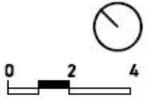# External Lighting Plan
1 Battersea Bridge Road

May 2024

Landscape Strategy

Lighting Concept Design

Lighting in the public realm, aligned with safety by design standards, holds paramount importance in fostering secure and inviting environments.

Well-lit public spaces enhance visibility, deterring criminal activity and reducing accidents. Thoughtful lighting design ensures pedestrians feel safe and confident, promoting increased foot traffic and community engagement.

Moreover, strategically placed lighting can improve wayfinding and accessibility for all individuals, including those with mobility challenges.

By prioritizing lighting in accordance with safety by design standards, appropriate public lighting design can create inclusive, resilient, and welcoming spaces that enrich the lives of residents and visitors alike.

1. Inset wall lighting bands

2. Inlay ground lighting bands follow curved paving design

3. Recessed lighting fixtures

4. Lighting for stepped accesses

Reference images
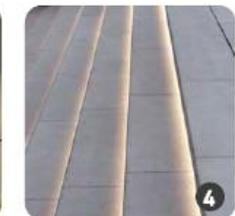
1. Inset Wall Lighting Bands

Reference 1 VENUS 3D OPTIC, flexible low output, warm CCT, external luminaire with integrated narrow beam optic to control the lit effect against a surface reducing spill light.

2. Inlay Ground Lighting Bands Follow Curved Paving Design

Reference 2 VENUS 3D, flexible low output, external luminaire for location / feature lighting to reduce ULOR impact.

3. Recessed Lighting Fixtures

Reference 3 STI259, wall recessed, warm CCT, external luminaire, asymmetric forward throw with precise optics to control and direct distribution towards the floor.

4. Lighting For Stepped Accesses

Reference 4 XOOLINE, external minimal linear, warm CCT, low diffuse optic to control light output onto stepped areas.

Hours of Operation

It is proposed that the lighting would operate only between dusk and 11pm as a minimum. External lighting will be controlled such that no artificial illumination will be used during daylight hours.

Light Spillage

All luminaires will be located to avoid any form of light spillage on to the adjacent properties and the surrounding natural habitat. All light sources will have a minimum luminous efficacy of at least 100 luminaire lumens per circuit watt. No upward directional illumination is proposed and all lighting will be direction downward to reduce night pollution.

It is proposed that all external lighting complies with the following:

- BS 5489-1:2013 Code of Practice for the design of road lighting. Lighting of roads and public amenity areas; and
- BS EN 12464-2:2014 (36) Light and lighting – Lighting of workplaces – Part 2 Outdoor work places.

Light Levels

All public realm lighting would vary from 5 lux to 50 lux.

Specification

Further information regarding lighting specification is appended to this document.

1. Inset Wall Lighting Bands

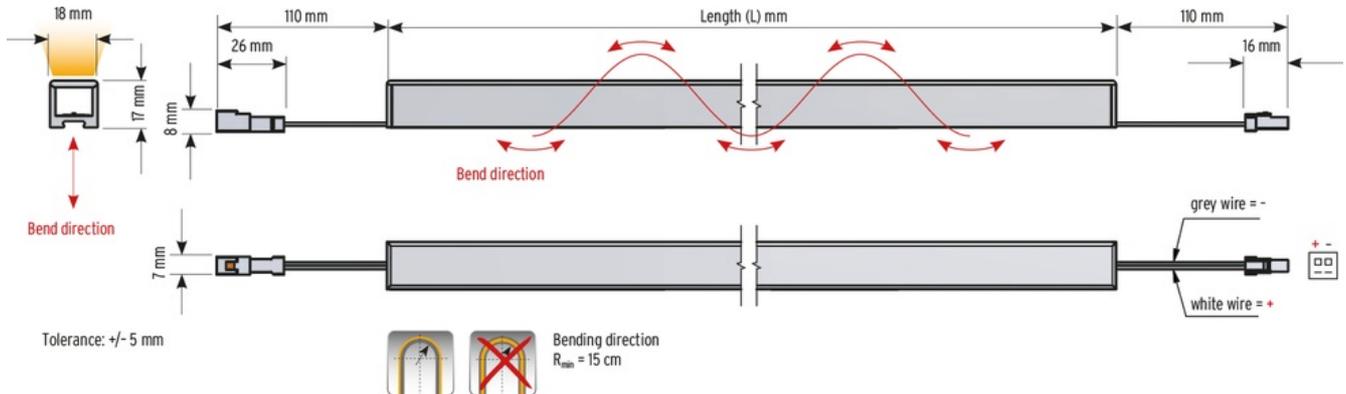**LED Linear™ GmbH** · Dr.-Alfred-Herrhausen-Allee 20 · 47228 Duisburg · Germany
Phone +49 2065 94322-100 · info@led-linear.com
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LED LINEAR™

A Fagerhult Group Company

VENUS True Color TV Optics IP67

Order code: VENUS TC TV 6 W927 1054 20E DCCLH IP67

TECHNICAL SPECIFICATIONS

CE ⟨III⟩

Length	**1,054 mm**
Color temperature (CCT)	**2.700K**
CRI	**up to 95**
R9	**up to 86**
Lumen (Luminaire)	**460 lm**
Lumen/Meter	**435 lm/m**
Power of luminaire	**6.3 W**
Power	**6 W/m**
Efficiency	**72 lm/W**
Optics	**Optics 20°**
Case Temperature (Tc$_{min}$ & Tc$_{max}$)	**Tc$_{min}$ = -25°C, Tc$_{max}$ = 65°C**
Storage Temperature (Ts$_{min}$ & Ts$_{max}$)	**Ts$_{min}$ = -30°C, Ts$_{max}$ = 85°C**
Ambient Temperature (Ta$_{min}$ & Ta$_{max}$)	**Ta$_{min}$ = -25°C, Ta$_{max}$ = 50°C**
Ingress protection	**IP67**
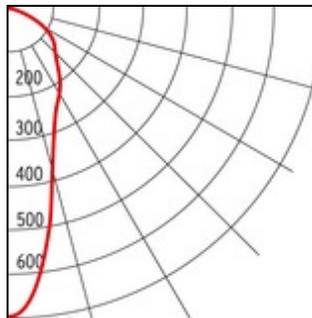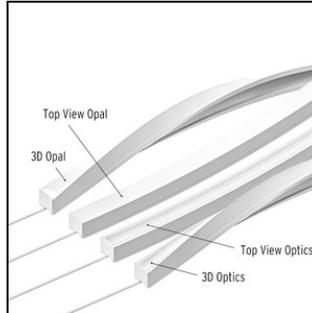
DIMENSIONS & AVAILABLE LENGTHS

Fixture build to length (not field cutable): L = (N x 70 mm) + 4 mm; N = 5 ... 28; L$_{min}$ = 354 mm; L$_{max}$ = 1,964 mm

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Order code: VENUS TC TV 6 W927 1054 20E DCCLH IP67

SPECIFICATION TEXT

IP67 flexible dot free and perfectly homogeneous linear LED light line with a 18 mm x 17 mm (W x H) cross section. With its unique linear optics technology, the 20° optics provide homogeneous and precise light distribution without unwanted scallop effects (as with TIR lenses). Polyurethane encapsulation offering a premium water proof sealing, UV resistance, chemical stability against urban gazes and protection against abrasion. True Color technology for an optimal rendition of the LED spectrum (minimal color shift). Vertical bending only, with radius of 150 mm the ideal solution for indoor/outdoor organic facade accent lighting or decorative applications requiring IP67 ingress. Freely configurable in length. Backside cable feed for an optimal fixture to fixture overlap. 110 mm long cable at both end of the luminaire with IP67 male/female connectors or open-ended cable(s) (length of 2 m), with included mounting accessory of choice. Light source assembled using state of the art automated Reel to Reel (R2R) production process supporting LED Linear™ Tj Away® thin flexible circuit board technology.

