C 016
				lumen/meter (lm/m)[1]			
W820		2500 K		320	640	1030	1670
W822		2900 K		370	730	1170	1910
W825		3300 K		420	840	1340	2180
W827	W927	3800 K	3600 K	370	890	1420	2310
W830	W930	4300 K	4300 K	380	940	1510	2450
W835	W935	5100 K	4900 K	390	990	1590	2580
W840	W940	6100 K	6600 K	400	1010	1620	2630
W850		9600 K		550	1110	1770	2880

[1] The given data are typical values. Due to tolerances of the production process and the electrical components, values for light output and electrical power can vary up to 10%.

[2] In case of IP67 products, tolerances in the color temperature can occur. For further explanation, please see page 476.

Same data as for VarioLED™ Flex HYDRA LD apply, except: 30% light loss and color shift compared to non encapsulated LED strip.

Please ask for custom specific adaptions like cable length and plugs.

Order code

	Flex tape	Variant	Color rendering	Color temperature	Length	Ingress protection
Ihre Bestellnummer Your order code	VarioLED HYDRA	LD _ _	W _	_ _	_ _ _ _	IP67
Bestellnummer Beispiel Order code example	VarioLED HYDRA	LD5	W9	27	4019	IP67

Accessories

erforderlich required

Konverter
Power supply unit
z. B. e. g.
Art.-# 16000154

Buchse
Female connector
z. B. e. g.
Art.-# 15000091

optional optional

Steuerprotokoll
Power control system
z. B. e. g.
Art.-# 17000037

Halteklammer
Mounting Clip
Art.-# 10000040

Montage-Profil
Mounting Profile
Art.-# 10000039

Details siehe Seite 338 ff. Details on page 338 ff.

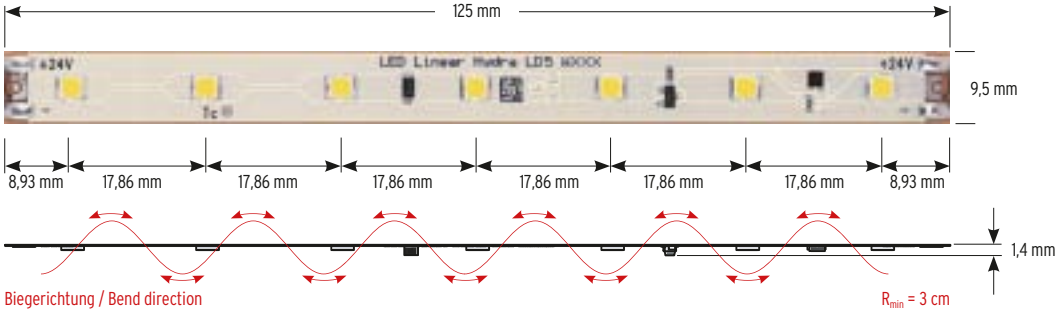
VarioLED™ Flex HYDRA LD White

! Ra/CRI up to 95
! up to 144 Lumen/Watt

White

- up to 40.3 Watt/m
- up to 4350 Lumen/m
- ! One Bin Only: 3 MacAdam
- up to Ra/CRI 95

Abmessungen & verfügbare Längen Dimensions & available lengths



Elektrische & Optische Betriebsdaten Electrical & output data

Teilungsmaß Step length	125 mm/7 LED
Spannung Voltage (V)	24 Volt (23 V_{min}, 25 V_{max})
Temperatur Temperature[2]	Tc_{min} = -25°C
Lagertemperatur Storage temperature	Ts_{min} = -30°C, Ts_{max} = 85°C
Außentemperatur Ambient temperature	Ta_{min} = -25°C
Ra CRI	bis zu up to 95
R9	bis zu up to 65

VarioLED™ Flex HYDRA	LD5	LD10	LD15	LD25	LD40
Leistung Power (W/m)[1]	4,8	9,6	15,4	25	40,3
Effizienz Efficacy (lm/W)[1] @ W850	144	144	144	144	108
max. Länge max. length (m)	7,5	5	4	3	2
Watt/VPE Watt/Reel (W)[1]	36	48	61,6	75	80,6
Anzahl LED/VPE Number LED/Reel	420	280	224	168	112
Strom Current	1,5 A/25 mA per Step	2 A/50 mA per Step	2,56 A/80 mA per Step	3,12 A/130 mA per Step	3,36 A/210 mA per Step
Temp. Tc-Punkt Temp. Tc-point (Tc_{max})[2]	70°C	70°C	70°C	75°C	85°C
max. Außentemp. max. Ambient temp. (Ta_{max})	50°C	50°C	50°C	45°C	35°C

Farbtemperatur Color temperature			LD5	LD10	LD15	LD25	LD40
			lumen/meter (lm/m)[1]				
W820		2000 K	400	800	1280	2090	-
W822		2200 K	460	920	1470	2380	-
W825		2500 K	520	1050	1680	2720	3440 (W824)
W827	W927	2700 K	470	1110	1780	2890	3740
W830	W930	3000 K	480	1180	1890	3070	3980
W835	W935	3500 K	490	1240	1980	3220	4230
W840	W940	4000 K	500	1270	2030	3290	4340
W850		5000 K	690	1380	2210	3600	4350

Tj Away®
LED LINEAR™ TECHNOLOGY

Up to 15 W/m no need for additional heat sinking on Al profile, more than 15 W/m VarioContour must be used to act as a heatsink (page 358).

ONE BIN ONLY

L80/B10 > 60.000 h — Lebensdauer Lifetime

Wx27/ 339 — Photometrischer Code Photometric code

LM 79 — LM 79 konform LM 79 compliant

LM 80 — LM 80 konform LM 80 compliant

[1] Die angegebenen Daten sind typische Werte. Aufgrund von Produktionstoleranzen und der Toleranzen der elektrischen Bauteile können die Werte der elektrischen Leistung und des Lichtstroms um bis zu 10% nach oben oder unten abweichen.

