

ANNEXE IV - Éclairage par LED

I - 1ère génération: Lampe à LED du commerce

1) Lampe LED de chez Pearl

Référence NC-2656

LUXARTEC

Lampe 12 LED Blanc chaud

12V - 50Hz - 1W - 24lm not dimmable

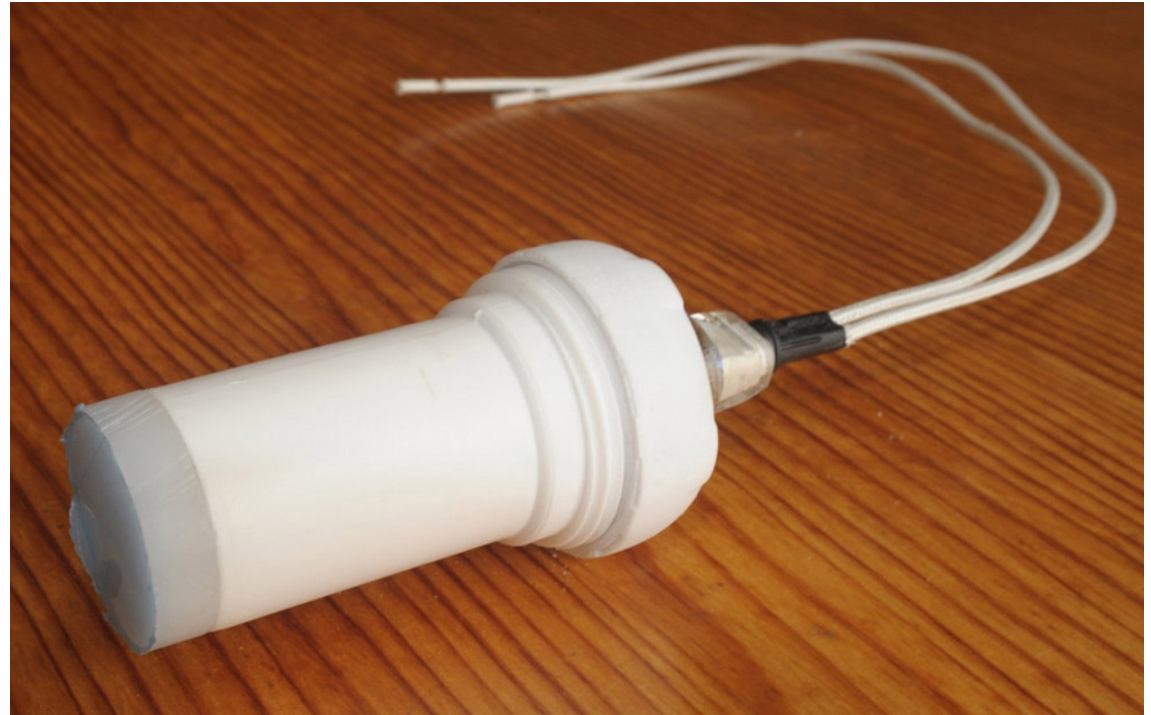
culot MR-11 (GU4)

2) Tube support

Raccord Wirquin 32mm

3) Diffuseur

Rondelle de Méthacrylique de méthyle épaisseur 10mm



Ce montage ne permet aucun réglage de la lampe. L'équilibrage de couleurs est passable. Ce dispositif, très simple, a été abandonné.

II - Circuit d'alimentation et de réglage commun aux montages LED suivants

BuckPuck 700mA DC LED Driver (PCB Mount)

3021-D-E-700 Specifications

Max Output Current	700mA
Max Input Voltage	32 VDC
Min Input Voltage	5 VDC
Output Voltage	32 VDC
Efficiency	95%
Weight	8.1g



The 3021-D-E-700, External Dimming BuckPuck driver is a 700mA, 5-32VDC, high efficiency driver specifically designed to power one or more Luxeon 700mA LEDs.