In combination with Chip Scale Package LEDs (CSP) a thermal resistivity of 5.33 K/W is achieved for an optimal heat dissipation (junction to profile), which guarantees an outstanding lifetime of > 60,000 hrs (L80/B10). Embeds high quality LEDs with 3 step MacAdams (SDCM3) binning centered on target CCT (One Bin Only) with an extended photometric code of Wxxx/339 ensuring an exceptional color consistency over the rated lifetime. Premium color rendition with a CRI of 95 (R9 = 71) and TM-30-15 up to R_f = 92 / R_g = 100 ensuring a remarkable light quality. Consistent light intensity all along the luminaire length is obtained thanks to active current regulation operated by dedicated integrated circuits (ICs) on each step. Protected against electrostatic discharge +/- 2,000 V and polarity miswiring. Fully PWM dimmable for frequency > 0Hz up to 2 kHz (flicker free for frequency higher than 1.2 kHz according to IEEE P1789 standard). Engineered and produced in Germany.
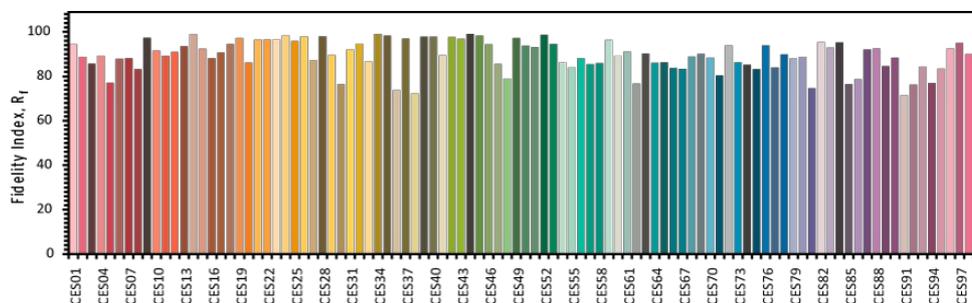
TM30-15

Color vector
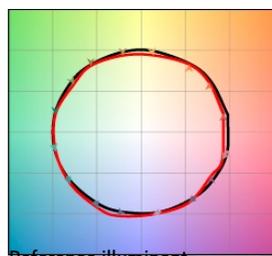
Reference illuminant
Test source

Color evaluation
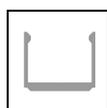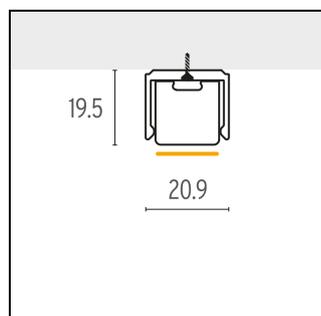

MOUNTING ACCESSORIES

LED Linear™ GmbH · Dr.-Alfred-Herrhausen-Allee 20 · 47228 Duisburg · Germany
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VENUS True Color TV Optics IP67

Order code: VENUS TC TV 6 W927 1054 20E DCCLH IP67

1. Surface-mounted, Clips and profile without cable channel

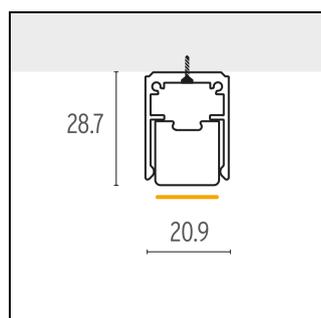| Mounting accessories	Description	Example of application
VTC Surface Mounting Clip Low (L x H x W) 30 mm x 17.5 mm x 20.9 mm Digits in order code: CLL	Robust aluminum extrusion powder-coated in white. Use according to the mounting instruction.	
VTC Surface Mounting Profile Low (L x H x W) luminaire length x 17.5 mm x 20.9 mm Digits in order code: MPL	Robust aluminum extrusion powder-coated in white. Use according to the mounting instruction.	

19.5
20.9

2. Surface-mounted, Clips and profile with cable channel

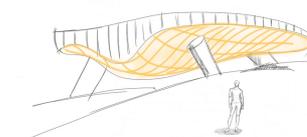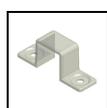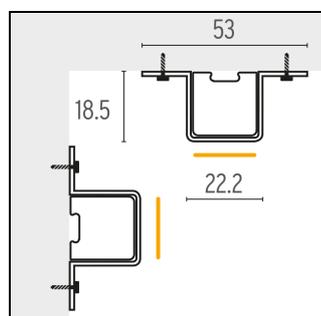| Mounting accessories	Description	Example of application
VTC Surface Mounting Clip High (L x H x W) 30 mm x 26.7 mm x 20.9 mm Digits in order code: CLH	Robust aluminum extrusion powder-coated in white. Use according to the mounting instruction.	
VTC Surface Mounting Profile High (L x H x W) luminaire length x 26.7 mm x 20.9 mm Digits in order code: MPH	Robust aluminum extrusion powder-coated in white. Use according to the mounting instruction.	

28.7
20.9

3. Surface-mounted, holding clamp clear

Mounting accessories	Description	Example of application
VTC Surface Holding Clamp Clear (L x H x W) 15 mm x 20.5 mm x 53 mm Digits in order code: CLC	PVC casting clamp for surface mount. Use according to the mounting instruction.	

53
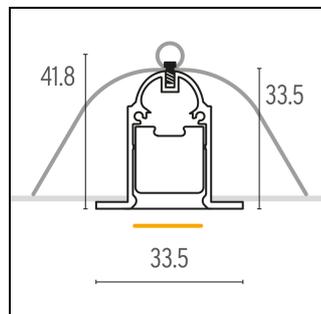18.5
22.2

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4. Recessed

41.8 33.5

33.5

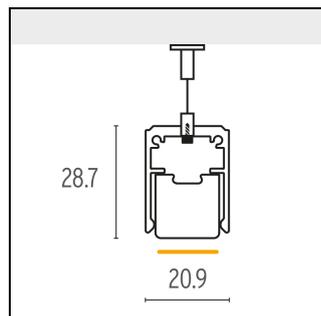| Mounting accessories	Description
VTC Recessed Profile (2 m Set) (L x H x W) 2000 mm x 46 mm x 36.3 mm Art.-#: 10000559	Profile with mounting springs can be installed directly into false ceiling. Use according to the mounting instruction.
VTC Recessed Profile (4 m Set) (L x H x W) 4000 mm x 46 mm x 36.3 mm Art.-#: 10000559-4m	Profile with mounting springs can be installed directly into false ceiling. Use according to the mounting instruction.
VTC EndCap Recessed (Set of 2) (L x H x W) 22 mm x 34.5 mm x 36.3 mm Art.-#: 11000214	Set of two end caps for recessed VENUS TC light lines. Use according to the mounting instruction.

5. Pendant

28.7

20.9
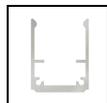
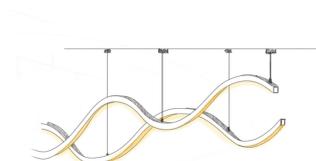| Mounting accessories	Description	Example of application
VTC Pendant Set – 2m for Flexible Pendant Profile (2 m Wire) Art.-#: 13000273	2 m pendant set for VENUS TC. Required accessories VTC flexible pendant channel #10000554	
VTC Flexible Pendant Channel (L x H x W) 2000 mm x 26.7 mm x 20.9 mm Art.-#: 10000554	Flexible pendant channel for decorative pendant light solutions. Required suspensions 13000273 (2m)/ 13000274 (5m)	
VTC Pendant Set – 5m for Flexible Pendant Profile (5 m Wire) Art.-#: 13000274	5 m pendant set for VENUS TC. Required accessories VTC flexible pendant channel #10000554.	
VarioCANOPY Square Mounting set (optional) for pendant ceiling installations on concrete ceilings Art.-#: 16000347	Pendant set with screws for installations directly on the ceiling. Recommended to use every 1 m.	