[2] Der Tc-Punkt ist auf jedem Step des LED-Modules gekennzeichnet. Der Tc-Punkt sollte im thermisch eingeschwungenen Zustand gemäß EN 60598-1 gemessen werden.

[1] The given data are typical values. Due to tolerances of the production process and the electrical components, values for light output and electrical power can vary up to 10%.

[2] The position of the Tc-point is marked on each step of the LED strip. The Tc-point should be measured in thermal equilibrium according to IEC EN 60598-1.

Nähere Erläuterungen zu Änderungen, Grenzwerten und Schwankungen im Herstellungsprozess finden Sie auf Seite 408.

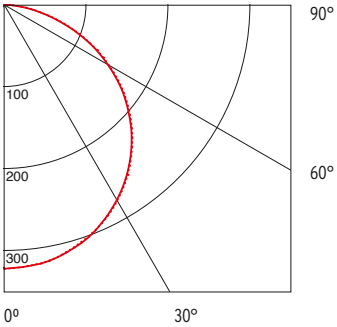
For more details regarding catalogue changes, min and max data sheet values and production tolerances please see page 409.

Sicherheits- und Montagehinweise siehe Seite 410 ff. Safety and assembly information please see page 412 ff.

Photo: Contagious Agency

24 V, flexible LED strip with reflective, white surface and 3M adhesive tape on the back. With a step measurement of 125 mm and a LED pitch of 17.86 mm the first choice for indirect cove lighting and other applications without direct top view. Japanese LEDs of the highest quality. 120° beam angle. Very good color reproduction up to CRI 96. "One Bin Only" within 3 MacAdam guarantees constant color temperature and high light quality at a lifetime of >60.000 hrs (L80/B10). Flexible circuit board material (FPCB) with LED Linear™ Tj Away® Technology for optimal heat management. Constant light output and extended lifetime thanks to an integrated constant current source on the circuit board. Protected against electrostatic discharge +/- 2,000 V. Made in Germany.

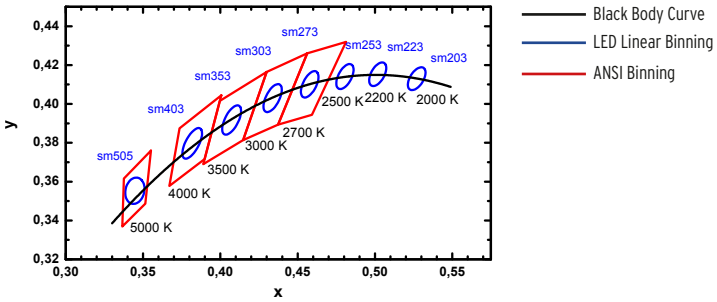
VarioLED™ Flex HYDRA LD



cd/1.000 lumen

C0/C180 ••••••• C90/C270

Binning



[3] valid for LD5, LD10; LD15, LD25; for LD40 please refer to the datasheet on www.led-linear.com

Bestellnummer Order code

	Flex tape	Variant	Color rendering	Color temperature
Ihre Bestellnummer Your order code	VarioLED Flex HYDRA	LD _ _	W _	_ _
Bestellnummer Beispiel Order code example	VarioLED Flex HYDRA	LD5	W9	27

Zubehör Accessories

erforderlich required

Konverter
Power supply unit
z. B. e. g.
Art.-# 16000075

Kabel 2-adrig
Cable mono
z. B. e. g.
Art.-# 14000030

Details siehe Seite 338 ff.
Details on page 338 ff.

optional optional

Steuerprotokoll
Power control system
z. B. e. g.
Art.-# 17000037

Al-Profil
Al profile

Cover Clear
-15 % Lumen

Cover Diffuse
-25 % Lumen

Cover Opal
-40 % Lumen

Linsen Lenses
-12 % Lumen

Profile/Optiken Profiles / Optics

90°

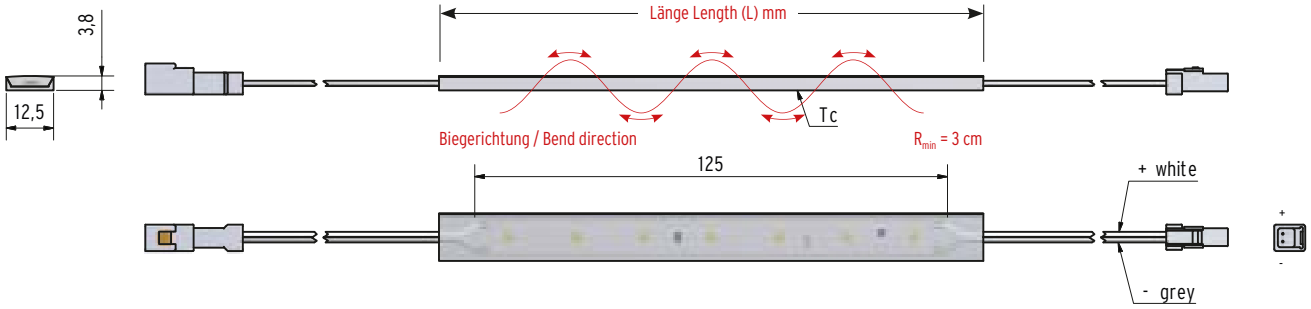
VarioContour	002	004	005	007	013	016
B x H mm (ohne Optiken) W x H mm (without optics)	19,5 x 15	19,5 x 19,5	19,5 x 12,5	25 x 32		
Maximale elektrische Leistung Maximum electrical power (W/m)	25 W/m	40 W/m	15 W/m	40 W/m	25 W/m	40 W/m
Profile kompatibel zur gleichen elektrischen Leistungsklasse und ggfs. Optik Profiles compatible to same electrical power rating and optics (if applicable)	001, 011, 012	020	019	015		
Linearlinse* (klar, diffus, 10° ... 90°) **Linear optic*** (clear, diffuse, 10° ... 90°)						
Runde Abdeckung* (klar, diffus, opal) **Round cover*** (clear, diffuse, opal)						
Flache Abdeckung* (klar, diffus, opal) **Low square/L² cover*** (clear, diffuse, opal)						
Hohe Abdeckung* (klar, diffus, opal) **High square cover*** (clear, diffuse, opal)						
Reflektor* (25°, 65°, Wandfluter) **Reflector*** (25°, 65°, Wall washer)						

weitere Profile auf Seite 358 ff more profiles please see page 358 ff

VarioLED™ Flex HYDRA LD White IP67

Water & UV resistant flexible linear LED luminaire in up to 7,5 m length in polyurethane encapsulation with white casing and with 200 mm IP67 mini connectors on both ends.

