

(I)

KALOS, è un sistema di illuminazione urbana e residenziale progettato specificatamente per alloggiare la tecnologia LED quale unica fonte di luce.

Svolge la duplice funzione testa palo e sospensione su bracci e su fune tesata, per la quale ha ottenuto il brevetto.

La versione testa palo è disponibile sia con due che con quattro chele, quella a sospensione è standard con quattro chele. La versione testa palo quattro chele può assumere una forma più classicheggiante se corredata del kit cappello dedicato.

Ottiche : ciclabile, stradale, rotosimmetrica e stradale front & back.

Due sono poi le tipologie di ottiche stradali, LT-M adatta per impianti dove il rapporto tra larghezza strada e altezza palo è uguale a 1 e LT-L adatta per impianti dove il rapporto tra larghezza strada e altezza palo è uguale a 1,25 . Il numero di LED varia da 10 a 40 con temperatura 4000K e 3000K. Tutte le versioni sono complete di sistema di autoapprendimento mezzanotte virtuale. (p.94)

(UK)

*KALOS is a fixture for the lighting of urban and residential areas, specifically studied to be equipped with LEDs as sole light source. The fitting carries out the double function of post-top lighting fixture and of suspended fixture for installation on arms and string and, thanks to this feature, it's been patented.*

*The post top version is available with 2 or 4 side arms, the suspended one is available only with 4 arms. The post top version with 4 side arms can provide a more classical look if equipped with the decorative upper cover.*

*Optics: cycle routes, rotosymmetrical, street optics and street optics front & back. There are two available street optics: LT-M suitable for those kind of contexts where the ratio between the street width and the pole height is 1; LT-L suitable for those kind of contexts where the ratio between the street width and the pole height is 1,25. The LED equipment varies from 10 to 40, with color temperature 4000K and 3000K. All the versions are provided with the system for the power reduction based on the self learning of the virtual midnight. (p.94)*

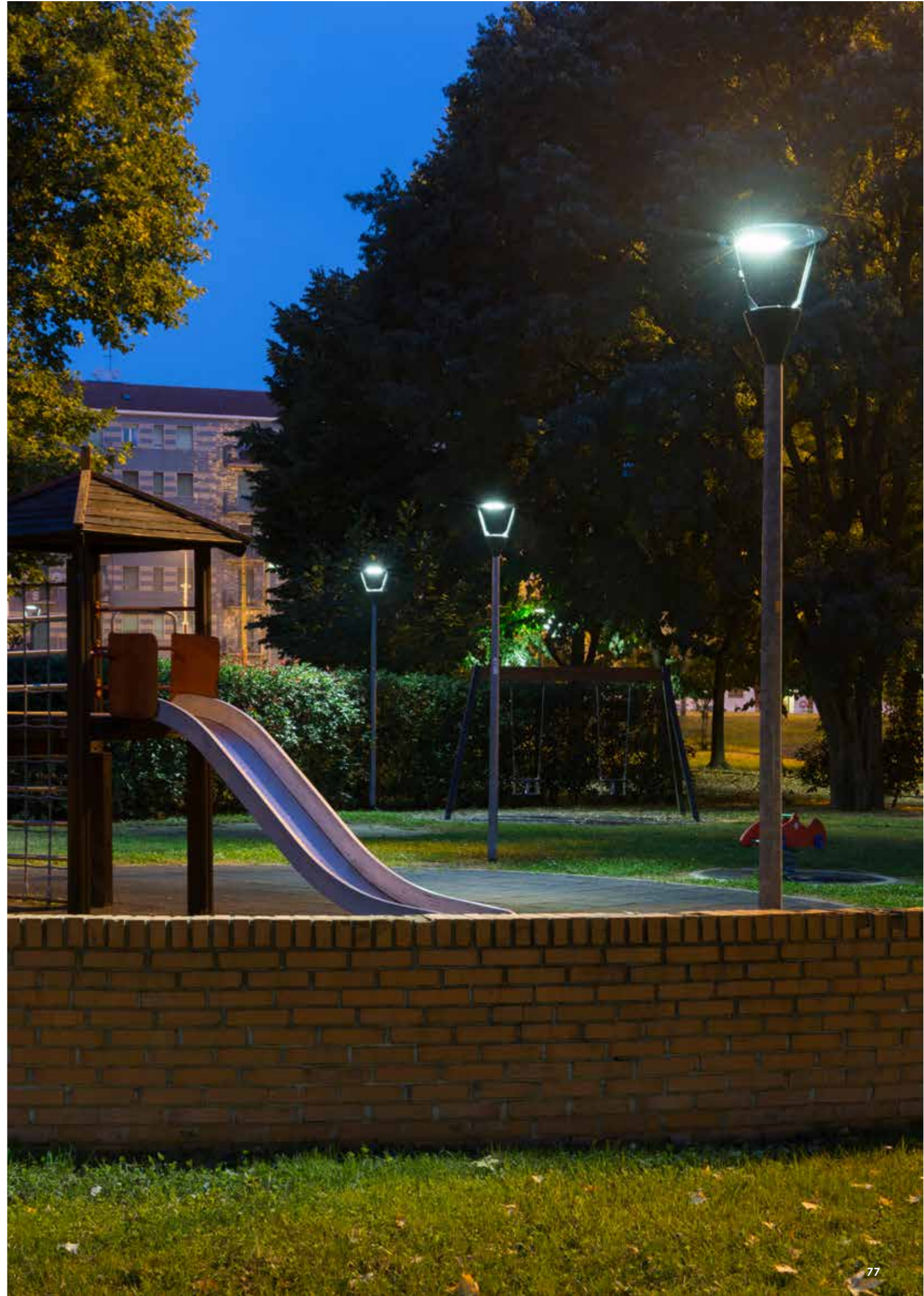
(DE)

Die KALOS LED ist für die Beleuchtung von Straßen in Wohnanlagen, Siedlungsgebiete, Plätzen und urbanen Bereiche entwickelt worden. Die Leuchte erfüllt die Doppelaufgabe von Mastaufsatzleuchte und hängende Leuchte für Installation auf Ausleger und Drahtseil und ist dafür patentiert worden. Die Mastaufsatzvariante ist mit 2 oder 4 dekorativen Armen erhältlich; die hängende Variante ist nur mit 4 Armen lieferbar.

Die Mastaufsatzvariante mit 4 Armen kann zusätzlich mit einer dekorativer Abdeckung bestückt werden, um der Leuchte Kalos ein klassisches Aussehen zu verleihen. Optiken: Fahrradwegeoptik, rotationssymmetrisch, Straßenoptik und Straßenoptik front & back. Es geben zwei erhältlichen Straßenoptiken: LT-M geeignet für solche Fälle, wo das Verhältnis zwischen Straßenbreite und Lichtpunkthöhe 1 ist; LT-L geeignet für solche Fälle, wo das Verhältnis zwischen Straßenbreite und Lichtpunkthöhe 1,25 ist. Die Kalos ist in einer Bestückung von 10-40 LEDs, in Lichtfarbe 4000°K lieferbar; und 3000K realisierbar. Alle Varianten sind mit dem System von Selbsterlernung der virtuellen Mitternacht ausgestattet. (Seite 94)

# KALOS

Design by R&S Fivep Lite





**Caratteristiche General features Eigenschaften**

Grado di protezione *Protection degree* Schutzgrad:

**IP 66**

**IK08**

Classe di isolamento

*Isolation class*

Schutzklasse:

**II**

Marchio *Quality marks* Prüfzeichen:



Colore standard: sablè100noir

*Standard color: dark grey sablé100noir.*

Standardfarbe: Anthrazit Sablè100Noir.

Numero Led *Available versions (amount of LEDs)*

Erhältliche Varianten (Anzahl der LEDs):

**da 10 a 40**

**frm 10 to 40**

**von 10 bis 40**

Sistema di fissaggio *Fastening system* Befestigungssystem:

Testa palo 60 mm. Sospensione 48-60 mm.

*Post top Ø 60 mm. Suspended on Ø 48-60 mm arms.*

Am Mastkopf Ø 60 mm. Hängend auf Ø 48-60 mm Armen.

CRI (resa cromatica):  $\geq 70$

*CRI (colour rendering index):  $\geq 70$*

CRI (Farbwiedergabeindex):  $\geq 70$

Apparecchio esente da rischio fotobiologico ( EXEMPT GROUP) secondo

EN 62471:2008 e successiva IEC/TR 62471:2009.

*Fitting exempt from photobiological risk (EXEMPT GROUP)*

*according to the norms EN 62471:2008 and the following IEC/TR 62471:2009.*

Die Leuchte gehört zur Klasse "Risikofrei" (EXEMPT GROUP)

in Bezug auf die Normen für die photobiologische Sicherheit:

EN 62471:2008 und folgende IEC/TR 62471:2009.

Vita media dei LED a  $T_a=25^\circ\text{C}$   $>80.000\text{h}$  L80,TM21.

*Average lifespan of the LEDs at  $T_a=25^\circ$   $>80.000\text{h}$  L80,TM21.*

Durchschnittliche Lebensdauer der LEDs: bei einer  $T_a=25^\circ\text{C}$   $>80.000\text{h}$  L80,

TM21.