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POWER SUPPLY UNIT (PSU) & CONTROLS

Recommended PSU

VarioPSU 24V/40W IP67, 0-10V, Black
Art.-#: 16000152

Dimensions (L x H x W) :	**150 mm x 35 mm x 53 mm**
Electrical Class:	**SK II**
LED Drive:	**CV**
Voltage (V):	**24 V**
Rated Power (W):	**40**
Input Voltage (Vac):	**90 – 305**
Region:	**WR**
Certificates:	**ENEC, UL**
Schutzart:	**IP67**
Indoor/Outdoor:	**Outdoor**

Recommended Control

IN.finite™ CASAMBI 2Ch CV
Art.-#: 16000267-EVO

Dimensions (L x H x W) :	**188 mm x 21 mm x 30 mm**
Channels	**2**
Dimming Options	**Casambi BLE**
Dimming	**PWM (f ~ 1600Hz)**
Dimming Curve	**Lin/Log/free conf.**
Dimming Range	**100% - 0%**
Voltage (V):	**12 – 50 V**
Certificates:	**CE**
Schutzart:	**IP20**
Indoor/Outdoor:	**Indoor**

Dimming

Linear

Logarithmic

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VOLTAGE DROP INFORMATION FOR THE FEED-IN LINE (PSU / CONTROL TO FIXTURE)

Single

Power (Fixture)				6.3 W			
Cable cross section	$0.25\ mm^2$	$0.34\ mm^2$	$0.5\ mm^2$	$0.75\ mm^2$	$1\ mm^2$	$1.5\ mm^2$	$2.5\ mm^2$
AWG (US)	23	22	20	18	17	15	13
Max feed-in length	22.6 m	30.7 m	45.2 m	67.7 m	90.3 m	135.5 m	225.8 m

Multiple

Fixture length				1.1 m			
Maximal run length at this power level*				5.0 m			
Feed-in cable cross section level	$0.25\ mm^2$	$0.34\ mm^2$	$0.5\ mm^2$	$0.75\ mm^2$	$1\ mm^2$	$1.5\ mm^2$	$2.5\ mm^2$
AWG (US)	23	22	20	18	17	15	13
Max feed-in length	4.7 m	6.5 m	9.5 m	14.3 m	19.1 m	28.7 m	47.8 m

Calculation refers to the cable configuration on site.
The information listed in the table is only refers to the conductor-based voltage drop of max. 0.85V at 24V DC input voltage.

Regarding the electromagnetic combability (EMC) the maximum cable length is defined by the power supply manufacturer.
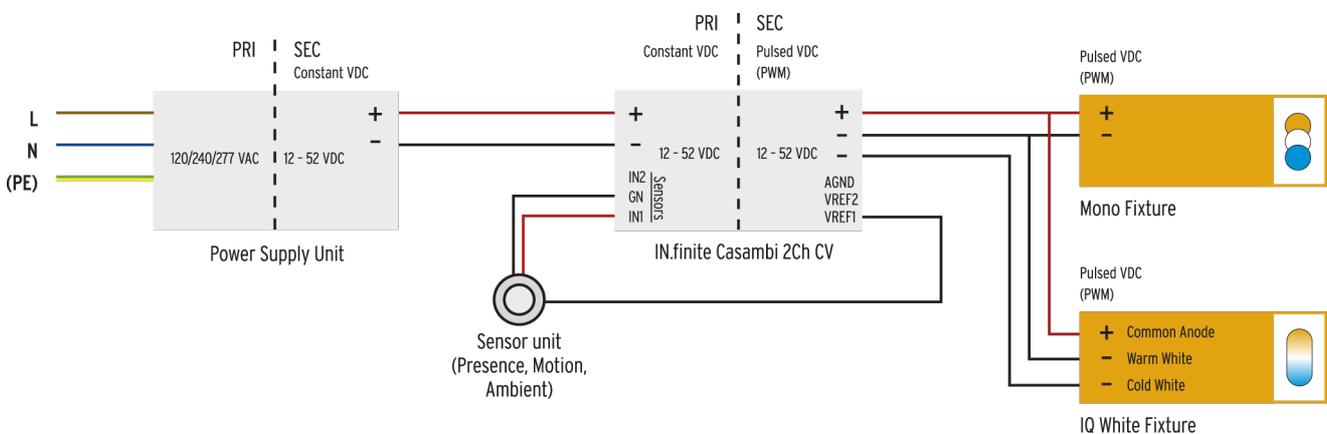A cable length between power supply and planned product longer than indicated by the datasheet of the power supply is possible. However the electromagnetic combability can then be influenced by the conditions of the installation site. There is no data on electromagnetic compatibility for longer cable lengths, which might lead to the necessity of an evaluation of the electromagnetic compatibility by a third party.
Datasheets and mounting instructions of the components in combination with the planned product must be carefully read and followed.

* The remaining 3.9 m admissible to reach the maximal run length with one feed-in can be completed by configuring VENUS True Color TV Optics IP67 with the same LED Tape in other lengths.

WIRING DIAGRAM
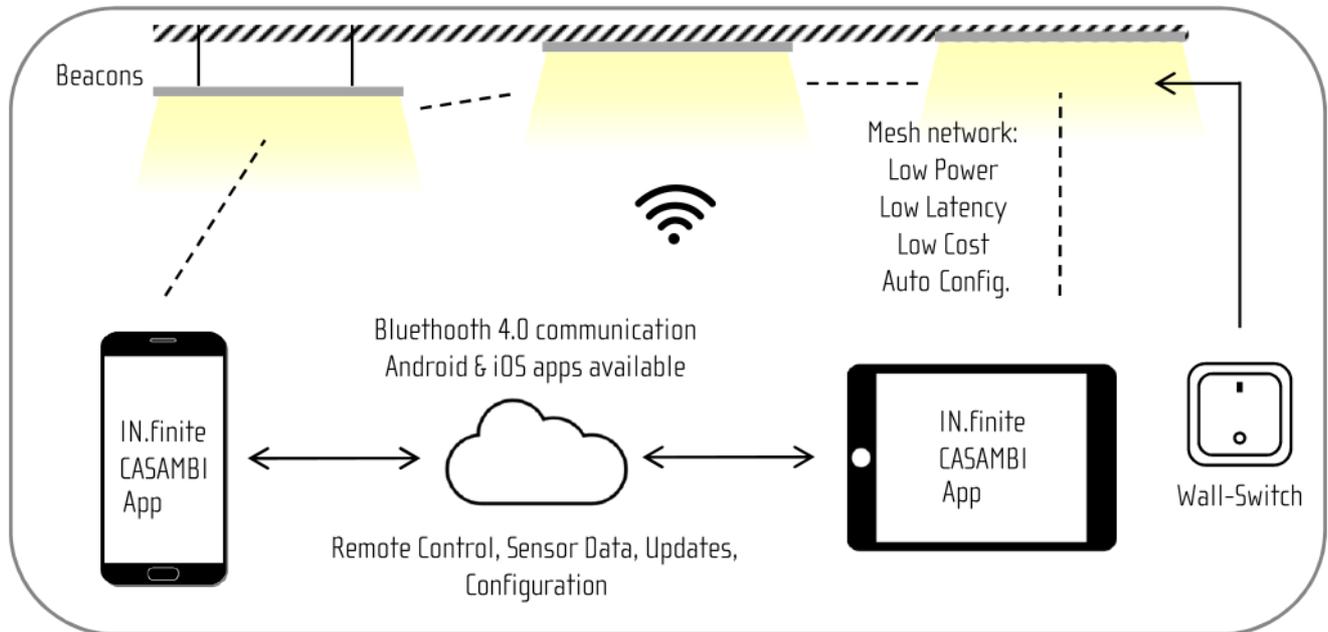
Typical Wiring – Monochromatic

* Detailed information on the wiring of the control line is shown in the datasheet of the desired control gear

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TYPES OF ANALOG & DIGITAL CONTROL

DMX	DALI	Casambi BLE	DMX/RDM	1–10V	Switch-DIM
Digital control system which is particularly suitable for RGB and IQ White applications. With this system it is possible to dim luminaires and to set soft color gradients just in the range RGB.	Digital control system which is suitable especially for White and IQ White applications. With this system it is possible to dim the luminaires and to adjust soft gradients in the range White and IQ White.	Digital control system based on Bluetooth LE which is particularly suitable for applications in which a smart remote control is required. With this system it is possible to dim luminaires and to adjust soft gradients in the range White, IQ-White and RGB.	Digital control system which is particularly suitable for RGB and IQ White applications. With this system it is possible to dim luminaires and to set soft color gradients just in the range RGB.	Analog control system which is suitable for White applications. With this system it is possible to dim luminaires with a poten- tiometer via a control voltage (SELV).	Analog control system which is suitable for White applications. With this system it is possible to dim luminaires using com- mercially available switches on the mains voltage.