Abmessungen & verfügbare Längen Dimensions & available lengths



L = N x 125 + 19; L_{min} = 1 x 125 + 19 = 144 mm; LD5 ≙ L_{max} = 7.519 mm; LD10 ≙ L_{max} = 5.019 mm; LD15 ≙ L_{max} = 4.019 mm
(LD5 ≙ N = 1... 60, LD10 ≙ N = 1... 40, LD15 ≙ N = 1... 32)

Tc-point: Entire encapsulated flexboard rear side

Electrical & output data

Farbtemperatur Color temperature[2]					LD5	LD10	LD15
					lumen/meter (lm/m)[1]		
W820		2500 K			340	680	1090
W822		2900 K			390	780	1250
W825		3300 K			450	890	1430
W827	W927	3800 K	3600 K		400	950	1510
W830	W930	4300 K	4300 K		400	1000	1600
W835	W935	5100 K	4900 K		420	1050	1690
W840	W940	6100 K	6600 K		430	1080	1720
W850		9600 K			590	1180	1880

[1] The given data are typical values. Due to tolerances of the production process and the electrical components, values for light output and electrical power can vary up to 10%.

[2] In case of IP67 products, tolerances in the color temperature can occur. For further explanation, please see page 476.

Same data as for VarioLED™ Flex HYDRA LD apply, except: 30% light loss and color shift compared to non encapsulated LED strip.

Please ask for custom specific adaptions like cable length and plugs.

Order code

	Flex tape	Variant	Color rendering	Color temperature	Length	Ingress protection
Ihre Bestellnummer Your order code	VarioLED Flex HYDRA	LD _ _	W _	_ _	_ _ _ _	IP67
Bestellnummer Beispiel Order code example	VarioLED Flex HYDRA	LD5	W9	27	7519	IP67

Accessories

erforderlich required

optional optional

Konverter
Power supply unit
z. B. e. g.
Art.-# 16000154

Buchse
Female connector
z. B. e. g.
Art.-# 15000142

Steuerprotokoll
Power control system
z. B. e. g.
Art.-# 17000037

3M Klebeband
3M Adhesive tape
Art.-# 18200035

Transparenter Montageclip
Transparent mounting clip
Art.-# 13000115

Details siehe Seite 338 ff. Details on page 338 ff.

Sicherheits- und Montagehinweise siehe Seite 410 ff. Safety and assembly information please see page 412 ff.

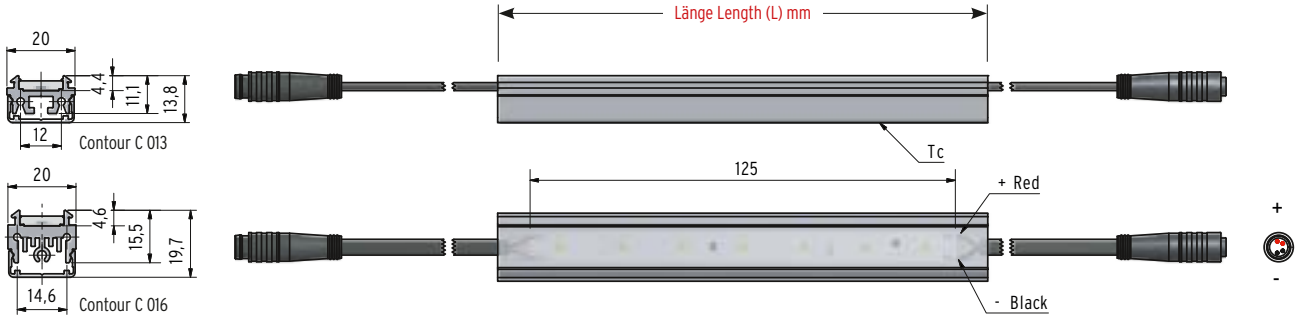
VarioLED™ HYDRA LD White IP67

VarioLED™ HYDRA LD5 IP67, Contour 013

VarioLED™ HYDRA LD25 IP67, Contour 016

Water & UV resistant linear LED luminaire in aluminum profile with up to 4 m length, polyurethane encapsulation and 110 mm IP67 connectors on both ends.

Dimensions & available lengths



L = N x 125 + 19; L_{min} = 1 x 125 + 19 = 144 mm; LD5/LD10/LD15 ≙ L_{max} = 4.019 mm; LD25 ≙ L_{max} = 3.019 mm
(LD5/LD10/LD15 ≙ N = 1... 32, LD25 ≙ N = 1... 15)

Tc-point: Entire Al-profile rear side

Electrical & output data

Color temperature[2]				LD5 in C 013	LD10 in C 013	LD15 in C 016	LD25 in C 016
				lumen/meter (lm/m)[1]			
W820		2500 K		320	640	1030	1670
W822		2900 K		370	730	1170	1910
W825		3300 K		420	840	1340	2180
W827	W927	3800 K	3600 K	370	890	1420	2310
W830	W930	4300 K	4300 K	380	940	1510	2450
W835	W935	5100 K	4900 K	390	990	1590	2580
W840	W940	6100 K	6600 K	400	1010	1620	2630
W850		9600 K		550	1110	1770	2880

[1] The given data are typical values. Due to tolerances of the production process and the electrical components, values for light output and electrical power can vary up to 10%.