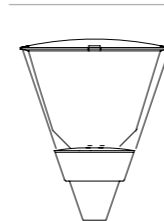
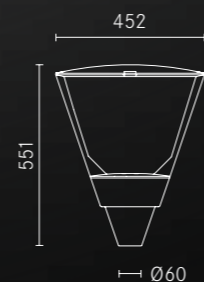












**2 CHELE ARMS ARMEN**

**Cycle Routes Optics LT-C**

<b>01KA4B0004CHM3</b>	10 LED	700mA	21W	2680 lm	4000K
<b>01KA4B0094CHM3</b>	10 LED	700mA	21W	2350 lm	3000K

**Rotosymmetrical Optics LT-ROT**

<b>01KA4B0000CHM3</b>	10 LED	700mA	21W	2680 lm	4000K
<b>01KA4C0000CHM3</b>	20 LED	700mA	42W	5360 lm	4000K
<b>01KA4D0000CHM3</b>	30 LED	700mA	62W	7710 lm	4000K
<b>01KA4B0090CHM3</b>	10 LED	700mA	21W	2350 lm	3000K
<b>01KA4C0090CHM3</b>	20 LED	700mA	42W	4700 lm	3000K
<b>01KA4D0090CHM3</b>	30 LED	700mA	62W	6770 lm	3000K

**Street Optics LT-M**

<b>01KA4B0008CHM3</b>	10 LED	700mA	21W	2680 lm	4000K
<b>01KA4C0008CHM3</b>	20 LED	700mA	42W	5360 lm	4000K
<b>01KA4D0008CHM3</b>	30 LED	700mA	62W	7710 lm	4000K
<b>01KA4E0008CHM3</b>	40 LED	700mA	83W	10280 lm	4000K
<b>01KA4B0098CHM3</b>	10 LED	700mA	21W	2350 lm	3000K
<b>01KA4C0098CHM3</b>	20 LED	700mA	42W	4700 lm	3000K
<b>01KA4D0098CHM3</b>	30 LED	700mA	62W	6770 lm	3000K
<b>01KA4E0098CHM3</b>	40 LED	700mA	83W	9025 lm	3000K

**Street Optics LT-L**

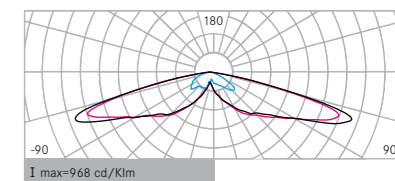
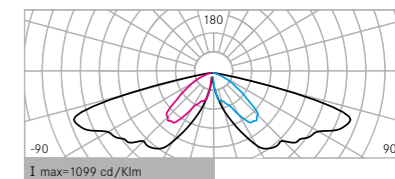
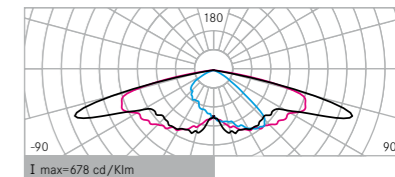
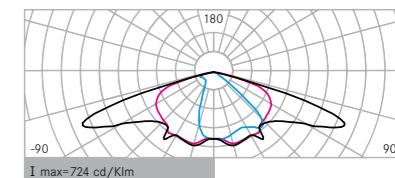
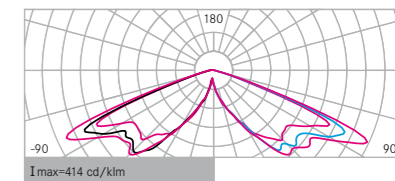
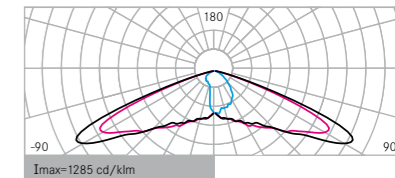
<b>01KA4B0006CHM3</b>	10 LED	700mA	21W	2680 lm	4000K
<b>01KA4C0006CHM3</b>	20 LED	700mA	42W	5360 lm	4000K
<b>01KA4D0006CHM3</b>	30 LED	700mA	62W	7710 lm	4000K
<b>01KA4E0006CHM3</b>	40 LED	700mA	83W	10280 lm	4000K
<b>01KA4B0096CHM3</b>	10 LED	700mA	21W	2350 lm	3000K
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<b>01KA4E0096CHM3</b>	40 LED	700mA	83W	9025 lm	3000K

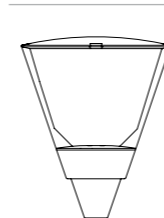
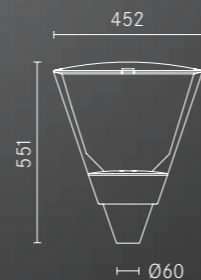
**Street Optics F&B LT-L + LT-L**

<b>01KA4C00061CHM3</b>	10+10 LED	700mA	42W	5360 lm	4000K
<b>01KA4E00065CHM3</b>	20+20 LED	700mA	83W	10280 lm	4000K
<b>01KA4C00961CHM3</b>	10+10 LED	700mA	42W	5360 lm	3000K
<b>01KA4E00965CHM3</b>	20+20 LED	700mA	83W	10280 lm	3000K

**Street Optics F&B LT-C + LT-L**

<b>01KA4C00062CHM3</b>	10+10 LED	700mA	42W	5360 lm	4000K
<b>01KA4D00063CHM3</b>	10+20 LED	700mA	62W	7710 lm	4000K
<b>01KA4E00064CHM3</b>	10+30 LED	700mA	83W	10280 lm	4000K
<b>01KA4C00962CHM3</b>	10+10 LED	700mA	42W	4700 lm	3000K
<b>01KA4D00963CHM3</b>	10+20 LED	700mA	62W	6770 lm	3000K
<b>01KA4E00964CHM3</b>	10+30 LED	700mA	83W	9025 lm	3000K





2 CHELE ARMS ARMEN

Street Optics LT-M

<b>01KA4B0008CHM3</b>	10 LED	700mA	21W	2680 lm	4000K
<b>01KA4C0008CHM3</b>	20 LED	700mA	42W	5360 lm	4000K
<b>01KA4D0008CHM3</b>	30 LED	700mA	62W	7710 lm	4000K
<b>01KA4E0008CHM3</b>	40 LED	700mA	83W	10280 lm	4000K
<b>01KA4B0098CHM3</b>	10 LED	700mA	21W	2350 lm	3000K
<b>01KA4C0098CHM3</b>	20 LED	700mA	42W	4700 lm	3000K
<b>01KA4D0098CHM3</b>	30 LED	700mA	62W	6770 lm	3000K
<b>01KA4E0098CHM3</b>	40 LED	700mA	83W	9025 lm	3000K

Street Optics LT-L

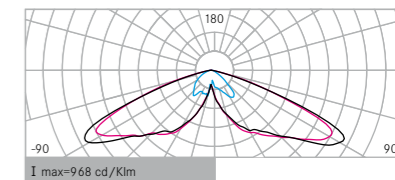
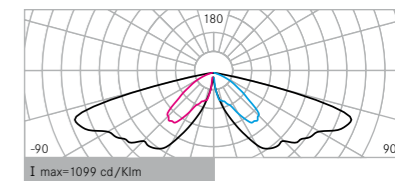
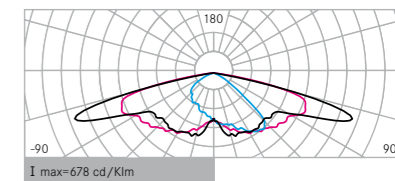
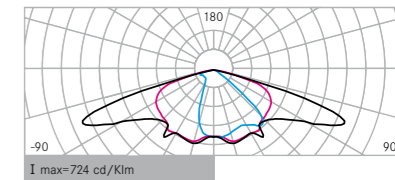
<b>01KA4B0006CHM3</b>	10 LED	700mA	21W	2680 lm	4000K
<b>01KA4C0006CHM3</b>	20 LED	700mA	42W	5360 lm	4000K
<b>01KA4D0006CHM3</b>	30 LED	700mA	62W	7710 lm	4000K
<b>01KA4E0006CHM3</b>	40 LED	700mA	83W	10280 lm	4000K
<b>01KA4B0096CHM3</b>	10 LED	700mA	21W	2350 lm	3000K
<b>01KA4C0096CHM3</b>	20 LED	700mA	42W	4700 lm	3000K
<b>01KA4D0096CHM3</b>	30 LED	700mA	62W	6770 lm	3000K
<b>01KA4E0096CHM3</b>	40 LED	700mA	83W	9025 lm	3000K

Street Optics F&B LT-L + LT-L

<b>01KA4C00061CHM3</b>	10+10 LED	700mA	42W	5360 lm	4000K
<b>01KA4E00065CHM3</b>	20+20 LED	700mA	83W	10280 lm	4000K
<b>01KA4C00961CHM3</b>	10+10 LED	700mA	42W	4700 lm	3000K
<b>01KA4E00965CHM3</b>	20+20 LED	700mA	83W	9025 lm	3000K

Street Optics F&B LT-C + LT-L

<b>01KA4C00062CHM3</b>	10+10 LED	700mA	42W	5360 lm	4000K
<b>01KA4D00063CHM3</b>	10+20 LED	700mA	62W	7710 lm	4000K
<b>01KA4D00063CHM3</b>	10+30 LED	700mA	83W	10280 lm	4000K
<b>01KA4C00962CHM3</b>	10+10 LED	700mA	42W	4700 lm	3000K
<b>01KA4D00963CHM3</b>	10+20 LED	700mA	62W	6770 lm	3000K
<b>01KA4E00964CHM3</b>	10+30 LED	700mA	83W	9025 lm	3000K



Bracci per pali Ø 102mm con codolo Tp Ø 60mm, h.120mm,  
Arms for poles Ø102mm with adapter Ø60 at the top, H.120mm,  
Ausleger für Maste Ø102mm mit Adapter Ø60 am Mastkopf, H. 120mm,

<b>01KA902C0</b>	B35 L=1000mm Sablé100noir
<b>01KA903C0</b>	B36 L=1000mm x 2 Sablé100Noir
<b>01KA904C0</b>	B37 L=500mm Sablé100noir
<b>01KA905C0</b>	B38 L=500mm x 2 Sablé100noir