Quick start guide wireless Communication
Casambi Technologies' wireless lighting control solution is not just a lighting control system - Casambi is a technology based on Bluetooth Low Energy, Casambi has developed an own proprietary mesh network where all the intelligence of the system is replicated in every node and in such a way creates a system with no points of failure. The solution is selfhealing and self-organizing. In this kind of fully distributed and symmetric architecture any IN.finite Casambi unit can go offline and catch up from others when they return back online.

2. Inlay Ground Lighting Bands Follow Curved Paving Design

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VENUS True Color TV Opal IP67

Order code: VENUS TC TV 6 W842 1054 OL DCCLH IP67

TECHNICAL SPECIFICATIONS

$C\epsilon$ ⟨III⟩

Length	**1,054 mm**
Color temperature (CCT)	**4.200K**
CRI	**up to 95**
R9	**up to 86**
Lumen (Luminaire)	**460 lm**
Lumen/Meter	**440 lm/m**
Power of luminaire	**6.3 W**
Power	**6 W/m**
Efficiency	**73 lm/W**
Optics	**Opal**
Case Temperature (Tc$_{min}$ & Tc$_{max}$)	**Tc$_{min}$ = -25°C, Tc$_{max}$ = 65°C**
Storage Temperature (Ts$_{min}$ & Ts$_{max}$)	**Ts$_{min}$ = -30°C, Ts$_{max}$ = 85°C**
Ambient Temperature (Ta$_{min}$ & Ta$_{max}$)	**Ta$_{min}$ = -25°C, Ta$_{max}$ = 50°C**
Ingress protection	**IP67**
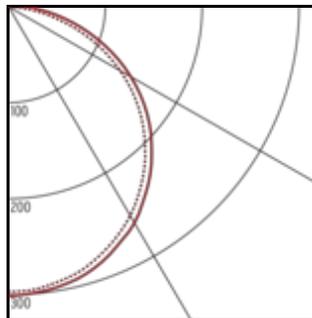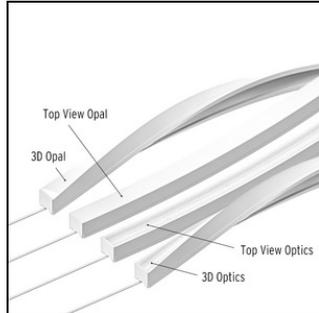
DIMENSIONS & AVAILABLE LENGTHS
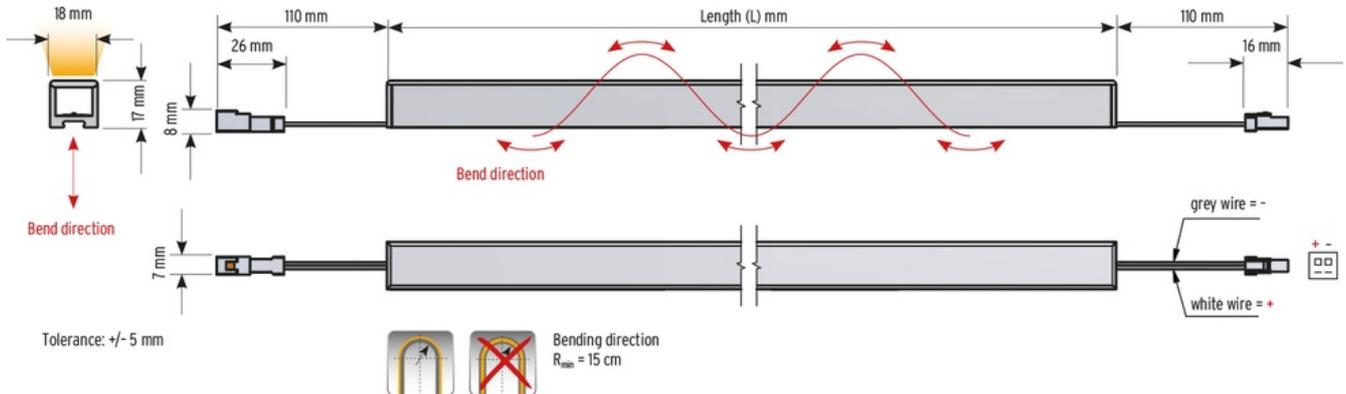
Fixture build to length (not field cutable): L = (N x 70 mm) + 4 mm; N = 5 ... 56; L $_{min}$ = 354 mm; L$_{max}$ = 3,924 mm

VENUS True Color TV Opal IP67

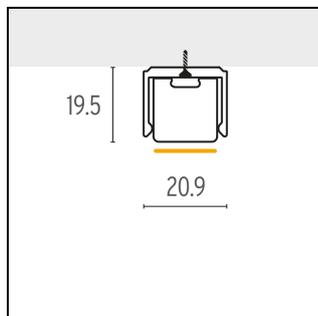Order code: VENUS TC TV 6 W842 1054 OL DCCLH IP67

SPECIFICATION TEXT

IP67 flexible dot free and perfectly homogeneous linear LED light line with a 18 mm x 17 mm (W x H) cross section. Opal polyurethane encapsulation offering a premium water proof sealing, UV resistance, chemical stability against urban gazes and protection against abrasion. True Color technology for an optimal rendition of the LED spectrum (minimal color shift). Vertical bending only, with radius of 150 mm the ideal solution for indoor/outdoor organic facade accent lighting or decorative applications requiring IP67 ingress. Freely configurable in length. Backside cable feed for an optimal fixture to fixture overlap. 110 mm long cable at both end of the luminaire with IP67 male/female connectors or open-ended cable(s) (length of 2 m), with included mounting accessory of choice. Light source assembled using state of the art automated Reel to Reel (R2R) production process supporting LED Linear™ Tj Away® thin flexible circuit board technology.
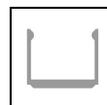
In combination with Chip Scale Package LEDs (CSP) a thermal resistivity of 5.33 K/W is achieved for an optimal heat dissipation (junction to profile), which guarantees an outstanding lifetime of > 60,000 hrs (L80/B10). Embeds high quality LEDs with 3 step MacAdams (SDCM3) binning centered on target CCT (One Bin Only) with an extended photometric code of Wxxx/339 ensuring an exceptional color consistency over the rated lifetime. Premium color rendition with a CRI of 95 (R9 = 71) and TM-30-15 up to R_f = 92 / R_g = 100 ensuring a remarkable light quality. Consistent light intensity all along the luminaire length is obtained thanks to active current regulation operated by dedicated integrated circuits (ICs) on each step. Protected against electrostatic discharge +/- 2,000 V and polarity miswiring. Fully PWM dimmable for frequency > 0Hz up to 2 kHz (flicker free for frequency higher than 1.2 kHz according to IEEE P1789 standard). Engineered and produced in Germany.
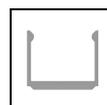
MOUNTING ACCESSORIES

1. Surface-mounted, Clips and profile without cable channel	Mounting accessories	Description	Example of application
19.5 / 20.9	VTC Surface Mounting Clip Low (L x H x W) 30 mm x 17.5 mm x 20.9 mm Digits in order code: CLL	Robust aluminum extrusion powder-coated in white. Use according to the mounting instruction.	
	VTC Surface Mounting Profile Low (L x H x W) luminaire length x 17.5 mm x 20.9 mm Digits in order code: MPL	Robust aluminum extrusion powder-coated in white. Use according to the mounting instruction.	

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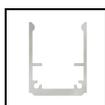### 2. Surface-mounted, Clips and profile with cable channel

28.7

20.9

Mounting accessories

VTC Surface Mounting Clip High
(L x H x W) 30 mm x 26.7 mm x 20.9 mm
Digits in order code: CLH

VTC Surface Mounting Profile High
(L x H x W) luminaire length x 26.7 mm x 20.9 mm
Digits in order code: MPH

Description

Robust aluminum extrusion powder-coated in white. Use according to the mounting instruction.

Robust aluminum extrusion powder-coated in white. Use according to the mounting instruction.
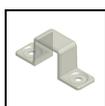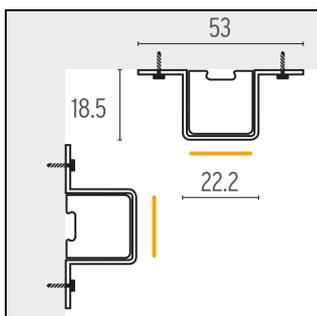
Example of application

3. Surface-mounted, holding clamp clear

53

18.5

22.2

Mounting accessories

VTC Surface Holding Clamp Clear
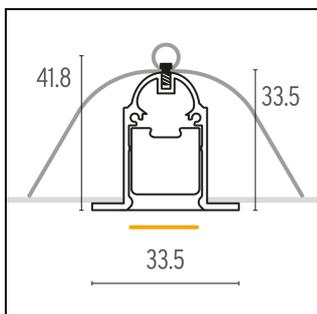(L x H x W) 15 mm x 20.5 mm x 53 mm
Digits in order code: CLC

Description

PVC casting clamp for surface mount. Use according to the mounting instruction.