[2] In case of IP67 products, tolerances in the color temperature can occur. For further explanation, please see page 476.

Same data as for VarioLED™ Flex HYDRA LD apply, except: 30% light loss and color shift compared to non encapsulated LED strip.

Please ask for custom specific adaptions like cable length and plugs.

Order code

	Flex tape	Variant	Color rendering	Color temperature	Length	Ingress protection
Ihre Bestellnummer Your order code	VarioLED HYDRA	LD _ _	W _	_ _	_ _ _ _	IP67
Bestellnummer Beispiel Order code example	VarioLED HYDRA	LD5	W9	27	4019	IP67

Accessories

erforderlich required

Konverter
Power supply unit
z. B. e. g.
Art.-# 16000154

Buchse
Female connector
z. B. e. g.
Art.-# 15000091

optional optional

Steuerprotokoll
Power control system
z. B. e. g.
Art.-# 17000037

Halteklammer
Mounting Clip
Art.-# 10000040

Montage-Profil
Mounting Profile
Art.-# 10000039

Details siehe Seite 338 ff. Details on page 338 ff.

WM TAO & ASSOCIATES
CONSULTING ENGINEERS

Shop Drawing Submittal Review

Transmitted To: Cannon Design

Date: January 17, 2017

Attention: **stl-cac@cannondesign.com**

Contact Person / WTA Field Inspector: Patrick Garner

Project Name: Webster University-**ISB**

Reviewed by: Mark de la Fuente

Project No. WT 14127.01

☐ UPS ☐ Courier ☒ **Email**

Copies	No.	Description
1 PDF	265200E01A	(Submittal No.'s:) (R&B CxSRC)
		(Cannon #265200-006) - ~~(Paric #15051-)~~ – ~~(WES #607)~~
		➢ **Outdoor Lighting Final Fixture Package - Resubmittal**
		EB, EC, ED, SA, EF36, EF42, EH, EL, and RQ

Submittal Review Comments

1. **Refer to previous shop drawing submittals for previous shop drawing comments.**
2. Type EC: See attached cutsheet for updated configuration.
3. Type EF36/42: Provide Bronze finish.
4. Type EL: Provide Black finish.
5. Type RQ: Provide 277 volt configuration.

c: **Kelvin Patel**
Kpatel@cannondesign.com

☐ Furnish as Submitted ☒ ***Furnish as Noted**

☐ Rejected ☐ Revise & Resubmit

☐ Reviewed ☐

Corrections or comments made on shop drawings during this review do not relieve contractor from compliance with requirements of drawings and specifications. This check is only for review of general conformance with the design concept of project and general compliance with information given in contract documents. Contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

7955 Manchester Road, Suite 125 • St. Louis, Missouri 63143-2711 • Phone: 314-884-7600 • Fax: 314-884-7601

If enclosures are not as noted, please notify us at once.

Sara Trout (314) 884-7645

14127.01 - 265200 E01A
RESUBMITTAL -
MAD TO REVIEW
01/11/17

WTASHOP - Webster ISB - 26 5200-006

From: STL-CAC <STL-CAC@CANNONDESIGN.COM>
To: 'Patrick Garner' <pgarner@wmtao.com>, "WTASHOP (WTASHOP@wmtao.com)" <WTA...
Date: 1/11/2017 1:59 PM
Subject: Webster ISB - 26 5200-006
Cc: "Patel, Kelvin" <kpatel@CANNONDESIGN.COM>
Attachments: 265200-006 Outdoor lighting final fixture package.pdf

---

Attached for review.

Melissa Pirtle

CANNONDESIGN

1100 Clark Ave
St. Louis, Missouri 63102
T 314.425.8797
cannondesign.com

CANNONDESIGN

SUBMITTAL IDENTIFICATION SHEET

To be completed by Contractor/CM

WEBSTER UNIVERSITY ISB
PROJECT NAME

8274 BIG BEND BLVD
ADDRESS

NUMBER

WEBSTER UNIVERSITY
OWNER

CANNON DESIGN
ARCHITECT / ENGINEER

Joe Voypick
SUBMITTED BY

265200-004
CONTRACTOR / CM SUBMITTAL NO.

CANNON DESIGN SUBMITTAL NO.

DRAWING / DETAIL REFERENCE

265200
SPECIFICATION SECTION / PARAGRAPH

Guarantee Electrical
MANUFACTURER / SUPPLIER

ITEM / PRODUCT ID

REQUIRED DATE

PRIORITY

CRITICAL

ITEM BEING SUBMITTED (check only one)

- ◯ Shop Drawings
- ◯ Samples (_____ copies)
- ◯ LEED Submittal
- ◯ Certification / Qualifications
- ◯ Record Documents
- ◯ Product Data
- ◯ Coordination Drawing
- ◯ Calculations
- ◯ Schedules
- ◉ O&M Manuals
- ◯ Other _____

ITEM BEING SUBMITTED FOR (check only one)

◉ Action ◯ Information Only ◯ Record

REMARKS OR DEVIATIONS

CONTRACTOR / CM CERTIFICATION
(SUBMITTALS NOT CERTIFIED WILL BE RETURNED WITHOUT REVIEW)

PARIC

PARIC CORPORATION
SUBMITTAL STAMP

THIS SHOP DRAWING HAS BEEN REVIEWED BY PARIC CORPORATION

Subcontractor remains responsible for dimensions, quantities, coordination with other trades and compliance with contract documents.

By:
Devin D. Gates

Joe Voypick
REVIEWED BY

6/21/16
DATE

To be completed by Reviewer

26 5200-004
CANNON DESIGN SUBMITTAL NUMBER

6/21/16
RECEIVED DATE

◯ A. No Exceptions Taken
No further review of submittal is required.

◯ B. Make Corrections Noted
Incorporate corrections in work; resubmission is not required.