Mensole parete

Wall bracket

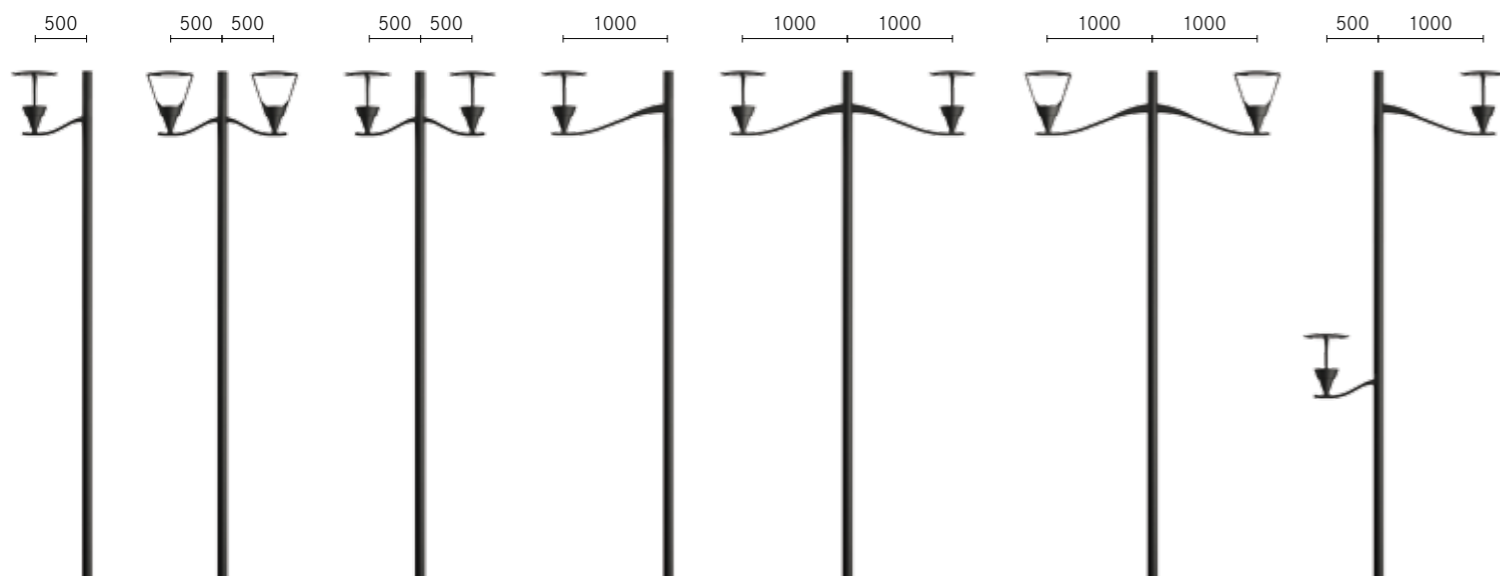
Wandausleger

<b>01KA910C0</b>	B39-P L=1000 Sable
<b>01KA911C0</b>	B45-P L=500 Sable

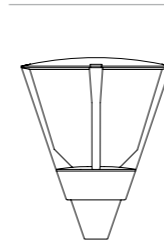
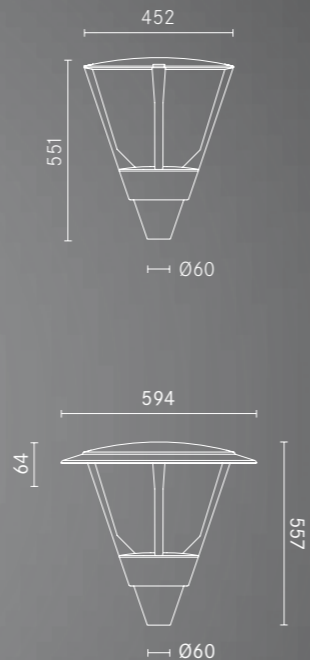
Altri sistemi braccio pag. 96-97

Other arms at page 96-97

Andere Ausleger auf Seite 96-97







**4 CHELE ARMS ARMEN**

**Cycle Routes Optics LT-C**

<b>01KA5B0004C</b>	10 LED	700mA	21W	2680 lm	4000K
<b>01KA5B0094C</b>	10 LED	700mA	21W	2350 lm	3000K

**Rotosymmetrical Optics LT-ROT**

<b>01KA5B0000CHM3</b>	10 LED	700mA	21W	2680 lm	4000K
<b>01KA5C0000CHM3</b>	20 LED	700mA	42W	5360 lm	4000K
<b>01KA5D0000CHM3</b>	30 LED	700mA	62W	7710 lm	4000K
<b>01KA5B0090CHM3</b>	10 LED	700mA	21W	2350 lm	3000K
<b>01KA5C0090CHM3</b>	20 LED	700mA	42W	4700 lm	3000K
<b>01KA5D0090CHM3</b>	30 LED	700mA	62W	6770 lm	3000K

**Street Optics LT-M**

<b>01KA5B0008CHM3</b>	10 LED	700mA	21W	2680 lm	4000K
<b>01KA5C0008CHM3</b>	20 LED	700mA	42W	5360 lm	4000K
<b>01KA5D0008CHM3</b>	30 LED	700mA	62W	7710 lm	4000K
<b>01KA5E0008CHM3</b>	40 LED	700mA	83W	10280 lm	4000K
<b>01KA5B0098CHM3</b>	10 LED	700mA	21W	2350 lm	3000K
<b>01KA5C0098CHM3</b>	20 LED	700mA	42W	4700 lm	3000K
<b>01KA5D0098CHM3</b>	30 LED	700mA	62W	6770 lm	3000K
<b>01KA5E0098CHM3</b>	40 LED	700mA	83W	9025 lm	3000K

**Street Optics LT-L**

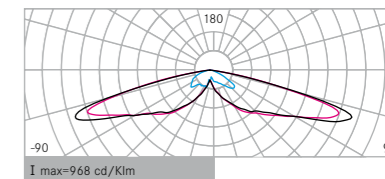
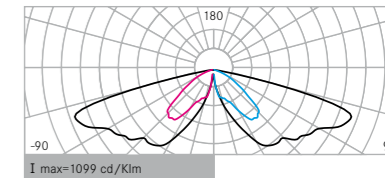
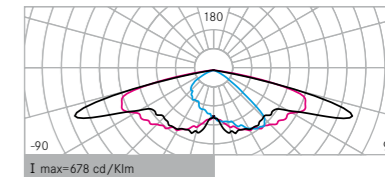
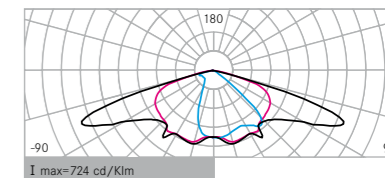
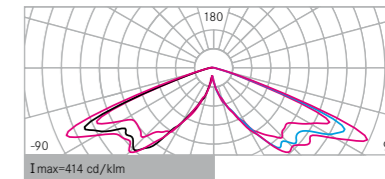
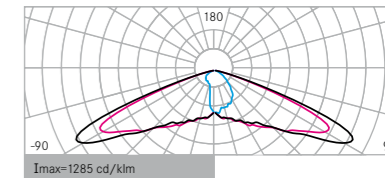
<b>01KA5B0006CHM3</b>	10 LED	700mA	21W	2680 lm	4000K
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<b>01KA5D0006CHM3</b>	30 LED	700mA	62W	7710 lm	4000K
<b>01KA5E0006CHM3</b>	40 LED	700mA	83W	10280 lm	4000K
<b>01KA5B0096CHM3</b>	10 LED	700mA	21W	2350 lm	3000K
<b>01KA5C0096CHM3</b>	20 LED	700mA	42W	4700 lm	3000K
<b>01KA5D0096CHM3</b>	30 LED	700mA	62W	6770 lm	3000K
<b>01KA5E0096CHM3</b>	40 LED	700mA	83W	9025 lm	3000K

**Street Optics F&B LT-L + LT-L**

<b>01KA5C00061CHM3</b>	10+10 LED	700mA	42W	5360 lm	4000K
<b>01KA5E00065CHM3</b>	20+20 LED	700mA	83W	10280 lm	4000K
<b>01KA5C00961CHM3</b>	10+10 LED	700mA	42W	4700 lm	3000K
<b>01KA5E00965CHM3</b>	20+20 LED	700mA	83W	9025 lm	3000K

**Street Optics F&B LT-C + LT-L**

<b>01KA5C00062CHM3</b>	10+10 LED	700mA	42W	5360 lm	4000K
<b>01KA5D00063CHM3</b>	10+20 LED	700mA	62W	7710 lm	4000K
<b>01KA5E00064CHM3</b>	10+30 LED	700mA	83W	10280 lm	4000K
<b>01KA5C00962CHM3</b>	10+10 LED	700mA	42W	4700 lm	3000K
<b>01KA5D00963CHM3</b>	10+20 LED	700mA	62W	6770 lm	3000K
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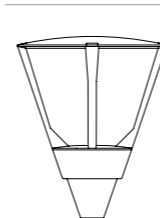
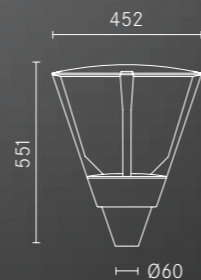


Cappello Sablé100Noir

Decorative upper cover Sablé100Noir

Dekorative Abdeckung Sablé100Noir

**01KA901CO**



**4 CHELE ARMS ARMEN**

**Street Optics LT-M**

<b>01KA5B0008CHM3</b>	10 LED	700mA	21W	2680 lm	4000K
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<b>01KA5D0008CHM3</b>	30 LED	700mA	62W	7710 lm	4000K
<b>01KA5E0008CHM3</b>	40 LED	700mA	83W	10280 lm	4000K
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**Street Optics LT-L**

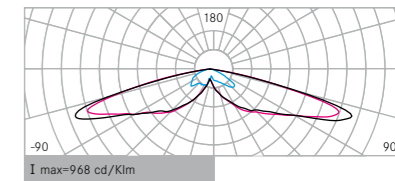
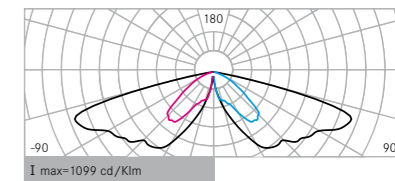
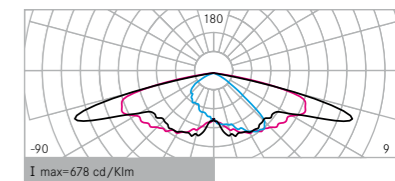
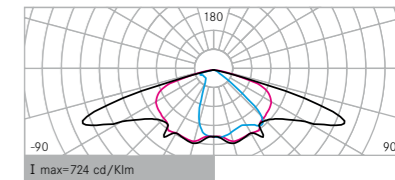
<b>01KA5B0006CHM3</b>	10 LED	700mA	21W	2680 lm	4000K
<b>01KA5C0006CHM3</b>	20 LED	700mA	42W	5360 lm	4000K
<b>01KA5D0006CHM3</b>	30 LED	700mA	62W	7710 lm	4000K
<b>01KA5E0006CHM3</b>	40 LED	700mA	83W	10280 lm	4000K
<b>01KA5B0096CHM3</b>	10 LED	700mA	21W	2350 lm	3000K
<b>01KA5C0096CHM3</b>	20 LED	700mA	42W	4700 lm	3000K
<b>01KA5D0096CHM3</b>	30 LED	700mA	62W	6770 lm	3000K
<b>01KA5E0096CHM3</b>	40 LED	700mA	83W	9025 lm	3000K