- One driver can power one or more Luxeon 700mA LEDs with no additional circuitry or components
- DC input voltage from 5V to 32V. (The input voltage must be at least 2 volts higher than the forward voltage drop of all series connected LEDs.)
- 700mA true constant current output regardless of the number of LEDs connected to the driver
- Provides full range dimming with a single external 5k linear potentiometer
- On/Off control pin allows you to switch off the output current without turning off the input power
- External analog/digital intensity control (TTL compatible)
- Output short circuit protection up to 15 seconds
- Output open circuit protection
- External pulse and strobe control input
- Built in regulated 5V reference/output to power local logic circuitry/ μ Processor
- Extremely small form factor, just 0.78"x 0.78"x 0.43" and weighs just 0.3oz. (20mm x 20mm x 11mm, 9 grams)
- Thermally-conductive, electrically-insulated, encapsulated puck
- Simple 7-pin SIP connection suitable for through-hole PCB mounted or optional HEP wire harness
- Supplied with 0.030" square pins for easy PC board mounting
- Requires no additional heat sinking
- 95% efficient

Easy to use wiring harnesses that do not require this driver to be mounted to a printed circuit board are available with and without a dimming potentiometer. See the Accessories.

This driver is suitable for all 700mA rated LEDs including all Luxeon III, V, V Portable, K2 and Rebel LEDs.

III - LED et accessoires utilisés pour le transfert (2ème génération)

1) LED MR-WN 100205 Neutral White (4100K) Rebel, Pre mounted on a 20mm Star base 180lm à 700mA

Neutral White	LED Color	1.	Values based on 350mA and a Thermal Pad temperature of 25C.
-	Lumens @ 350mA	2.	Viewing angle is the off axis angle from lamp centerline where the luminous intensity is ½ of the peak value.
180	Lumens @ 700mA	3.	This is the maximum operating current that we recommend for this LED. Higher drive currents may be possible, but will require careful design of a suitable cooling system.
-	Lumens @ 1000mA	4.	At the recommended operating current.
-	Efficacy (lm/W) @ 350mA	5.	Typical thermal resistance from the LED Junction to the bottom of the aluminum base.
80	Efficacy (lm/W) @ 700mA	6.	This is the value we recommend you use for determining driver input voltage.
4100	Typical Color Temperature (K) (1)		
3500 to 4500	Color Temperature Range (K) (1)		
-	Color Rendering Index (CRI) (1)		
120	Beam Angle (2)		
700	Recommended Operating Current (mA) (3)		
1000	Maximum Rated Drive Current (mA)		
3.2	Typical Forward Voltage (Vf) (4)		
3.99	Maximum Forward Voltage (Vf) (4,6)		
16	Thermal Resistance (C°/W) (1,5)		
150	Maximum Junction Temperature (C°)		
-40 - 135	Operating Temperature Range (C°)		
20 x 20 x 3.5	Dimensions L x W x H (mm)		

2) Optique

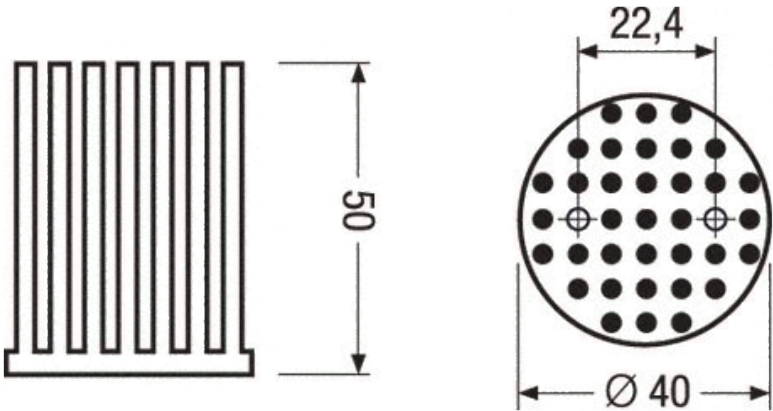
The Carclo 35°, 20mm circular frosted lens is ideally suited for our full line of 20mm Rebel Star LEDs when used with a matching 20mm lens holder. Manufactured from lens quality polycarbonate, this lens has an 74% transmission efficiency, is UL rated and can operate up to 125°C.

The frosted front surface of this lens provides better beam averaging, resulting in a smoother distribution of light.