◯ C. Revise and Resubmit
Revise as noted, and resubmit for review.

◯ D. Rejected
Submittal is not in compliance with Contract Documents; provide new submittal.

◯ E. For Record / Information Only
Submittal was reviewed for Record / Information purposes only.

◯ F. Not Required for Review
Submittal is not required by Contract Documents and has not been reviewed.

Review is for conformance with the design concept of this project and for general compliance with contract documents. Contractor is responsible for quantities, dimensions and compliance with contract documents and for information that pertains to fabrication processes, construction techniques and coordination of this work with all trades which will be affected thereby. This review is null and void if submittal deviates from contract documents and does not indicate or note deviations.

A/E COMMENTS

◯ See attached sheet(s) for additional comments

REVIEWED BY

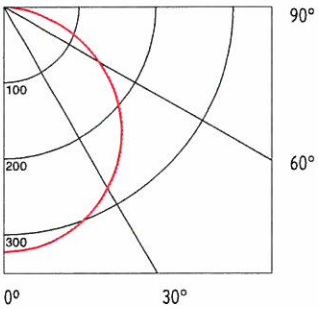
DATE

Ausschreibungstext Specification text

VarioLED™ Flex HYDRA LD5
24 V, flexibles LED Modulband (Stepmaß = 125 mm/4,91") mit reflektierender, weißer Oberfläche und selbstklebendem 3M Klebeband auf der Rückseite. Japanische LED höchster Qualität. Mit 699 lm/m (@W850) bei 5 W/m ergibt sich eine Effizienz von 138 lm/W. 120° Abstrahlwinkel.
Sehr gute Farbwiedergabe bis zu Ra 96. „One Bin Only" innerhalb 3 MacAdam garantiert konstante Farbtemperatur und höchste Lichtqualität bei einer Lebensdauer von 60.000 h (L80).
Einlagiges, flexibles Leiterplattenmaterial (FPC) mit LED Linear™ Tj Away® Technology für ein optimales Wärmemanagement. Konstanter Lichtstrom und verlängerte Lebensdauer durch auf der Leiterplatte integrierte Konstantstromquelle. Geschützt gegen elektrostatische Entladung +/- 2.000 V. Made in Germany.

VarioLED™ Flex HYDRA LD5
24 V, flexible LED strip (step measurement = 125mm/4.91") with reflective, white surface and 3M adhesive tape on the back. Japanese LEDs of the highest quality. 699 lm/m (@W850) at 5 W/m result in an efficiency of 138 lm/W. 120° beam angle.
Very good color reproduction up to CRI 96. "One Bin Only" within 3 MacAdam guarantees constant color temperature and high light quality at a lifetime of 60,000 hours (L80).
Single-layer, flexible circuit board material (FPC) with LED Linear™ Tj Away® Technology for optimal heat management. Constant light output and extended lifetime thanks to an integrated constant current source on the circuit board. Protected against electrostatic discharge +/- 2,000 V. Made in Germany.

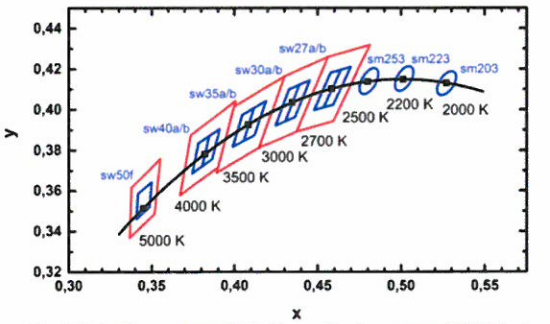
VarioLED™ Flex HYDRA LD5



cd/1.000 lumen

C0/C180 ····· C90/C270

Binning



Jetzt und in Zukunft

ONE BIN ONLY

Today and tomorrow

Zubehör Accessories

erforderlich required

Konverter
Power supply unit
Seite 519 ff page 519 ff

Kabel 2-adrig
Cable mono
Seite 460 ff page 460 ff

optional optional

Steuer-protokoll
Power control system
Seite 506 ff page 506 ff

Al-Profil
AL-Profile

Cover Clear -15 % Lumen

Cover Diffuse -25 % Lumen

Cover Opal -40 % Lumen

Seite 474 ff page 474 ff

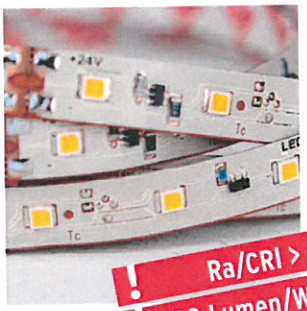
Optiken/Abdeckungen Optics / Cover

VarioContour	002	003	004	005	006	007/X00LUM	4262/X00LIGHT	...
B x H mm (ohne Optiken) W x H mm (without optics)	19,5 x 15	18 x 9	19,5 x 19,5	19,5 x 12 ,5	16 x 18	25,4 x 31	42 x 62	
Linearlinse 10° Linear optic 10°	X	X		X	X	X	X	
Linearlinse 30° Linear optic 30°	X			X		X	X	
Linearlinse 60° Linear optic 60°	X			X		X	X	
Linearlinse 90° Linear optic 90°	X		X	X		X	X	
Runde Abdeckung Round cover						X	X	
Flache Abdeckung Low square/L² cover		X			X			
Hohe Abdeckung High square/H² cover		X			X		X	

Details siehe Seite 474 ff. Details on page 474 ff.