**Street Optics F&B LT-L + LT-L**

<b>01KA5C00061CHM3</b>	10+10 LED	700mA	42W	5360 lm	4000K
<b>01KA5E00065CHM3</b>	20+20 LED	700mA	83W	10280 lm	4000K
<b>01KA5C00961CHM3</b>	10+10 LED	700mA	42W	4700 lm	3000K
<b>01KA5E00965CHM3</b>	20+20 LED	700mA	83W	9025 lm	3000K

**Street Optics F&B LT-C + LT-L**

<b>01KA5C00062CHM3</b>	10+10 LED	700mA	42W	5360 lm	4000K
<b>01KA5D00063CHM3</b>	10+20 LED	700mA	62W	7710 lm	4000K
<b>01KA5E00064CHM3</b>	10+30 LED	700mA	83W	10280 lm	4000K
<b>01KA5C00962CHM3</b>	10+10 LED	700mA	42W	4700 lm	3000K
<b>01KA5D00963CHM3</b>	10+20 LED	700mA	62W	6770 lm	3000K
<b>01KA5E00964CHM3</b>	10+30 LED	700mA	83W	9025 lm	3000K



Bracci per pali Ø 102mm con codolo Tp Ø 60mm, h.120mm,  
 Arms for poles Ø102mm with adapter Ø60 at the top, H.120mm,  
 Ausleger für Maste Ø102mm mit Adapter Ø60 am Mastkopf, H. 120mm,

<b>01KA902C0</b>	B35 L=1000mm Sablé100noir
<b>01KA903C0</b>	B36 L=1000mm x 2 Sablé100Noir
<b>01KA904C0</b>	B37 L=500mm Sablé100noir
<b>01KA905C0</b>	B38 L=500mm x 2 Sablé100noir

Mensole parete

Wall bracket

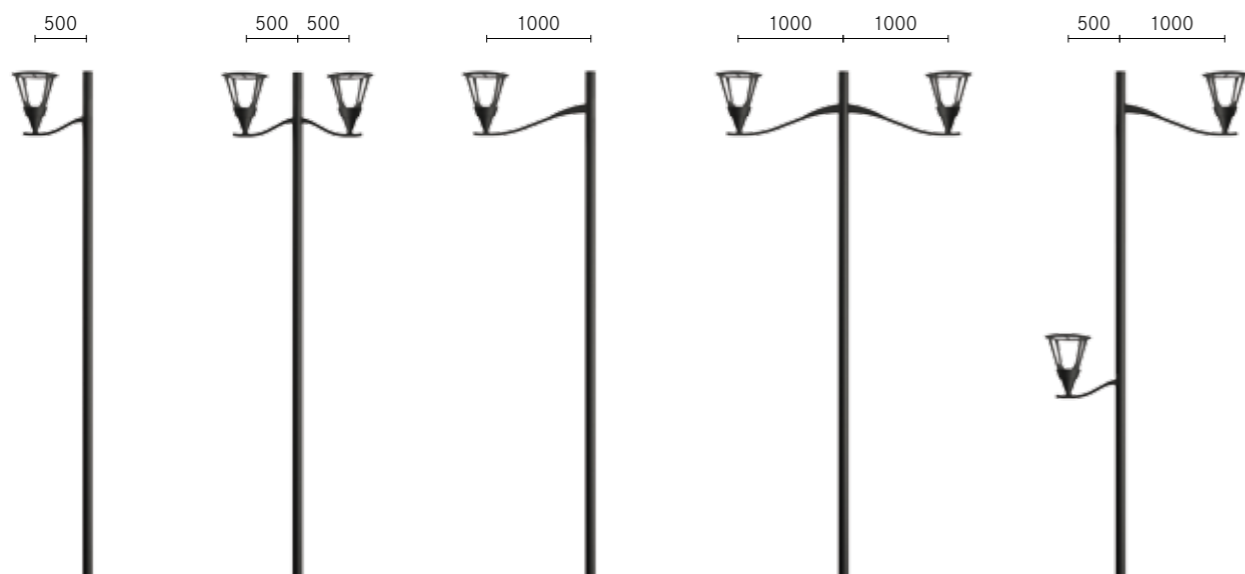
Wandausleger

<b>01KA910C0</b>	B39-P L=1000 Sable
<b>01KA911C0</b>	B45-P L=500 Sable

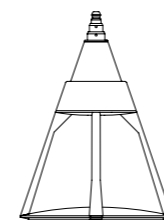
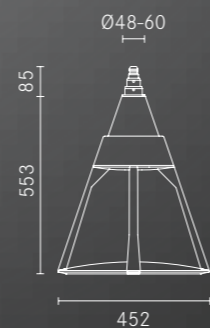
Altri sistemi braccio pag. 96-97

Other arms at page 96-97

Andere Ausleger auf Seite 96-97







4 CHELE ARMS ARMEN

Street Optics LT-M

<b>01KA6B0008CHM3</b>	10 LED	700mA	21W	2680 lm	4000K
<b>01KA6C0008CHM3</b>	20 LED	700mA	42W	5360 lm	4000K
<b>01KA6D0008CHM3</b>	30 LED	700mA	62W	7710 lm	4000K
<b>01KA6E0008CHM3</b>	40 LED	700mA	83W	10280 lm	4000K
<b>01KA6B0098CHM3</b>	10 LED	700mA	21W	2350 lm	3000K
<b>01KA6C0098CHM3</b>	20 LED	700mA	42W	4700 lm	3000K
<b>01KA6D0098CHM3</b>	30 LED	700mA	62W	6770 lm	3000K
<b>01KA6E0098CHM3</b>	40 LED	700mA	83W	9025 lm	3000K

Street Optics LT-L

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<b>01KA6C0006CHM3</b>	20 LED	700mA	42W	5360 lm	4000K
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<b>01KA6E0006CHM3</b>	40 LED	700mA	83W	10280 lm	4000K
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Street Optics F&B LT-L + LT-L

<b>01KA6C00061CHM3</b>	10+10 LED	700mA	42W	5360 lm	4000K
<b>01KA6E00065CHM3</b>	20+20 LED	700mA	83W	10280 lm	4000K
<b>01KA6C00961CHM3</b>	10+10 LED	700mA	42W	4700 lm	3000K
<b>01KA6E00965CHM3</b>	20+20 LED	700mA	83W	9025 lm	3000K

Street Optics F&B LT-C + LT-L

<b>01KA6C00062CHM3</b>	10+10 LED	700mA	42W	5360 lm	4000K
<b>01KA6D00063CHM3</b>	10+20 LED	700mA	62W	7710 lm	4000K
<b>01KA6E00064CHM3</b>	10+30 LED	700mA	83W	10280 lm	4000K
<b>01KA6C00962CHM3</b>	10+10 LED	700mA	42W	4700 lm	3000K
<b>01KA6D00963CHM3</b>	10+20 LED	700mA	62W	6770 lm	3000K
<b>01KA6E00964CHM3</b>	10+30 LED	700mA	83W	9025 lm	3000K

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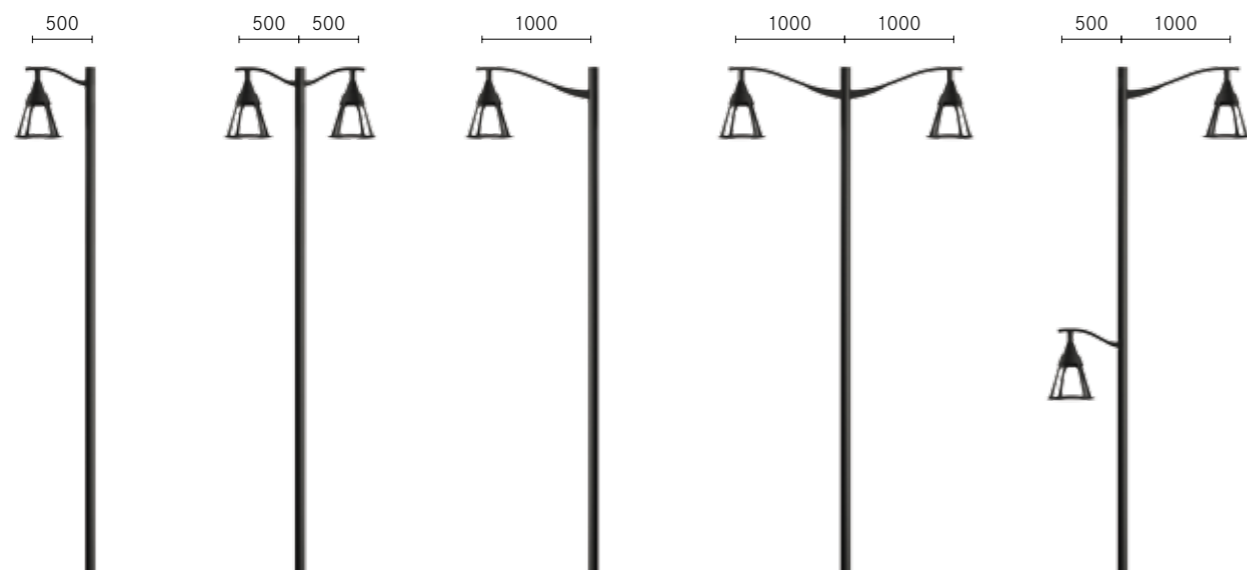
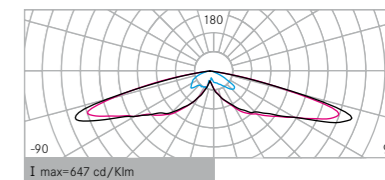
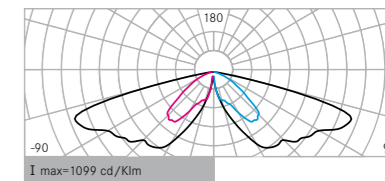
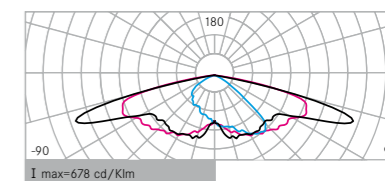
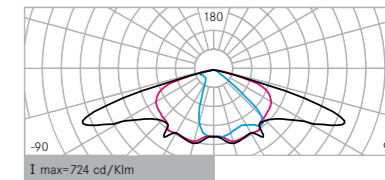
<b>01KA902C0</b>	B35 L=1000mm Sablé100noir
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<b>01KA905C0</b>	B38 L=500mm x 2 Sablé100noir

Mensole parete

Wall bracket

Wandausleger

<b>01KA910C0</b>	B39-P L=1000 Sable
<b>01KA911C0</b>	B45-P L=500 Sable



Versione con LED rosso, disponibili altre colorazioni su richiesta.  
 Version with red LED, on request other colors are available.  
 Version mit rotem LED; auf Anfrage sind andere Farben lieferbar.