Example of application

4. Recessed

41.8

33.5

33.5

Mounting accessories

VTC Recessed Profile (2 m Set)
(L x H x W) 2000 mm x 46 mm x 36.3 mm
Art.-#: 10000559

VTC Recessed Profile (4 m Set)
(L x H x W) 4000 mm x 46 mm x 36.3 mm
Art.-#: 10000559-4m

VTC EndCap Recessed (Set of 2)
(L x H x W) 22 mm x 34.5 mm x 36.3 mm
Art.-#: 11000214

Description

Profile with mounting springs can be installed directly into false ceiling. Use according to the mounting instruction.

Profile with mounting springs can be installed directly into false ceiling. Use according to the mounting instruction.
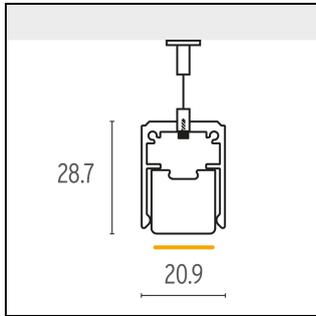
Set of two end caps for recessed VENUS TC light lines. Use according to the mounting instruction.

LED Linear™ GmbH · Dr.-Alfred-Herrhausen-Allee 20 · 47228 Duisburg · Germany
Phone +49 2065 94322-100 · info@led-linear.com
Edition: Friday, 17. May 2024 · Reserve technical changes.
Online: https://www.led-linear.com/products/venus-true-color-ip67

LED LINEAR™
A Fagerhult Group Company

VENUS True Color TV Opal IP67

Order code: VENUS TC TV 6 W842 1054 OL DCCLH IP67

5. Pendant	Mounting accessories	Description	Example of application

28.7

20.9

VTC Pendant Set – 2m
for Flexible Pendant Profile (2 m Wire)
Art.-#: 13000273

VTC Flexible Pendant Channel
(L x H x W) 2000 mm x 26.7 mm x 20.9 mm
Art.-#: 10000554

VTC Pendant Set – 5m
for Flexible Pendant Profile (5 m Wire)
Art.-#: 13000274

VarioCANOPY Square Mounting set (optional) for pendant ceiling installations on concrete ceilings
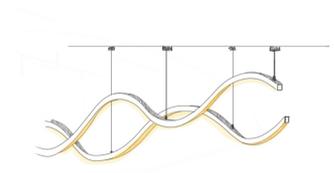Art.-#: 16000347

2 m pendant set for VENUS TC. Required accessories VTC flexible pendant channel #10000554

Flexible pendant channel for decorative pendant light solutions. Required suspensions 13000273 (2m)/ 13000274 (5m)

5 m pendant set for VENUS TC. Required accessories VTC flexible pendant channel #10000554.

Pendant set with screws for installations directly on the ceiling. Recommended to use every 1 m.

POWER SUPPLY UNIT (PSU) & CONTROLS

Recommended PSU

VarioPSU 24V/40W IP67, 0-10V, Black
Art.-#: 16000152

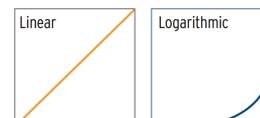| Dimensions (L x H x W) :	**150 mm x 35 mm x 53 mm**
Electrical Class:	**SK II**
LED Drive:	**CV**
Voltage (V):	**24 V**
Rated Power (W):	**40**
Input Voltage (Vac):	**90 – 305**
Region:	**WR**
Certificates:	**ENEC, UL**
Schutzart:	**IP67**
Indoor/Outdoor:	**Outdoor**

Recommended Control

IN.finite™ CASAMBI 2Ch CV
Art.-#: 16000267-EVO

Dimensions (L x H x W) :	**188 mm x 21 mm x 30 mm**
Channels	**2**
Dimming Options	**Casambi BLE**
Dimming	**PWM (f ~ 1600Hz)**
Dimming Curve	**Lin/Log/free conf.**
Dimming Range	**100% - 0%**
Voltage (V):	**12 – 50 V**
Certificates:	**CE**
Schutzart:	**IP20**
Indoor/Outdoor:	**Indoor**

Dimming

Linear	Logarithmic

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A Fagerhult Group Company

VENUS True Color TV Opal IP67

Order code: VENUS TC TV 6 W842 1054 OL DCCLH IP67

VOLTAGE DROP INFORMATION FOR THE FEED-IN LINE (PSU / CONTROL TO FIXTURE)

Single

Power (Fixture)				6.3 W			
Cable cross section	0.25 mm^2	0.34 mm^2	0.5 mm^2	0.75 mm^2	1 mm^2	1.5 mm^2	2.5 mm^2
AWG (US)	23	22	20	18	17	15	13
Max feed-in length	22.6 m	30.7 m	45.2 m	67.7 m	90.3 m	135.5 m	225.8 m

Multiple

Fixture length				1.1 m			
Maximal run length at this power level*				5.0 m			
Feed-in cable cross section level	0.25 mm^2	0.34 mm^2	0.5 mm^2	0.75 mm^2	1 mm^2	1.5 mm^2	2.5 mm^2
AWG (US)	23	22	20	18	17	15	13
Max feed-in length	4.7 m	6.5 m	9.5 m	14.3 m	19.1 m	28.7 m	47.8 m

Calculation refers to the cable configuration on site.
The information listed in the table is only refers to the conductor-based voltage drop of max. 0.85V at 24V DC input voltage.

Regarding the electromagnetic combability (EMC) the maximum cable length is defined by the power supply manufacturer.
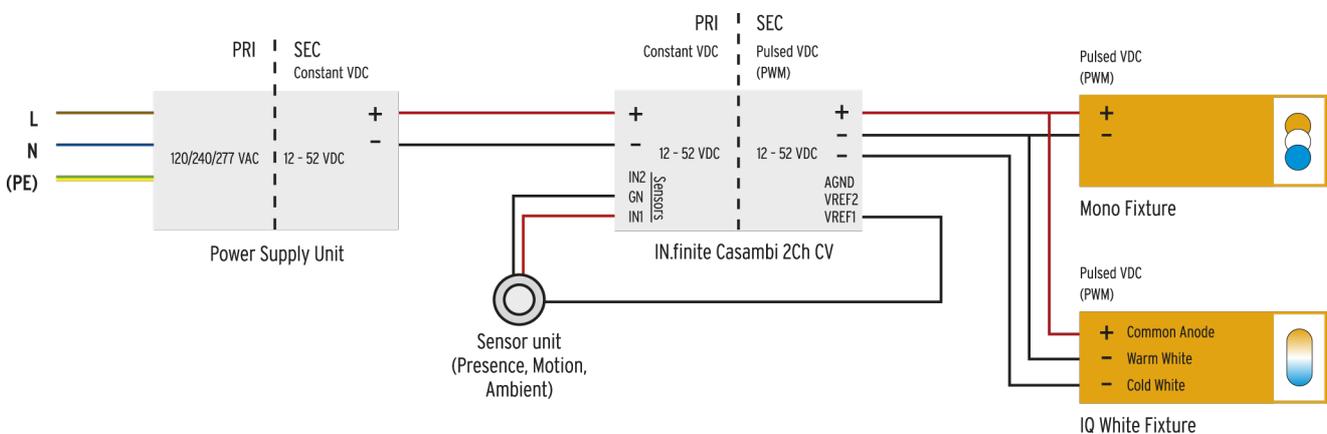A cable length between power supply and planned product longer than indicated by the datasheet of the power supply is possible. However the electromagnetic combability can then be influenced by the conditions of the installation site. There is no data on electromagnetic compatibility for longer cable lengths, which might lead to the necessity of an evaluation of the electromagnetic compatibility by a third party.
Datasheets and mounting instructions of the components in combination with the planned product must be carefully read and followed.