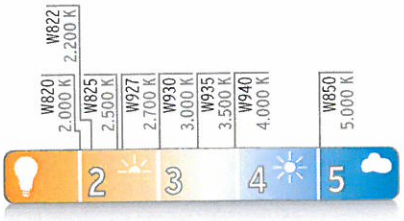
VarioLED™ Flex HYDRA LD5

NEW



! Ra/CRI > 95

! 138 Lumen/Watt



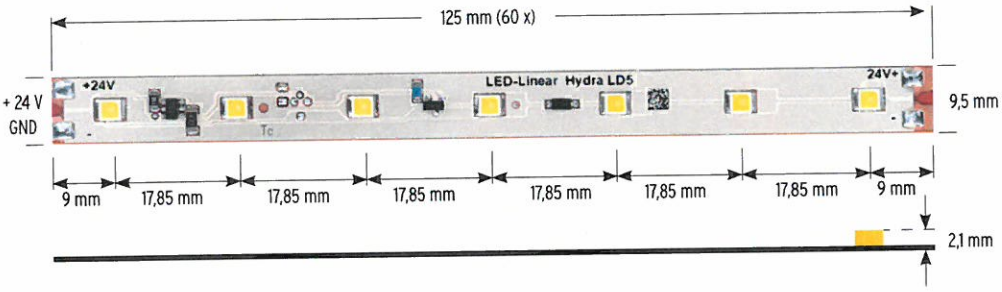
5 Watt/meter

699 lumen/meter (@W850)

! One Bin Only: 3 MacAdam

up to Ra/CRI 96

Aufbau & Maße Assembly & measurement



Elektrische & Optische Betriebsdaten Electrical & optical data

Abmessungen Dimensions	7.500 mm x 9,5 mm x 2,1 mm
Teilungsmaß Step length	125 mm/7 LED
Leistung Power*	36 W/5 Watt/meter
Effizienz Efficacy*	bis zu/up to 138 lumen/Watt
Anzahl LED Number LED	420 LED, 17,85 mm LED pitch
Spannung Voltage (V)	24 Volt (23 V_{min}, 25 V_{max})
Strom Current	1,5 A/25 mA per step
Temperatur Temperature**	tc_{min} = -25°C, tc_{max} = +70°C
Lagertemp. Storage temp.	t_{min} = -30°C, t_{max} = +85°C
Außentemperatur Ambient temp.	ta_{min} = -25°C, ta_{max} = +45°C

VarioLED™ Flex HYDRA LD5	Art. #	Lumen/meter* (lm/m)	Ra CRI	R9	Farbtemperatur Color temperature (K)
W820	10429	476	85	25	2.000
W822	10450	540	85	25	2.200
W825	10451	614	85	25	2.500
W927	10080	420	95	65	2.700
W930	10081	468	96	70	3.000
W935	10082	496	94	69	3.500
W940	10083	507	96	82	4.000
W850	10084	699	85	25	5.000

Tj Away®
LED LINEAR™ TECHNOLOGY

Keine zusätzliche Kühlung über Al-Profil notwendig.

No need for additional heat sinking on Al profile.

ONE BIN ONLY

L80, 60.000 hrs — Lebensdauer Lifetime

LM 79 — LM 79 konform LM 79 compliant

LM 80 — LM 80 konform LM 80 compliant

Nähere Erläuterungen zu Änderungen, Grenzwerten und Schwankungen im Herstellungsprozess finden Sie im LED Linear™ Systemkatalog, Seite 532.

For more details regarding catalogue changes, min and max data sheet values and production tolerances see the LED Linear™ system catalogue, page 533.

* Die angegebenen Daten sind typische Werte. Aufgrund von Produktionstoleranzen und der Toleranzen der elektrischen Bauteile können die Werte der elektrischen Leistung und des Lichtstroms um bis zu 10% nach oben oder unten abweichen.

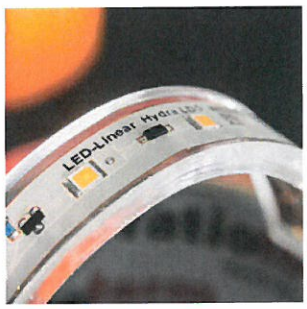
** Der Tc-Punkt ist auf jedem Step des LED-Modules gekennzeichnet. Der Tc-Punkt sollte im thermisch

* The given data are typical values. Due to tolerances of the production process and the electrical components, values for light output and electrical power can vary up to 10%.

** The position of the Tc Point is marked on each step of the LED stripe. The Tc Point should be measured in thermal equilibrium according to IEC EN 60598-1.

VarioLED™ Flex HYDRA LD5 IP67

NEW

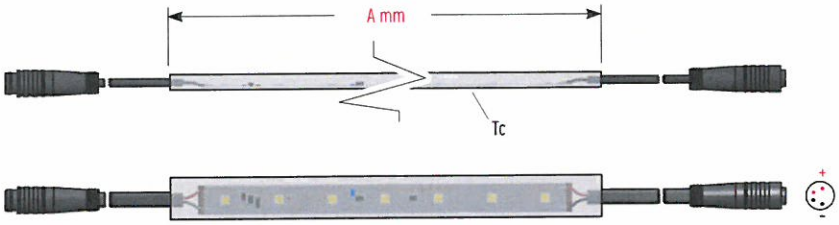


Wasser- und UV-geschützte flexible Linearleuchte in bis zu 7,5 m Länge im Polyurethanverguss mit 110 mm IP67 Steckverbinder an beiden Enden.

Fully flexible water & UV resistant linear LED Luminaire up to 7.5 m in polyurethane encapsulation with 110 mm IP67 plug in connectors on both ends.

Abmessungen & Längen Dimensions & available length

Tc-Punkt: Gesamte Rückseite des vergossenen LED Bands
Tc-point: Entire encapsulated flexboard rear side



A = N x 125 + 19; N = 1 ... 60; A_{min} = 1 x 125 + 19 = 144; A_{max} = 60 x 125 + 19 = 7.519

Bestellnummer Order Code: VarioLED Flex HYDRA LD5 Wxxx/A IP67

Elektrische & Optische Betriebsdaten Electrical & optical data

VarioLED™ Flex HYDRA LD5 IP67	lumen/meter (lm/m)	Farbtemperatur* Color temperature* (K)
W820	333	2.600
W822	378	2.800
W825	430	3.200
W927	294	3.800
W930	328	4.200
W935	347	4.800
W940	355	6.500
W850	489	10.000

* Bei IP67 Produkten können Toleranzen bei der Farbtemperatur auftreten. Nähere Erläuterung dazu finden Sie auf S. 584.