## Caratteristiche costruttive *Structural elements* Bauteile des Systems

**1. Manutenzione straordinaria del sistema LED:** possibilità di manutenzione straordinaria del gruppo ottico con la sostituzione del disco LED.

**Extraordinary maintenance:** possibility of extraordinary maintenance of the optical unit by means of replacement of the LED-head of the fitting.

**Außerordentliche Wartung der LED-Einheit:** Möglichkeit von außerordentlicher Wartung der optischen Einheit durch Ersatz des LED-Kopfes der Leuchte.

**2. Corpo, chele e disco led:** pressofusione in lega di alluminio UNI EN AB46100 sottoposta a trattamento di fosfo-cromatazione e successivamente a verniciatura a polveri poliestere di colore sablé 100 noir.

**Body, arms and head of the fitting:** die-cast aluminium alloy UNI EN AB46100 painted after a phosphor-chromium plating treatment in the colors dark grey Sablé100Noir.

**Gehäuse, Armen und Kopf der Leuchte:** Aluminiumdruckgusslegierung UNI EN AB46100, lackiert in der Farben Anthrazit Sablé100Noir nach einer Phosphor-und Chrom Behandlung.

**3. Sistema LED:** il sistema ottico è stato previsto con LED bianchi posizionati per mezzo di sistema "pick and place" su un circuito stampato (MCPCB) dissipante termicamente dimensionato per garantire al meglio la funzionalità del sistema. Allo stesso circuito viene vincolato un sistema ottico composto da lenti in polimetilmetacrilato ad alta trasparenza, sviluppato in modo da realizzare ciascuno il medesimo solido fotometrico che insiste sulla medesima area di competenza del singolo apparecchio di illuminazione.

**LED system:** the optical system is equipped with white LEDs, positioned by means of a "pick and place" system on a heat sinking printed circuit board (MCPCB) granting the thermal management and dimensioned to grant the best functionality of the system.

*The same circuit is provided with an optical system, which is composed by high transparency poly-methyl-methacrylate lenses, which have been developed to realize the same beam opening and light up the same area at ground as all the others.*

**LED Einheit:** das optische System der Leuchte ist mit weißen LEDs ausgestattet; Die LED's werden durch ein "Pick & Place" System auf einer wärmeableitenden Platine (MCPCB) befestigt, um das optimale Thermomanagement der Leuchte und die besten Leistungen des optischen Systems gewährleisten zu können. Auf die LED-Platine wird ein aus höher Transparenz Polymethylmetacrylat Linsen bestehendes optisches System befestigt. Der LED-Modul ist in Multilayerausführung entwickelt worden: jede Linse hat eine spezielle Lichtverteilung, die alle gleiche Fläche am Boden als alle andere ausleuchten.

**4. Sistema di fissaggio:** testa palo Ø 60 mm. a sospensione Ø 48-60 mm.  
**Fastening system:** post top Ø 60 mm. Suspended on Ø 48-60 mm arms.

**Befestigungssystem:** am Mastkopf Ø 60 mm. Hängend auf Ø 48-60 mm Armen.

**5. Schermo di chiusura:** vetro piano temprato 5mm fissato al corpo per mezzo di silicone strutturale e trattenuto in sede da due sistemi di blocco meccanico realizzati in tecnopolimero. Il vetro è serigrafato nelle parti otticamente non attive.

**Closure screen:** flat tempered glass, 5mm, fastened to the body of the fitting by means of structural silicone and equipped with two safety mechanical blocks in technopolymere. The glass is serigraphed in the non-relevant parts as far as the optics is concerned.

**Verschlusssystem:** gehärtetes Flachglas, 5mm, befestigt durch Silikon auf dem Gehäuse, es ist zusätzlich mit zwei Sicherheitsbügel aus Technopolymer ausgestattet. Das Glas hat einen Siebdruck auf seinen optisch nicht relevanten Teilen.

**6. Vano componenti elettrici:** per permettere un'agevole manutenzione senza danneggiare il sistema ottico a led, il vano componenti elettrici è separato da quello ottico ed è accessibile rimuovendo la chiusura superiore del vano di cablaggio. Agendo sulle viti di chiusura la copertura può essere rimossa lasciando libero accesso alla piastra di cablaggio dell'apparecchio realizzata per mezzo di stampaggio ad iniezione di tecnopolimero nero autoestinguente V0 in un pezzo unico. Questa è resa facilmente rimovibile allentando le viti di blocco al vano di cablaggio e il successivo scollegamento dei connettori elettrici rapidi resi irreversibili per forma o colore. Al di sotto della piastra di cablaggio trova posto la connessione alla dorsale elettrica che resta in questa maniera protetta contro i contatti accidentali.

**Electrical compartment:** In order to carry on an easy maintenance without damaging the LED optical system, the electrical compartment has been separated from the optical one; it is accessible by unscrewing the closure screws which close its cover; it is possible to have free access to the wiring compartment, to the power disconnecter and the electrical components mounted on a black self-extinguishing V0 technopolymer plate, injected in a single piece. In order to facilitate the maintenance of the wiring plate, this is easily removable by loosening the fastening clips at the base of the fitting and by disconnecting the fast electrical connectors, which are characterised for shape and colour. The connection to the electrical line is placed under the wiring plate, in order to protect it from any accidental contact.

**Elektrische Einheit:** Um eine einfache außerordentliche Wartung zu gewährleisten, ohne das LED optische System zu beschädigen, wird der optische Raum vom elektrischen Raum getrennt. Nach dem Ausschrauben der Verschlusschrauben hat man Zugang zu den Verkabelungsraum, zum Trenner und zu den elektrischen Komponenten, die auf einer schwarzen selbstlöschend Platte aus Technopolymer V0 in einem einzigen Stück befestigt wird. Um die Wartung des Verkabelungsraum zu erleichtern, ist er einfach entfernbar durch das Abhaken des Verschlussklips am Basis des Geräts und durch die Abtrennung der elektrischen Verbinder, die mit Farbe und Gestalt gekennzeichnet werden. Die Verbindung mit dem Netz befindet sich unten der LED-Platine, um es von eventuellen Kontakte zu schützen.

**7. Cablaggio elettrico:** il gruppo di alimentazione comprende sia un driver elettronico montato su piastra asportabile e costituito da un monoblocco resinato per la garanzia della CL. Il sia un TMOV (thermally protected metal oxide varistor) che rappresenta un'efficace protezione dalle sovratensioni fino a 10KV, ai disturbi derivanti da scariche atmosferiche o da sbilanciamenti di carico.

**Electrical wiring:** The power supply group includes an electronic driver mounted on a removable plate, made of a resined monobloc, granting the isolation class II of the component and a TMOV (thermally protected metal oxide varistor), which represents a suitable protection against over-voltages up to 10KV, any disturbs due to atmospheric agents or to unbalances of the charge.

**Verkabelungseinheit:** die Verkabelungseinheit besteht aus einem elektronischen Vorschaltgerät, das auf einer entfernbarer Platine befestigt wird; es hat ein resiniertes Gehäuse, um die Isolationsklasse II zu gewährleisten. Das EVG wird mit einem TMOV (thermally protected metal oxide varistor) ausgestattet, das gewährleistet Schutz gegen externe Überspannungen im Netz.



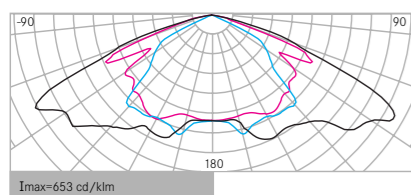
Front & back Patent pending optics

### ONE BODY, TWO SOULS

**(IT)**  
L'ufficio Tecnico Fivep Lite in collaborazione con Optics Lite, studio di progettazione in grado di realizzare sistemi ottici nel settore dell'ottica industriale e dell'illuminotecnica, ha sviluppato per KALOS un'ottica stradale "front & back" brevettata in grado di generare un doppio solido fotometrico che assolve alla duplice funzione di illuminare da un lato la carreggiata e dal lato opposto una pista ciclabile o un'area pedonale. Questa soluzione offre la possibilità di sostituire i sistemi palo esistenti completi di due fonti luminose con un sistema palo corredato da un solo KALOS che assolve al doppio compito illuminotecnico garantendo così un notevole risparmio energetico e di costi di manutenzione.