* The remaining 3.9 m admissible to reach the maximal run length with one feed-in can be completed by configuring VENUS True Color TV Opal IP67 with the same LED Tape in other lengths.
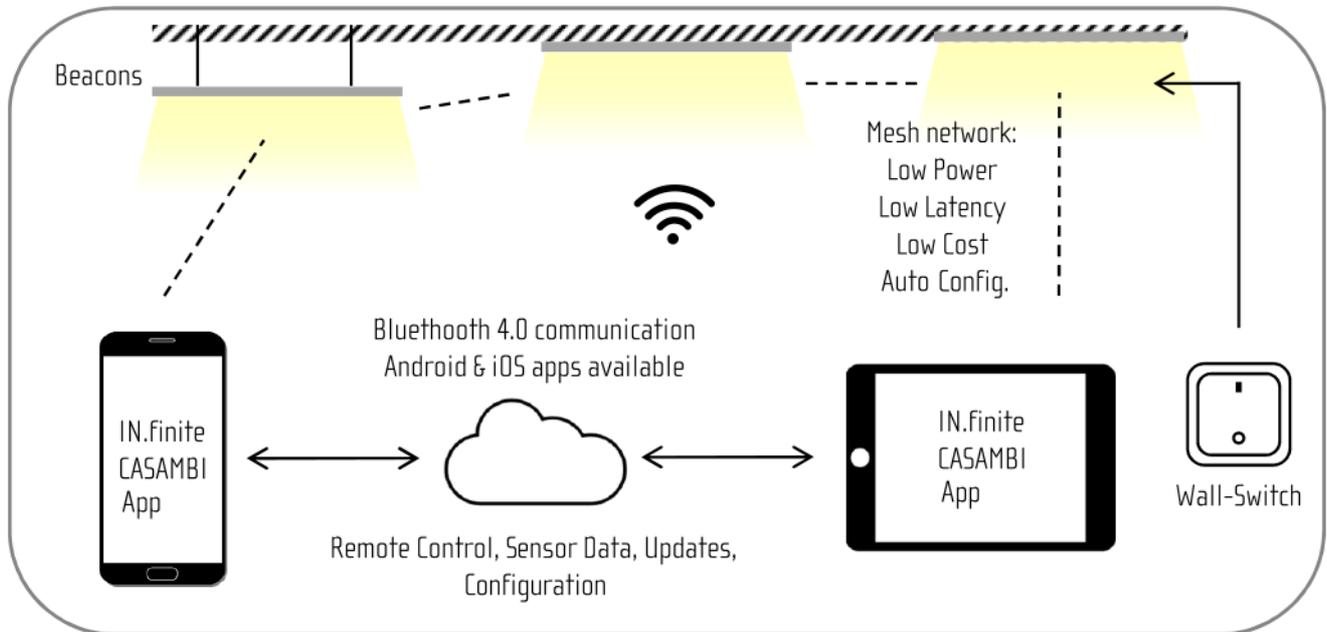
WIRING DIAGRAM

Typical Wiring – Monochromatic

* Detailed information on the wiring of the control line is shown in the datasheet of the desired control gear

LED LINEAR™
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VENUS True Color TV Opal IP67

Order code: VENUS TC TV 6 W842 1054 OL DCCLH IP67

TYPES OF ANALOG & DIGITAL CONTROL

DMX	DALI	Casambi BLE	DMX/RDM	1–10V	Switch-DIM
Digital control system which is particularly suitable for RGB and IQ White applications. With this system it is possible to dim luminaires and to set soft color gradients just in the range RGB.	Digital control system which is suitable especially for White and IQ White applications. With this system it is possible to dim the luminaires and to adjust soft gradients in the range White and IQ White.	Digital control system based on Bluetooth LE which is particularly suitable for applications in which a smart remote control is required. With this system it is possible to dim luminaires and to adjust soft gradients in the range White, IQ-White and RGB.	Digital control system which is particularly suitable for RGB and IQ White applications. With this system it is possible to dim luminaires and to set soft color gradients just in the range RGB.	Analog control system which is suitable for White applications. With this system it is possible to dim luminaires with a poten- tiometer via a control voltage (SELV).	Analog control system which is suitable for White applications. With this system it is possible to dim luminaires using com- mercially available switches on the mains voltage.

Quick start guide wireless Communication
Casambi Technologies' wireless lighting control solution is not just a lighting control system - Casambi is a technology based on Bluetooth Low Energy, Casambi has developed an own proprietary mesh network where all the intelligence of the system is replicated in every node and in such a way creates a system with no points of failure. The solution is selfhealing and self-organizing. In this kind of fully distributed and symmetric architecture any IN.finite Casambi unit can go offline and catch up from others when they return back online.

3. Recessed Lighting Fixtures

Description

IP66, Class I. Class II on request. IK10. Marine-grade, die-cast aluminium alloy. 5CE superior corrosion protection including PCS hardware. Silicone rubber gasket. Safety glass lens. Two cable entries. Factory installed LED circuit board. Integral EC electronic converter.

A pre-installation blockout is available and recommended for mounting in concrete walls. To be ordered separately.

Weight	1.20
Light distribution	asymmetric, forward-throw [A60]
Light source	LED-18/9W / 500 mA - 3000 K
CRI	80
Power supply	EC
BUG	B0 U1 G0
LEDs	18
Rated input power	11 W
Nominal Lumen (lm)	
LED Lumen	83.3 lm
Total Lumen	1500.0 lm
Tj	85°C
Rated lumens (lm)	
LED Lumen	20.0 lm
Total Lumen	360.7 lm
Ta	25°C

235 x 76

92

250

8   100

cd/klm

120

240

360

480

C90

C180   C0

C270

304 cd/klm

| — C0/C180 | — C90/C270 |
| — | C80/C260 |

Specifications
Material description

Body	Marine-grade die-cast aluminium alloy
Lens	Safety glass lens
Colours	RAL9004 Signal black
	RAL9006 White aluminium
	RAL9007 Grey aluminium
	RAL7016 Anthracite grey
	RAL9016 Traffic white
Gasket	Silicone rubber gasket
Fasteners	PCS Polymer Coated Stainless Steel Hardware
Ingress protection	IP66
Impact resistance	IK10
Corrosion resistance	5CE

Electrical description

Power supply	220-240V / 50-60 Hz
Driver / Ballast	Integral EC electronic converter
Surge protection	1/2 kV

Additional information

Lifetime	Ta=25° L80B10 > 54000h
Energy efficiency class	C (Light source)

Subject to technical changes and errors. - Generated on 17/05/2024

133-0405

STI259 LED

Fagerhult Lighting Ltd

33-34 Dolben Street, SE1 0UQ London, United Kingdom

https://we-ef.com/uk

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4. Lighting For Stepped Accesses

LED LINEAR™

A Fagerhult Group Company

XOOLINE™ White High Efficiency HD IP67

Order code: XOOLINE HYD HD15 W825 1014 S DL BSDCC00 IP67

Area: **Outdoor Luminaires**

Category: **Rigid light lines**

Mounting: **Surface-mounted, horizontal / Surface-mounted, vertical / Adjustable, vertical / Wall-mounted**

Modular luminaire with 8 different optics available and side cabling and a large panel of mounting options.

- Translucent end caps and special cable exit solutions make it easy to create infinite lines of light.

- Housing and mounting profile are also available in black for directly visible applications.

- Minimalistic form factor and several cable exit and connector options enable seamless integration.

Detailed specification text in download section.