* In case of IP67 products, tolerances in the color temperature can occur. For further explanation, please see page 584.

Es gelten die selben Daten wie für VarioLED™ Flex HYDRA LD5 mit folgenden Ausnahmen: 30% Lichtverlust und Farbverschiebung im Vergleich zum nicht vergossenen LED Strip.

Nähere Erläuterung zu den technischen Daten des PU-Schutzes im LED Linear™ Systemkatalog, Seite 584.

Same data as for VarioLED™ Flex HYDRA LD5 apply, except: 30% light loss and color shift compared to non encapsulated LED strip.

More details regarding the PU-protection in the LED Linear™ system catalogue, page 584.

Bitte sprechen Sie uns an für kundenspezifische Anpassungen, wie z. B. Kabellängen und Stecker.

Please ask for custom specific adaptions like cable length and plugs.

Zubehör Accessories

erforderlich required

Konverter
Power supply unit

Buchse
Female connector

optional optional

Steuer-protokoll
Power control system

Details siehe Seite 456 ff. Details on page 456 ff.

Sicherheits- und Montagehinweise: LED Linear™ Systemkatalog, Seite 534 ff. Safety and assembly information: LED Linear™ system catalogue, page 536 ff.

VarioLED™ HYDRA LD5 IP67

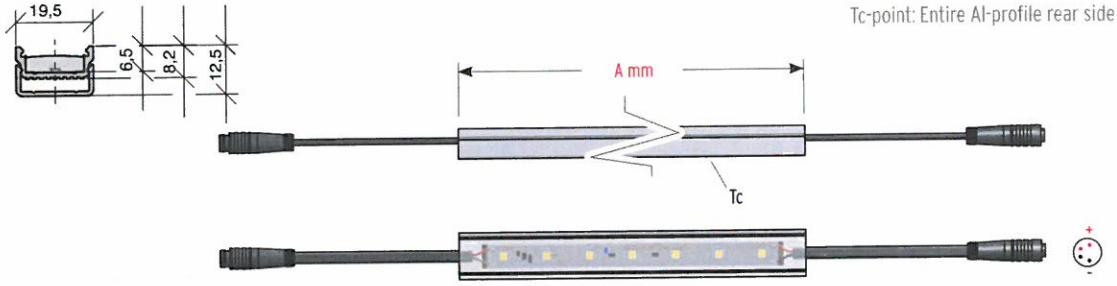
NEW

Wasser- und UV-geschützte Linearleuchte im Aluminiumprofil in bis zu 2 m Länge im Polyurethanverguss mit 110 mm IP67 Steckverbinder an beiden Enden.

Up to 2 m length, water & UV resistant LED Luminaire with polyurethane encapsulation in Al profile and 110 mm IP67 plug in connectors on both ends.

Abmessungen & Längen Dimensions & available length

Tc-Punkt: Gesamte Profilrückseite
Tc-point: Entire Al-profile rear side



A = N x 125 + 19; N = 1 ... 15; A_{min} = 1 x 125 + 19 = 144; A_{max} = 15 x 125 + 19 = 1.894

Übersicht VarioContour IP67 ab Seite 474.
Overview VarioContour IP67 from page 474.

Bestellnummer Order Code: VarioLED HYDRA LD5 Wxxx/A IP67

Elektrische & Optische Betriebsdaten Electrical & optical data

VarioLED™ HYDRA LD5 IP67	lumen/meter (lm/m)	Farbtemperatur* Color temperature* (K)
W820	314	2.600
W822	356	2.800
W825	405	3.200
W827	277	3.800
W930	309	4.200
W935	327	4.800
W940	335	6.500
W850	461	10.000

* Bei IP67 Produkten können Toleranzen bei der Farbtemperatur auftreten. Nähere Erläuterung dazu finden Sie auf S. 584.

* In case of IP67 products, tolerances in the color temperature can occur. For further explanation, please see page 584.

Es gelten die selben Daten wie für VarioLED™ Flex HYDRA LD5 mit folgenden Ausnahmen: 30% Lichtverlust und Farbverschiebung im Vergleich zum nicht vergossenen LED Strip.

Nähere Erläuterung zu den technischen Daten des PU-Schutzes im LED Linear™ Systemkatalog, Seite 584.

Same data as for VarioLED™ Flex HYDRA LD5 apply, except: 30% light loss and color shift compared to non encapsulated LED strip.

More details regarding the PU-protection in the LED Linear™ system catalogue, page 584.

Bitte sprechen Sie uns an für kundenspezifische Anpassungen, wie z. B. Kabellängen und Stecker.

Please ask for custom specific adaptions like cable length and plugs.

Zubehör Accessories

erforderlich required

Konverter Power supply unit

Buchse Female connector

optional optional

Steuer-protokoll Power control system

Details siehe Seite 456 ff. Details on page 456 ff.

Sicherheitshinweise und Montage: LED Linear™ Systemkatalog, Seite 536 ff. Safety and assembly information: LED Linear™ system catalogue, page 536 ff.