**(UK)**  
*Fivep Lite technical dep.t, in cooperation with Optics Lite, a design which is developing optical systems for industrial and lighting applications, has studied a "front & back" patent street optic for KALOS, this is achieving a photometric performance, which can light in two directions, both towards the street and cycling paths or pedestrian areas on the opposite side. This solution is suitable to replace the existing posts systems using two different light sources with a pole installing one KALOS only, which can perform this double lighting function, having an excellent energy saving and reducing the maintenance costs*

**(DE)**  
Unter der Mitarbeit von der Firma Optics Lite, die optische Systeme im Bereich der Industrie und Lichttechnik realisiert, hat die technische Abteilung von Fivep Lite für Kalos eine patentierte „front & back“ Straßenoptik entwickelt; diese Optik hat eine Doppellichtverteilung nach vorne und nach hinten, die auf der einer Seite die Straße und auf der anderen Seite einen Fahrradweg oder einen Fußgängerweg beleuchtet. Diese Lösung bietet die Möglichkeit an, alte bestehende Mastsysteme mit zwei Leuchten mit einem Mast mit einem einzigem Kalos zu ersetzen die Kalos erfüllt nämlich mit dieser neuen Optik beide lichttechnische Aufgaben der bestehenden Leuchten und gewährleistet eine erhebliche Ersparnis von Energie- und Wartungskosten.

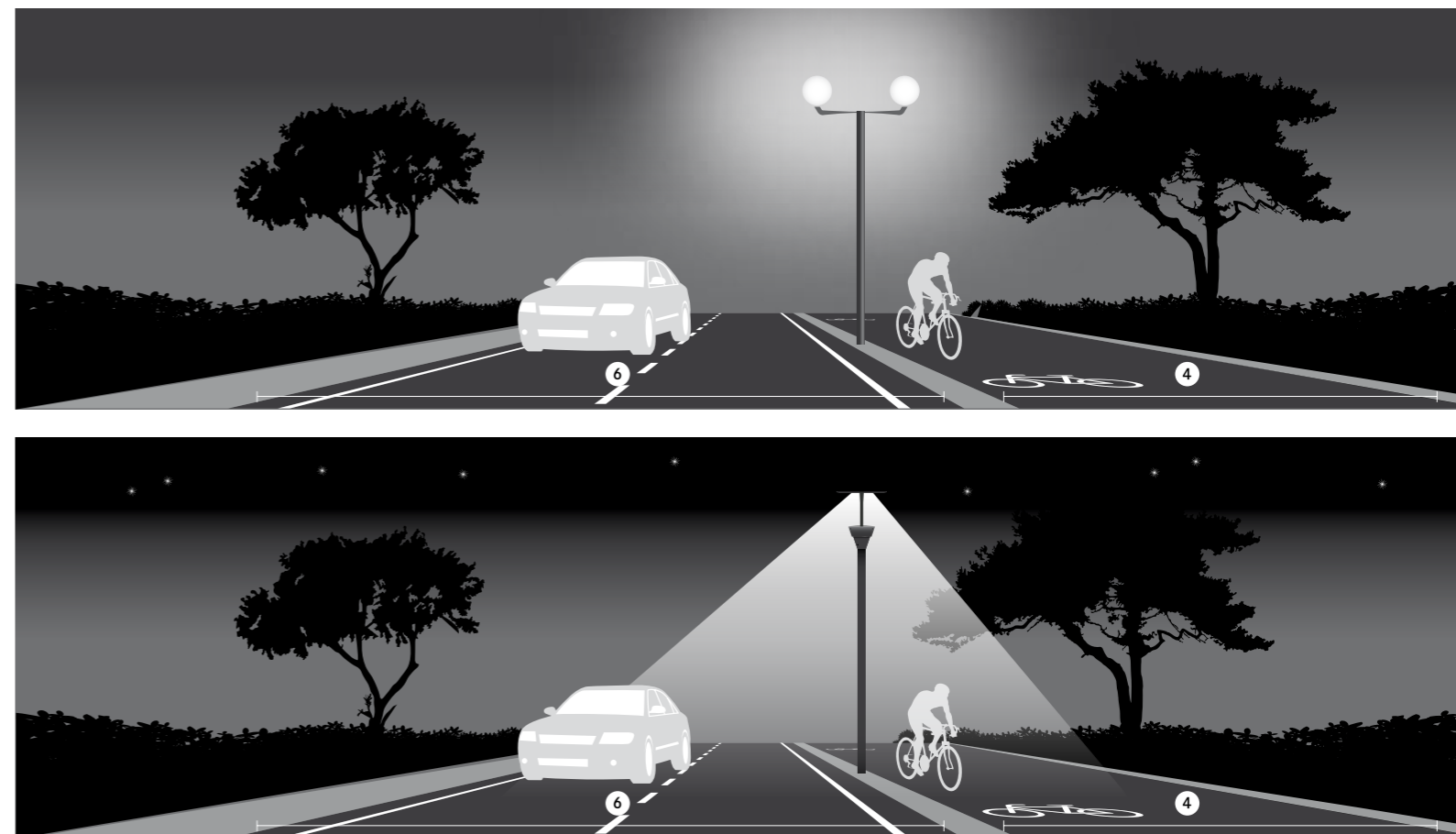


Energy Saving	<b>75%</b>
Light Pollution	<b>0%</b>
Life time	<b>&gt; 50.000 h.</b>
On-off:	<b>immediately</b>
Warranty:	<b>5 years</b>

Il tipo di flusso nominale dipende dalla tipologia di LED utilizzato e può essere modificato in funzione dell'evoluzione rapida e costante della tecnologia LED. Per info sull'evoluzione dell'efficienza luminosa dei led utilizzati consultate il nostro sito web.

*The nominal flux depends on the type of LEDs in use and it may be modified according to the quick and continuous development of the LED technology. For any further information concerning the luminous efficiency of the LEDs, please refer to our website.*

Der Bruttolumenoutput der Leuchte hängt vom verwendeten Typ der LEDs ab und es kann sich gemäß der schnellen und beständigen Entwicklung der LED-Technologie ändern. Für jede weitere Information in Bezug auf die Entwicklung der Effizienz unserer LEDs, besuchen Sie unsere Webseite.



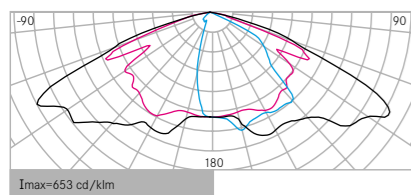
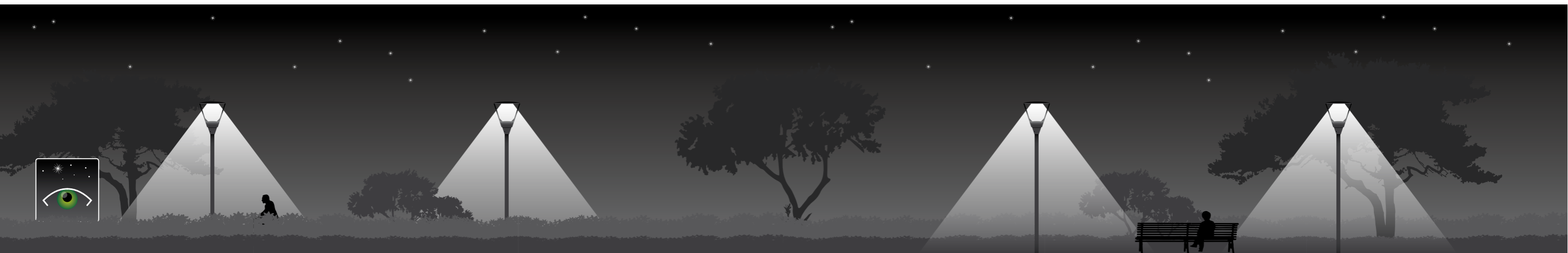
Lamp _ LED	Me	n	H	H1	D	I/H	Lm (cd/m2)	Car (6)					Cyclist (4)			
								U0	UL	Ti	Sr	Emed	Emed	E min	W	
UNI 11248	Me3b						1	0,4	0,6	≤ 15%	≥ 0,5		S1	15	5	
80W QE		2	5,5	5,8	21	3,8	0,3	0,42	0,69	21,56	0,91	4		4	2,6	88
125W QE		2	5,5	5,8	21	3,8	0,55	0,45	0,75	25,84	0,92	7		7	5	138
70W SE		2	5,5	5,8	21	3,8	0,44	0,42	0,69	23,3	0,91	6		6	4	83
70W ME		2	5,5	5,8	21	3,8	0,49	0,42	0,69	23,78	0,91	6		6	4	91
<b>KALOS 10+20 LED</b>		2	5,5	6,1	21	3,8	1	0,4	0,71	7,12	0,8	7		15	7	60

<b>Energy saving</b>	<b>10+20 LED 70W</b>	VS	<b>2x125W QE 276W</b>	<b>-75%</b>
<b>Lifetime</b>	<b>LED 50.000h</b>	VS	<b>QE 16.000</b>	<b>+ 212%</b>

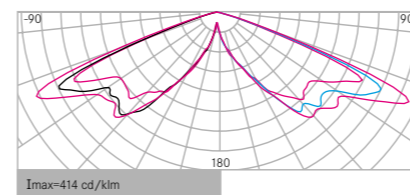
- n N° corsie N° lanes Anzahl Fahrbahnen
- H Altezza palo Pole height Masthöhe
- H1 Altezza fonte luce Height of the lighting source Lichtpunkthöhe
- D Interdistanza Interdistance Abstand
- I/H Rapporto interdistanza/altezza Interdistance/height ratio Verhältnis Abstand/Höhe
- Lm (cd/m²) Luminanza media Average luminance Mittlerengehaltene Leuchtdichte
- U0 Uniformità generale General uniformity Gleichmäßigkeit
- UL Uniformità longitudinale Lengthwise uniformity Längsgleichmäßigkeit
- Ti% Indice di abbagliamento Dazzling index Blendungsindex
- Sr Rapporto di contiguità Contiguity ratio Näheverhältnis
- Emed Illuminamento medio Average illumination Mittelbeleuchtung
- Emin Illuminamento minimo Minimum illumination Mindeste Beleuchtungsstärke
- W Potenza totale Totale absorbed power Systemleistung



Rotosymmetrical & Street Optics



	H	H1	D	I/H	La	Emed	Emin	W
UNI 11248 (S2)				10	3			
KALOS 10 LED STR LT-M	4	4,6	22,5	5,6	3	12	4	24
CERVIA 125W QE	4	4,6	22,5	5,6	3	8	3	138



	H	H1	E Medio	U0	W
80W QE	4	4,6	6	0,28	88
125W QE	4	4,6	10	0,28	138
100W SE	4	4,6	17	0,28	115
KALOS 10 LED ROT	4	4,6	7,5	0,34	24
KALOS 20 LED ROT	4	4,6	15	0,34	48

Energy saving 10 LED 24W vs QE 125W 138W -83%

Energy saving 10 LED 48W vs QE 80W 88W -73%

Energy saving 20 LED 48W vs QE 125W 138W -66%

Il tipo di flusso nominale dipende dalla tipologia di LED utilizzato e può essere modificato in funzione dell'evoluzione rapida e costante della tecnologia LED. Per info sull'evoluzione dell'efficienza luminosa dei led utilizzati consultate il nostro sito web.