DIMENSIONS & AVAILABLE LENGTHS
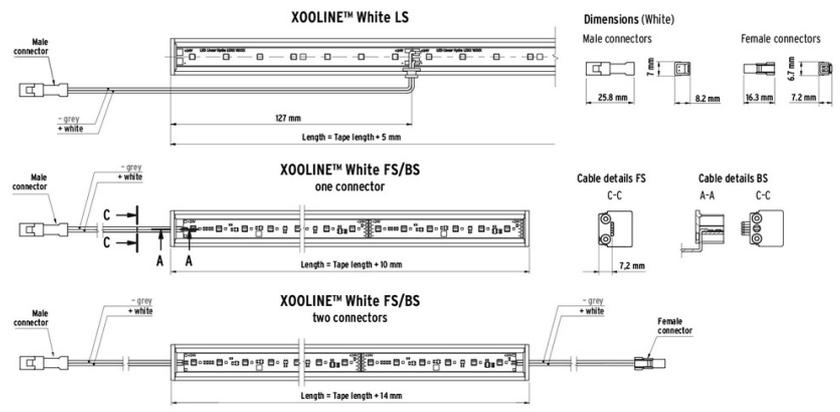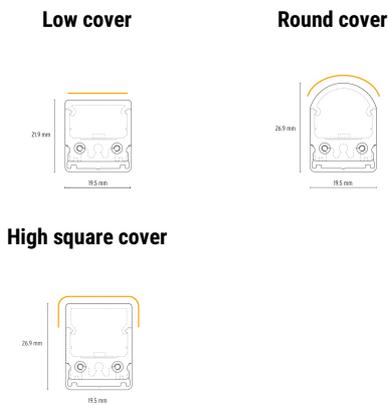
Low cover

Round cover

High square cover

Fixture built to length (not field cutable): L = (N x 62.5 mm) + ends (ends vary from 5 mm to 14 mm depending on chosen cable feed and connector configuration); N = 5… (as follows); L$_{min}$ = 318 mm; Nmax = 48; L $_{max}$ = 3,014 mm

XOOLINE™ White High Efficiency HD IP67

Order code: XOOLINE HYD HD15 W825 1014 S DL BSDCC00 IP67

TECHNICAL SPECIFICATIONS
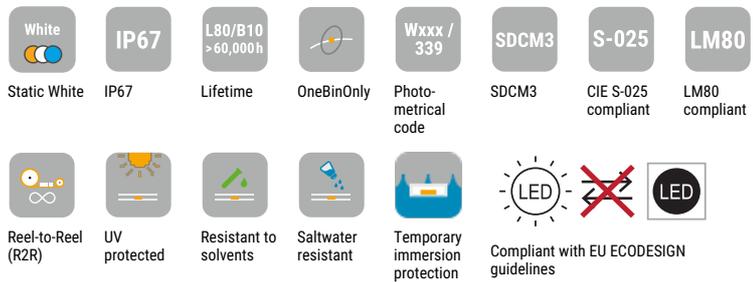
Certifications

Awards

Family Key Features

Continuous row	Surface-mounted / Ceiling
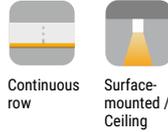
Technical Data/Performance

White	IP67	L80/B10 >60,000h	OneBinOnly	Wxxx / 339	SDCM3	S-025	LM80
Static White	IP67	Lifetime	OneBinOnly	Photo-metrical code	SDCM3	CIE S-025 compliant	LM80 compliant

Reel-to-Reel (R2R)	UV protected	Resistant to solvents	Saltwater resistant	Temporary immersion protection	Compliant with EU ECODESIGN guidelines

LED LINEAR™

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XOOLINE™ White High Efficiency HD IP67

Order code: XOOLINE HYD HD15 W825 1014 S DL BSDCC00 IP67

ELECTRICAL & OUTPUT DATA

Voltage	24 Volt (23 V_{min}, 25 V_{max})
Case Temperature (Tc$_{min}$ & Tc$_{max}$)	Tc$_{min}$ = -25°C, Tc$_{max}$ = specific, see Table below
Storage Temperature (Ts$_{min}$ & Ts$_{max}$)	Ts$_{min}$ = −30°C, Ts$_{max}$ = 85°C
Ambient Temperature (Ta$_{min}$ & Ta$_{max}$)	Ta$_{min}$ = -25°C, Ta$_{max}$ = specific, see Table below

XOOLINE™ White High Efficiency	HD6	HD10	HD15	HD25
Power (W/m)[A]	6	10	15	25
Efficacy (lm/W)[A]	72	71	83	73
max. length (m)	3.02	3.02	3.02	3.02
max. serial run length (m)	5.0	5.0	4.0	3.0
CRI / R9 (up to)	96 / 81	96 / 81	86 / 36	86 / 36
Temperature Tc-point (Tcmax)[B]	70°C	70°C	70°C	75°C
max. ambient temp. (Tamax)	40°C	40°C	40°C	35°C

				low output			high output
XOOLINE™ White High Efficiency				HD6	HD10	HD15	HD25
Color code / Color temperature[C]				**Luminaire lumens/meter*** (lm/m)[A]			
⬤ W820		2,500 K		265	470	800	1210
⬤ W822		2,900 K		305	505	875	1310
⬤ W825		3,300 K		315	580	935	1495
⬤ W827	W927	3,800 K	3,600 K	310	515	1135	1590
⬤ W830	W930	4,400 K	4,300 K	315	525	1155	1690
⬤ W835	W935	5,400 K	5,200 K	325	540	1190	1770
⬤ W840	W940	6,800 K	6,800 K	330	555	1210	1810
⬤ W850		9,600 K		430	710	1240	1830

* Low square cover, diffuse in silver colored profile

! To configure the specific luminaire please use the online configurator.

Please note: The orange values are CRI 90 specifications.

[A]The given data are typical values. Due to tolerances of the production process and the electrical components, photometric values and electrical power can vary up to 10%
[B]The Tc-point should be measured in thermal equilibrium according to IEC EN 60598-1.
[C]In case of IP67 products, tolerances in the color temperature can occur.
! Note: −40% luminous flux at opal and −25% with diffuse cover.

XOOLINE™ White High Efficiency HD IP67

Order code: XOOLINE HYD HD15 W825 1014 S DL BSDCC00 IP67
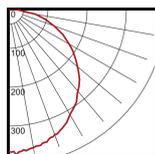
AVAILABLE OPTICS
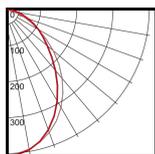
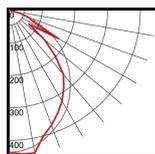| Low cover	Low cover	Low cover	Round cover	Round cover	Round cover	High square cover	High square cover
opal	diffuse	clear	opal	diffuse	clear	opal	diffuse
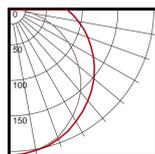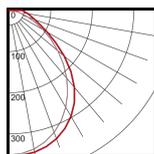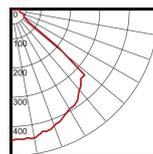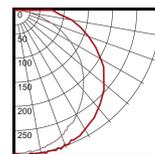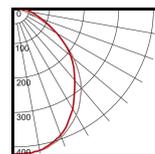
LED LINEAR™

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XOOLINE™ White High Efficiency HD IP67

Order code: XOOLINE HYD HD15 W825 1014 S DL BSDCC00 IP67

ORDER CODE

Example:

XOOLINE HYD HD6 W820 S OR LS DC MP IP67

TYPICAL APPLICATIONS

CONFIGURE NOW!

Options for the order code:	Your selections ☐ :
LED tape	
HD6 (6 W/m)	☐ HD6
HD10 (10 W/m)	☐ HD10
HD15 (15 W/m)	☐ HD15
HD25 (25 W/m)	☐ HD25
Color temperature	
2,000 K	☐ W820
2,200 K	☐ W822
2,500 K	☐ W825
2,700 K / 3,600 K	☐ W827
3,000 K / 4,300 K	☐ W830
3,500 K / 4,900 K	☐ W835
4,000 K / 6,600 K	☐ W840
5,000 K	☐ W850
Please note: The orange values are CRI 90 specifications.	
Housing color	
Silver	☐ S
Black	☐ B
Optics	
Round cover, opal	☐ OR
Round cover, diffuse	☐ DR
Round cover, clear	☐ CR
Low square cover, opal	☐ OL
Low square cover, diffuse	☐ DL
Low square cover, clear	☐ CL
High square cover, opal	☐ OH
High square cover, diffuse	☐ DH
Cable Feed	
Long side (through one flank of fixture)	☐ LS
Front side (through end caps)	☐ FS
Back side (through profile)	☐ BS
Cable / Connector configuration	
Daisy chain (male / female)	☐ DC
Male one side	☐ MO
Open end one side	☐ OO
Profiles / Clips	
Mounting profile	☐ MP
Clip 0°	☐ C00
Clip 15°	☐ C15
Clip 30°	☐ C30
Clip 45°	☐ C45
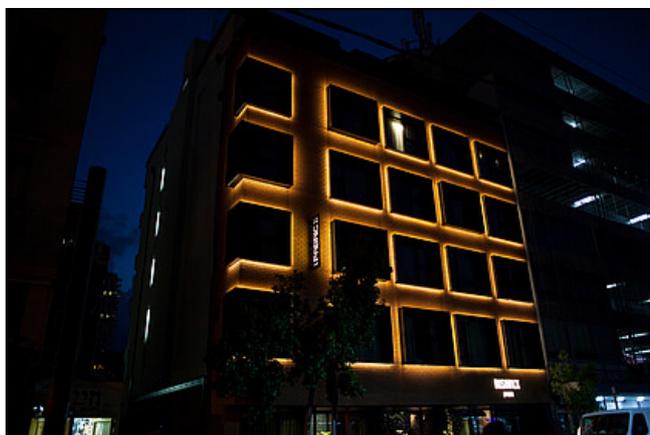
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XOOLINE™ White High Efficiency HD IP67