WM TAO & ASSOCIATES
CONSULTING ENGINEERS

Shop Drawing Submittal Review

Transmitted To: Cannon Design

Date: July 6, 2016

Attention: **stl-cac@cannondesign.com**

Contact Person / WTA Field Inspector: Patrick Garner

Project Name: Webster University-**ISB**

Reviewed by: Mark de la Fuente

Project No. WT 14127.01

☐ UPS ☐ Courier ☒ **Email**

Copies	No.	Description
1 PDF	265200E01	(Submittal No. 265200-004) – Outdoor Lighting

Submittal Review Comments

- **Coordinate all finishes with architect.**
- **Type CD: Provide "W825" configuration.**
- **Type EF36/42: Coordinate orientation with path.**
- **Type EH: Provide recessed backbox as required for concrete pour.**

c: **Kelvin Patel**
Kpatel@cannondesign.com

☐ Furnish as Submitted ☒ ***Furnish as Noted**

☐ Rejected ☐ Revise & Resubmit

☐ Reviewed ☐

Corrections or comments made on shop drawings during this review do not relieve contractor from compliance with requirements of drawings and specifications. This check is only for review of general conformance with the design concept of project and general compliance with information given in contract documents. Contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

7955 Manchester Road, Suite 125 • St. Louis, Missouri 63143-2711 • Phone: 314-884-7600 • Fax: 314-884-7601

If enclosures are not as noted, please notify us at once.

Sara Trout (314) 884-7645

WTASHOP - Webster ISB - 26 5200-004

From: STL-CAC <STL-CAC@CANNONDESIGN.COM>
To: 'Patrick Garner' <pgarner@wmtao.com>, WTASHOP <wtashop@wmtao.com>
Date: 6/21/2016 4:02 PM
Subject: Webster ISB - 26 5200-004
Cc: "Patel, Kelvin" <kpatel@CANNONDESIGN.COM>, "Grossman, Lynn" <lgrossman@C...
Attachments: 265200-004 Outdoor Lighting Product Data 2.pdf

Attached for review.

Melissa Pirtle
Construction Admin
CANNONDESIGN
1100 Clark Ave
St. Louis, Missouri 63102
T 314.425.8797 • M
cannondesign.com

CANNONDESIGN

SUBMITTAL IDENTIFICATION SHEET

To be completed by Contractor/CM

WEBSTER UNIVERSITY ISB
PROJECT NAME

8274 BIG BEND BLVD
ADDRESS

NUMBER

WEBSTER UNIVERSITY
OWNER

CANNON DESIGN
ARCHITECT / ENGINEER

Joe Voypick
SUBMITTED BY

265200-004
CONTRACTOR / CM SUBMITTAL NO.

CANNON DESIGN SUBMITTAL NO.

DRAWING / DETAIL REFERENCE

265200
SPECIFICATION SECTION / PARAGRAPH

Guarantee Electrical
MANUFACTURER / SUPPLIER

ITEM / PRODUCT ID

REQUIRED DATE

PRIORITY

CRITICAL

ITEM BEING SUBMITTED (check only one)

- ◯ Shop Drawings
- ◯ Samples (_____ copies)
- ◯ LEED Submittal
- ◯ Certification / Qualifications
- ◯ Record Documents
- ◉ Product Data
- ◯ Coordination Drawing
- ◯ Calculations
- ◯ Schedules
- ◯ O&M Manuals
- ◯ Other _____

ITEM BEING SUBMITTED FOR (check only one)

◉ Action ◯ Information Only ◯ Record

REMARKS OR DEVIATIONS

CONTRACTOR / CM CERTIFICATION
(SUBMITTALS NOT CERTIFIED WILL BE RETURNED WITHOUT REVIEW)

PARIC

PARIC CORPORATION
SUBMITTAL STAMP

THIS SHOP DRAWING HAS BEEN REVIEWED BY PARIC CORPORATION

Subcontractor remains responsible for dimensions, quantities, coordination with other trades and compliance with contract documents.

By:
Devin D. Gates

Joe Voypick
REVIEWED BY

6/21/16
DATE

To be completed by Reviewer

26 5200-004
CANNON DESIGN SUBMITTAL NUMBER

6/21/16
RECEIVED DATE

◯ A. No Exceptions Taken
No further review of submittal is required.

◯ B. Make Corrections Noted
Incorporate corrections in work; resubmission is not required.

◯ C. Revise and Resubmit
Revise as noted, and resubmit for review.

◯ D. Rejected
Submittal is not in compliance with Contract Documents; provide new submittal.

◯ E. For Record / Information Only
Submittal was reviewed for Record / Information purposes only.

◯ F. Not Required for Review
Submittal is not required by Contract Documents and has not been reviewed.

Review is for conformance with the design concept of this project and for general compliance with contract documents. Contractor is responsible for quantities, dimensions and compliance with contract documents and for information that pertains to fabrication processes, construction techniques and coordination of this work with all trades which will be affected thereby. This review is null and void if submittal deviates from contract documents and does not indicate or note deviations.

A/E COMMENTS ◯ See attached sheet(s) for additional comments

see color choices in blue on attached from CannonDesign
Note: Fixture type EF36 and EF42: color should match color of existing fixtures of this type existing on campus. CM verify.
Lynn Grossman 07.26.16

REVIEWED BY

DATE

77 Westport Plaza
Suite 250
St. Louis, MO 63146

TRANSMITTAL

No. 15051-0099

Paric Corporation

PROJECT: 15051-Webster University Interdisciplinary Science Building

DATE: 06/21/2016

TO: Cannon Design
1100 Clark Ave
St Louis MO 63102

RE: Outdoor Lighting Product Data 2

ATTN: Kelvin Patel

JOB: 15051

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
☐ Shop Drawings	☑ Approval	☐ Approved as Submitted
☐ Letter	☐ Your Use	☐ Approved as Noted
☐ Prints	☐ As Requested	☐ Returned After Loan
☐ Change Order	☐ Review and Comment	☐ Resubmit
☐ Plans		☐ Submit
☐ Samples	**SENT VIA:**	☐ Returned
☐ Specifications	☐ Attached	☐ Returned for Corrections
☑ Other: Product Data	☐ Separate Cover Via:	☐ Due Date:

Item	*Package*	*Code*	*Rev.*	*Copies*	*Date*	*Description*	*Status*
Submittal		265200-004	1		06/21/2016	Outdoor Lighting Product Data 2	Submitted

NOTES:

CC: Paric Corporation, Kathy Bathe

Project Coordinator: Paric Corporation, Kathy Bathe

Signed: _____
Devin Gates