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- D Interdistanza Interdistance Abstand
- I/H Rapporto interdistanza/altezza Interdistance/height ratio Verhältnis Abstand/Höhe
- La Larghezza strada Street width Straßenbreite
- Emed Illuminamento medio Average illumination Mittelbeleuchtung
- Emin Illuminamento minimo Minimum illumination Mindeste Beleuchtungsstärke
- W Potenza totale Totale absorbed Power Systemleistung
- STR Ottica stradale Street Optic Straßenoptik
- ROT Ottica rotsimmetrica Rotosymmetrical optics Rotosymmetrische Optik



**1. AUTOAPPRENDIMENTO MEZZANOTTE VIRTUALE (MV) CON POSSIBILITÀ DI PROGRAMMAZIONE**  
**SELF-LEARNING VIRTUAL MIDNIGHT (MV) WITH POSSIBILITY OF REGULATION**  
**SELBSTERLERNUNG VIRTUELLE MITTERNACHT (MV) MIT MÖGLICHKEIT DER PROGRAMMIERUNG**

**1a. Sistema di regolazione del flusso luminoso, periodo fisso**

**Regulation system of the luminous flux, fixed tim**

**Möglichkeit der Regulierung des Lichtstromes jedoch mit festen Zeiten der Leistungsreduzierung**

(IT)

È possibile impostare il livello di dimmerazione regolando la corrente, mediante l'utilizzo di rotary switch. La regolazione del flusso luminoso può variare dal 100% al 55% con step del 5%. L'analisi della durata delle notti con identificazione della mezzanotte virtuale, viene effettuata sulle prime 10 notti, una volta identificata, i driver attueranno la riduzione dalla mezzanotte virtuale per le 5 ore successive. Sono disponibili 16 diversi programmi pre-impostati non modificabili.

(UK)

By means of a rotary switch, it is possible to set up the dimming level by regulating the current. The regulation of the luminous flux can vary from 100% to 55% with adjustment possibility each 5%. The analysis of the duration of the nights, with identification of the virtual midnight, is realised during the first 10 nights; once identified, the drivers carries out the power reduction starting from the virtual midnight, for a fixed time of 5 hours. (The duration of the period is not adjustable). There are 16 pre-defined and not modifiable programs for the power reduction.

(DE)

Das Niveau der gewünschten Leistungsreduzierung wird mittels eines «rotary switch-Schalters» am elektronischem Vorschaltgerät eingestellt. Die Leistungsreduzierung kann von 100% bis 55% voreingestellt werden, in 5% Schritten. Das Vorschaltgerät analysiert in diesem Fall die Dauer der Nacht und der Betriebsstunden für eine Periode von 10 Nächten; nach dieser Periode identifiziert das Vorschaltgerät die virtuelle Mitternacht (Mittelpunkt der Betriebsstunden); die Leistungsreduzierung erfolgt für eine Zeit von 5 Stunden ab der virtuellen Mitternacht. 16 verschiedene vorherbestimmte und nicht veränderbare Programmierungen von Leistungsreduzierung sind erhältlich.

**2. ONDE CONVOGLIATE**  
**REMOTE MONITORING AND CONTROL SYSTEM**  
**STEUERUNG ÜBER AUFMODULIERTE SIGNALE**

(IT)

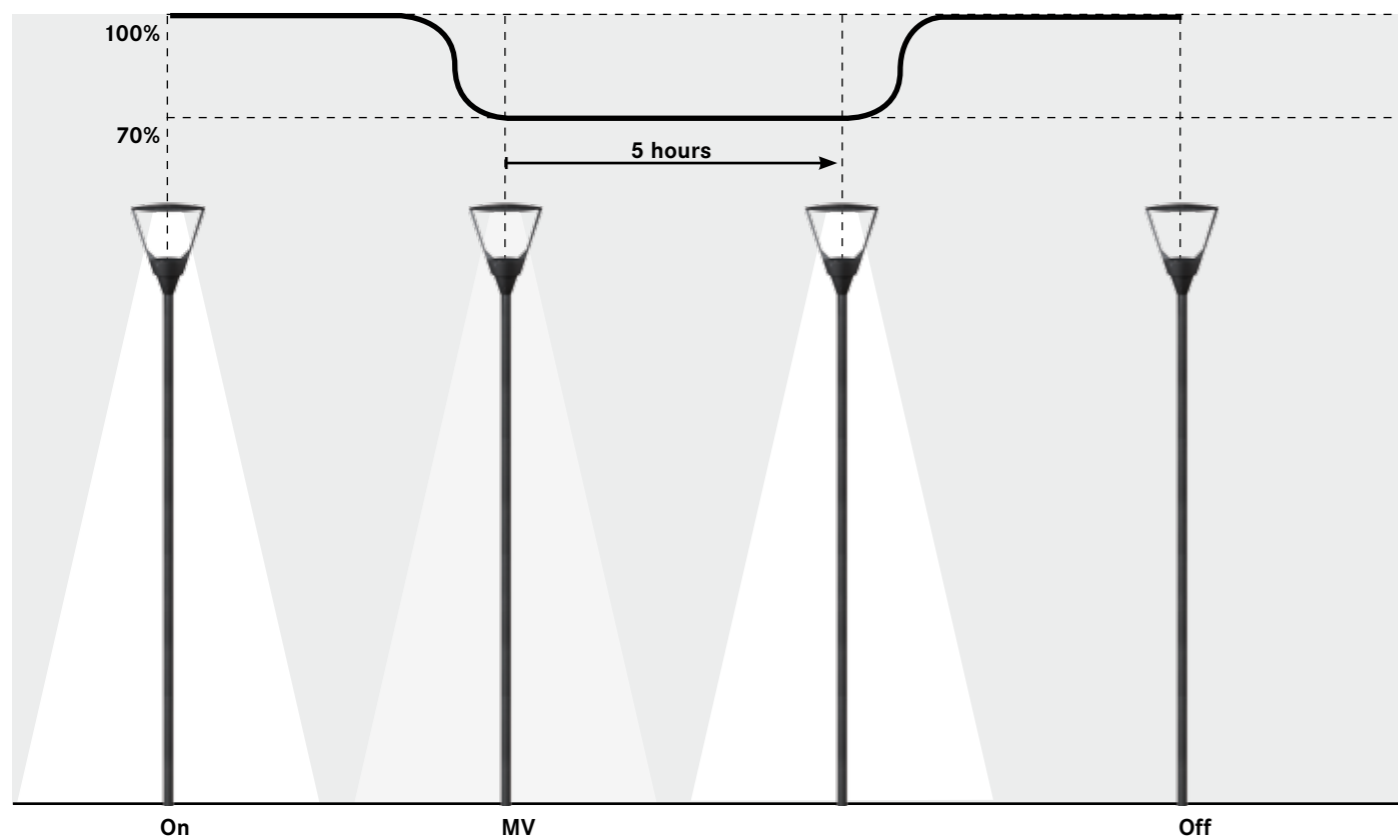
Tramite la comunicazione ad onde convogliate, quindi senza cavi aggiuntivi nell'impianto, è possibile comunicare con ogni singolo punto luce. È così possibile monitorare il funzionamento e definire il comportamento di ciascun apparecchio a LED in base a standard luminosi predefiniti. Una centralina di telecontrollo, gestita da remoto, monitorizza 24 ore al giorno ogni punto luce.

(UK)

Through the remote monitoring and control system communication (without additional cables in the installation), it is possible to communicate with every single lighting fitting. In this way it is possible to monitor the functioning and define the behaviour of each LED fitting, on the basis of pre-defined luminous standard. A central control unit in each installation, which can also be remote controlled, monitors every lighting fitting 24 hours a day.

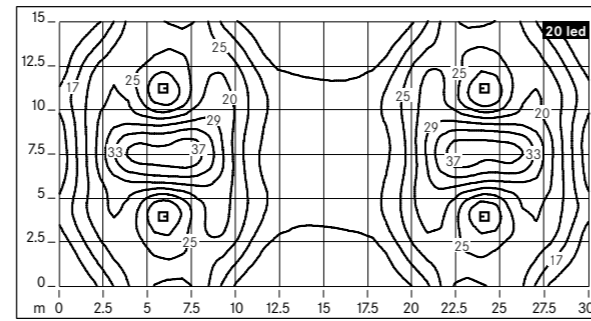
(DE)

Ohne zusätzliche Kabel in der Netzinstallation kann man die Funktion der Lichtpunkte überwachen und den Lichtstrom jeder Leuchte gemäß der Anforderungen regulieren. Ein zentrales Steuergerät wird in die Beleuchtungsanlage eingebunden: dieses überwacht die Leuchten 24 Stunden pro Tag und bietet die Möglichkeit, jeden Lichtpunkt durch Remote-Kontroll anzusteuern.