Order code: XOOLINE HYD HD15 W825 1014 S DL BSDCC00 IP67

Options for the order code:		Your selections 🔸 :
Plastic clip	⟶	🔸 PCL
Adjustable mounting clip	⟶	🔸 AMC
Wall mount profile	⟶	🔸 WMP
Length		⋯⋯⋯⋯⋯⋯
L_{min}: 327 mm	⟶	🔸 0327
L_{max}: 3,014 mm	⟶	🔸 3014

Fixture built to length (not field cutable): L = (N x 62.5 mm) + ends (ends vary from 5 mm to 14 mm depending on chosen cable feed and connector configuration); N = 5… (as follows); L_{min} = 318 mm; Nmax = 48; L_{max} = 3,014 mm

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XOOLINE™ White High Efficiency HD IP67

Order code: XOOLINE HYD HD15 W825 1014 S DL BSDCC00 IP67
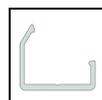
MOUNTING
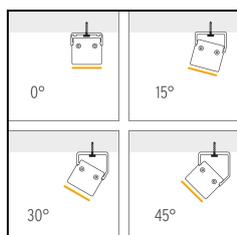
1. Surface-mounted, horizontal	Mounting accessories	Description	Example of application
0° 15° 30° 45°	**Full length mounting channel**		
	0° aluminum mounting clip in 90 mm length	Aluminum surface mounting bracket, recommended to use every 50 cm.	
	15° aluminum mounting clip in 90 mm length	Aluminum surface mounting bracket, recommended to use every 50 cm.	
	30° aluminum mounting clip in 90 mm length	Aluminum surface mounting bracket, recommended to use every 50 cm.	
	45° aluminum mounting clip in 90 mm length	Aluminum surface mounting bracket, recommended to use every 50 cm.	
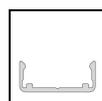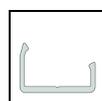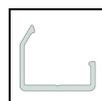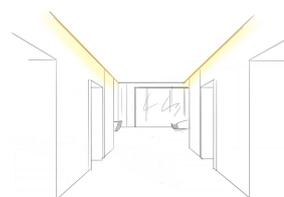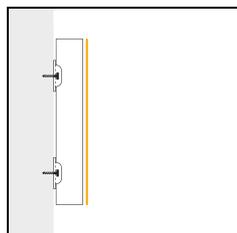
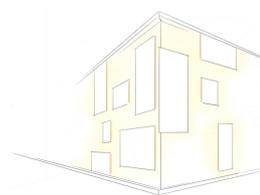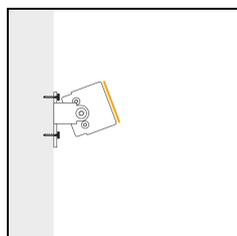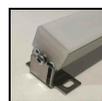| 2. Surface-mounted, vertical	Mounting accessories	Description	Example of application
	Plastic Mounting Clip	White plastic surface mounting clip. Recommended to use every 50 cm. Cannot be used together with the aluminum mounting profile.	

3. Adjustable, vertical	Mounting accessories	Description	Example of application
	Adjustable Bracket	Use to adjust and fix the angle of fixture. 180 degrees adjusting range. Delivered with axis screw. Mounting option AMC is not available for Tunable White Luminaires in combination with an 'LD' light engine. Cable feed options BS and FS can't be combined with mounting option AMC.	

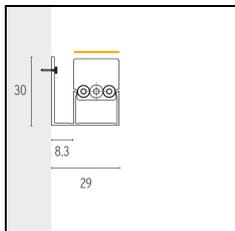| 4. Wall-mounted	Mounting accessories	Description
	No additional accessories are required for this mounting option	Full length mounting channel, sets light axis parallel to wall.

XOOLINE™ White High Efficiency HD IP67

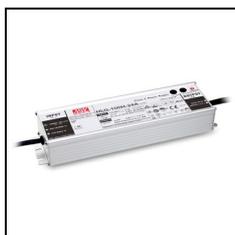Order code: XOOLINE HYD HD15 W825 1014 S DL BSDCC00 IP67

Connectors fit into gap between
luminaire and wall.
Digits in order code: WMP

POWER SUPPLY UNIT (PSU) & CONTROLS

Recommended PSU

VarioPSU 24V/100W IP67, ON/OFF, Silver
Art.-#: 16000064

Dimensions (L x H x W) :	**220 mm x 38.8 mm x 68 mm**
Electrical Class:	**SK I**
LED Drive:	**CV**
Voltage (V):	**24 V**
Rated Power (W):	**100**
Input Voltage (Vac):	**90 – 305**
Region:	**WR**
Certificates:	**ENEC, UL**
Schutzart:	**IP67**
Indoor/Outdoor:	**Outdoor**

Recommended Control

IN.finite™ CASAMBI 2Ch CV
Art.-#: 16000267-EVO

Dimensions (L x H x W) :	**188 mm x 21 mm x 30 mm**
Channels	**2**
Dimming Options	**Casambi BLE**
Dimming	**PWM (f ~ 1600Hz)**
Dimming Curve	**Lin/Log/free conf.**
Dimming Range	**100% - 0%**
Voltage (V):	**12 – 50 V**
Certificates:	**CE**
Schutzart:	**IP20**
Indoor/Outdoor:	**Indoor**

Dimming

Linear

Logarithmic

XOOLINE™ White High Efficiency HD IP67

Order code: XOOLINE HYD HD15 W825 1014 S DL BSDCC00 IP67

VOLTAGE DROP INFORMATION FOR THE FEED-IN LINE (PSU / CONTROL TO FIXTURE)

0.34 mm^2 / AWG 22

XOOLINE™ White High Efficiency HD IP67	HD6	HD10	HD15	HD25
Product run Length	max. cable length between PSU / Control unit and the luminaire			
1 m	32.3 m	19.4 m	12.9 m	7.7 m
2 m	16.1 m	9.7 m	6.4 m	3.8 m
3 m	10.7 m	6.4 m	4.3 m	2.5 m
4 m	8 m	4.8 m	3.2 m	-
5 m	6.4 m	3.8 m	-	-

1.5 mm^2 / AWG 15

XOOLINE™ White High Efficiency HD IP67	HD6	HD10	HD15	HD25
Product run Length	max. cable length between PSU / Control unit and the luminaire			
1 m	142.8 m	85.6 m	57.1 m	34.2 m
2 m	71.4 m	42.8 m	28.5 m	17.1 m
3 m	47.6 m	28.5 m	19 m	11.4 m
4 m	35.7 m	21.4 m	14.2 m	-
5 m	28.5 m	17.1 m	-	-

Calculation refers to the cable configuration on site.
The information listed in the table is only refers to the conductor-based voltage drop of max. 0.85V at 24V DC input voltage.

Regarding the electromagnetic combability (EMC) the maximum cable length is defined by the power supply manufacturer.
A cable length between power supply and planned product longer than indicated by the datasheet of the power supply is possible. However the electromagnetic combability can then be influenced by the conditions of the installation site. There is no data on electromagnetic compatibility for longer cable lengths, which might lead to the necessity of an evaluation of the electromagnetic compatibility by a third party.
Datasheets and mounting instructions of the components in combination with the planned product must be carefully read and followed.

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efFile: /fileadmin/user_upload/0-product-db/emergency-graphics/xooline-hyd-hd-s-dl-ip67-ef-en.png