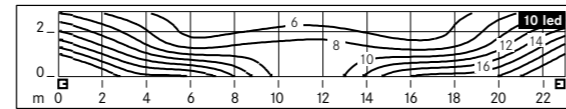
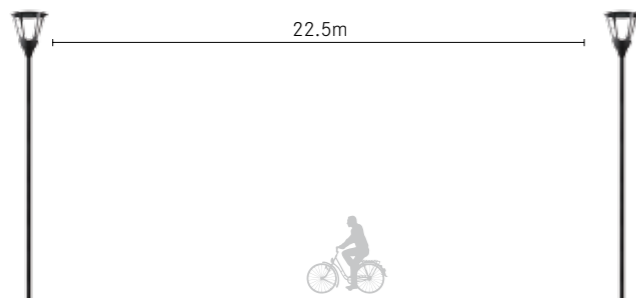


Area verde *Green area* Grünzone



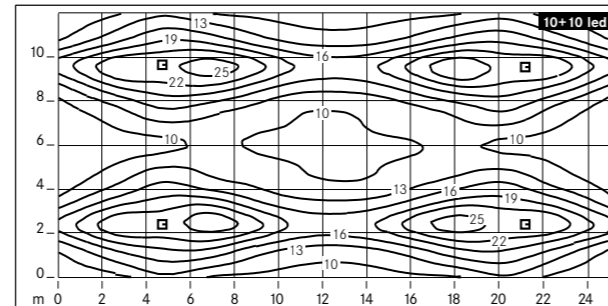
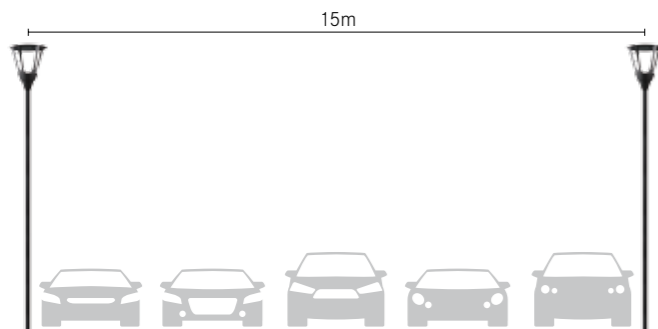
	Lm	La.z	Lu.z	H	H1	D	K	Emed	U0
20 Led Optic ROTO	5360	30	15	4	4,6	18	4,5	21	0,41

Ciclabile *Cycle Route* Fahrradweg



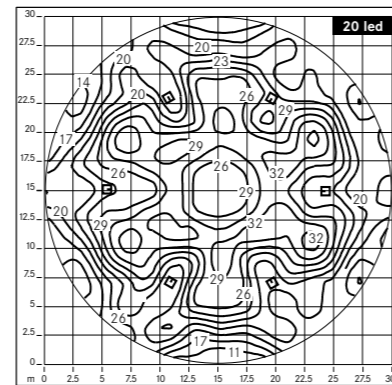
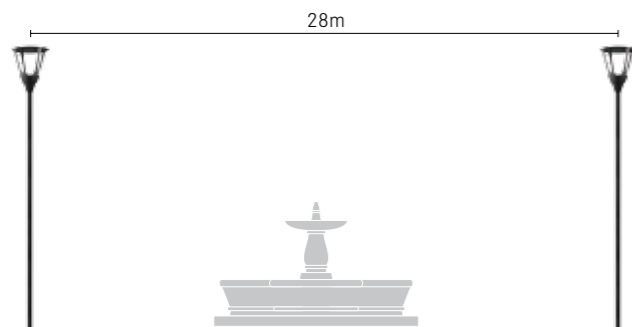
	Lm	n	La	H	H1	D	K	Emed	Emin
UNI11248 (S2)								10	3
10 Led Cycle Routes Optic LT-C	2680	1	3	4	4,6	22,5	5,6	10	4

Parcheggio *Parking* Parkplatz



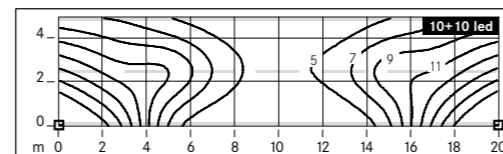
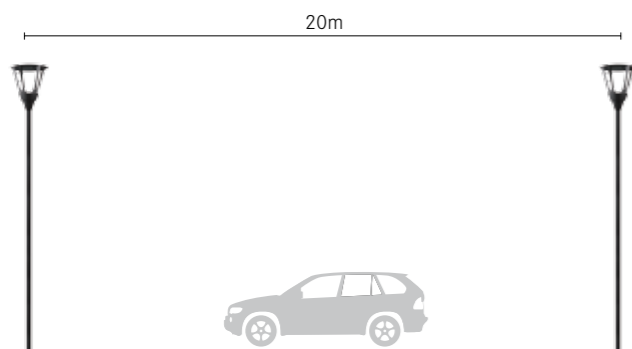
	Lm	La.z	Lu.z	H	H1	Emed	Emin
UNI11248 (S1)						15	5
10+10 Street Optic F&B LT-L+LT-L	5360	25	25	5	5,6	15	7

Piazza *Square* Platz



	Lm	La.z	Lu.z	H	H1	Emed	U0
UNI11248 (CE2)						20	0,4
20 Led Roto	5360	30	15	4,5	5,1	23	0,4

Strada *Street* Straße



	Lm	n	La	H	H1	D	K	Lm (cd/m2)	U0	UI	Ti	Sr	Emed
UNI11248 (Me5)								0,5	0,35	0,4	≤ 15%	≥ 0,5	
10+10 Street Optic LT-L	2680	2	5	4,5	5,1	20	4,4	0,64	0,50	0,71	14,96	0,85	8

- Lm** = Flusso lm  
*Flux lm*  
Fluss lm
- n** = N° corsie  
*N° lanes*  
Anzahl Fahrbahnen
- La** = Larghezza strada  
*Street width*  
Straßenbreite
- H** = Altezza  
*Height*  
Höhe
- H1** = Altezza fonte luce  
*Height of the lighting source*  
Lichtpunkthöhe
- D** = Interdistanza  
*Interdistance*  
Abstand
- K** = D/H
- La.z** = Larghezza area  
*Area width*  
Flächenbreite
- Lu.z** = Lunghezza area  
*Area length*  
Flächenlänge
- Emed** = Illuminamento medio  
*Average illumination*  
Mittlere Beleuchtung
- Emin** = Illuminamento minimo  
*Minimum illumination*  
Mindeste Beleuchtungsstärke
- Uo(E<sub>m</sub>)** = Uniformità generale  
*General uniformity*  
Gleichmäßigkeit
- Lm[Cd/m<sup>2</sup>]** = Luminanza media  
*Average luminance*  
Mittlere Leuchtdichte
- U0(L<sub>m</sub>)** = Uniformità generale  
*General uniformity*  
Gleichmäßigkeit
- UI(L<sub>m</sub>)** = Uniformità longitudinale  
*Lengthwise uniformity*  
Längsgleichmäßigkeit
- Ti%** = Indice di abbagliamento  
*Dazzling index*  
Blendungsindex
- Sr** = Rapporto di contiguità  
*Contiguity ratio*  
Näheverhältnis
- STR.** = Ottica stradale  
*Street Optique*  
Straßenoptik
- ROT** = Ottica rotosimmetrica  
*Rotosymmetrical optics*  
Rotosymmetrische Optik



## Bracci Arms Armen

500



**01KA908C0** B45 Braccio L=500mm con giunto per pali Ø 102mm Sablé100Noir  
 B45 Arm L=500mm with joint for poles Ø102mm Sablé100Noir  
 B45 Arm L=500mm für Maste Ø102mm Sablé100Noir

1000



**01KA906C0** B39 Braccio L=1000mm con giunto per pali Ø 102mm Sablé100Noir  
 B39 Arm L=1000mm with joint for poles Ø102mm Sablé100Noir  
 B39 Arm L=1000mm für Maste Ø102mm Sablé100Noir

500 500



**01KA909C0** B46 Braccio doppio L=500mm x 2 con giunto per pali Ø 102mm Sablé100Noir  
 B46 Double arm L=500mm x 2 with joint for poles Ø102mm Sablé100Noir  
 B46 Doppelarm L=500mm x 2 für Maste Ø102mm Sablé100Noir

1000 1000



**01KA907C0** B44 Braccio doppio L=1000mm x 2 con giunto per pali Ø 102mm Sablé100Noir  
 B44 Double arm L=1000mm x 2 with joint for poles Ø102mm Sablé100Noir  
 B44 Doppelarm L=1000mm x 2 für Maste Ø102mm Sablé100Noir

1000



**01KA906C0** B39 Braccio L=1000mm con giunto per pali Ø 102mm Sablé100Noir  
 B39 Arm L=1000mm with joint for poles Ø102mm Sablé100Noir  
 B39 Arm L=1000mm für Maste Ø102mm Sablé100Noir

640



**01AK932C0** B12 Braccio pastorale L=640mm per pali Ø60mm Sablé100Noir  
 B12 Curved arm L=640mm for poles Ø60mm Sablé100Noir  
 B12 Gebogener arm L=640 mm für Maste Ø60mm Sable100Noir

1000 1000



**01KA907C0** B44 Braccio doppio L=1000mm x 2 con giunto per pali Ø 102mm Sablé100Noir  
 B44 Double arm L=1000mm x 2 with joint for poles Ø102mm Sablé100Noir  
 B44 Doppelarm L=1000mm x 2 für Maste Ø102mm Sablé100Noir

810



**01AK935C0** B15 Braccio pastorale L=820mm per pali Ø102mm sablé100Noir  
 B15 Curved arm L=820mm for poles Ø102mm Sablé100Noir  
 B15 Gebogener arm L=820 mm für Maste Ø102mm Sable100Noir

500



**01KA908C0** B45 Braccio L=500mm con giunto per pali Ø 102mm Sablé100Noir  
 B45 Arm L=500mm with joint for poles Ø102mm Sablé100Noir  
 B45 Arm L=500mm für Maste Ø102mm Sablé100Noir

810 810



**01AK936C0** B16 Braccio pastorale doppio L=820mm x 2 per pali Ø102mm Sablé100Noir  
 B16 Double curved arm L=820mm x 2 for poles Ø102mm Sablé100Noir  
 B16 Gebogener doppelarm L=820mm x 2 für Masten Ø102mm Sable100Noir

500 500



**01KA909C0** B46 Braccio doppio L=500mm x 2 con giunto per pali Ø 102mm Sablé100Noir  
 B46 Double arm L=500mm x 2 with joint for poles Ø102mm Sablé100Noir  
 B46 Doppelarm L=500mm x 2 für Maste Ø102mm Sablé100Noir