35°	Beam Angle
Circular frosted	Beam Shape
Single Optic	Lens Type
1	Number of LEDs
74%	Efficiency
Polycarbonate	Lens Material
Holder	Mounting Type
NA	Holder Material
NA	Holder Color
Up To 125°C	Operating Temperature Range (C°)
20D x 9.9H	Dimensions (mm)

3) Radiateur:

Heat Sink COHS-50 for Osram COINlight Advanced



<http://www.led1.de/shop/lng/en/power-led-accessories/heat-sink-cohs-50-for-osram-coinlight-advanced.html>

4) Tube support et montage:

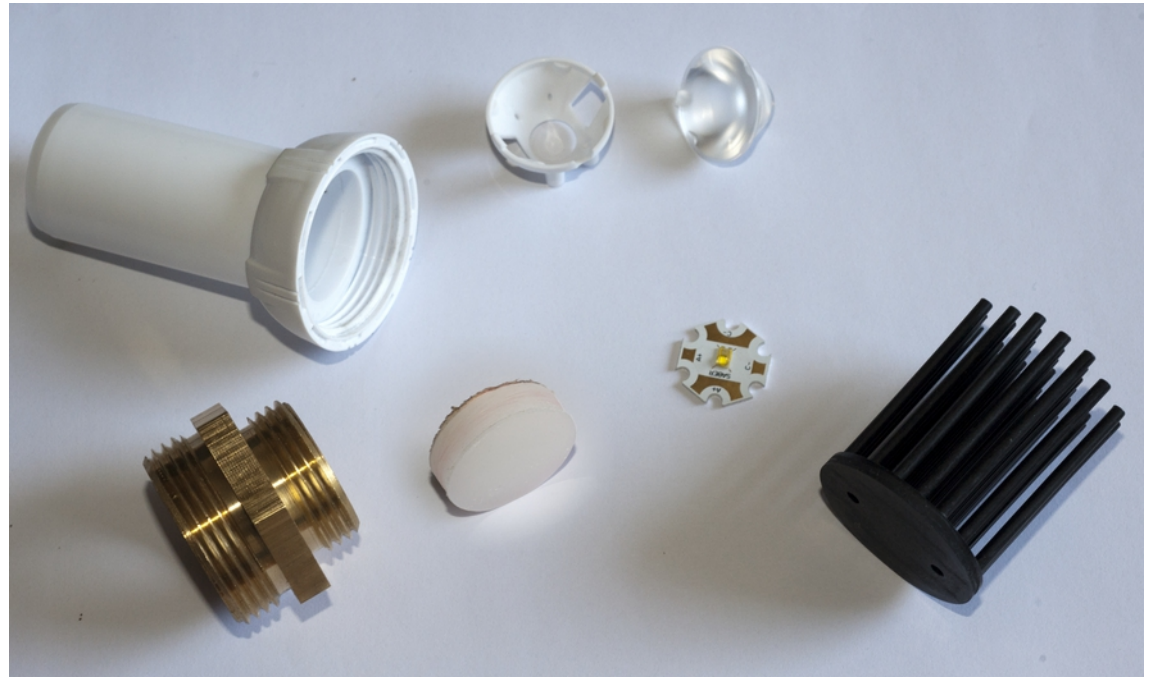
Tube Wirquin 32mm

Raccord laiton mâle-mâle 26-34 /33-42. La partie 26-34 a été enlevée au tour pour faire une portée plane sur laquelle le radiateur est fixé par quatre boulons de 2mm.

5) Diffuseur

Rondelle de Méthacrylique de méthyle épaisseur 10mm

J'ai effectué quelques transferts avec cet éclairage qui m'a donné satisfaction. Néanmoins dans le cadre d'une refonte complète de mon banc de transfert, j'en ai profité pour faire évoluer cet éclairage en utilisant de nouvelles LED à CRI de 95, en espérant un rendu encore meilleur.



IV - LED et accessoires utilisés pour le transfert (3ème génération)

Deux variantes: une à une seule LED, l'autre à trois LED

A) MODÈLE 1 - MONTAGE À TROIS LED

1) LED : MR-3000-145-20T: assembly of three LXW9-PW30 ANSI White (3045K) Rebel LED, Pre mounted on a 20mm tri star base



ANSI White	LED Color
243	Lumens @ 350mA
435	Lumens @ 700mA
591	Lumens @ 1000mA
81	Efficacy (lm/W) @ 350mA
69	Efficacy (lm/W) @ 700mA
3045	Typical Color Temperature (K) (1)
2870 to 3220	Color Temperature Range (K) (1)
95	Color Rendering Index (CRI) (1)
120	Beam Angle (2)
700	Recommended Operating Current (mA) (3)
1000	Maximum Rated Drive Current (mA)
9	Typical Forward Voltage (Vf) (4,5)
10.5	Maximum Forward Voltage (Vf) (4,5,7)
7.5	Thermal Resistance (C°/W) (1,6)
135	Max Recommended Junction Temp (C°)
-40 - 135	Operating Temperature Range (C°)
20 x 20 x 3.5	Dimensions L x W x H (mm)

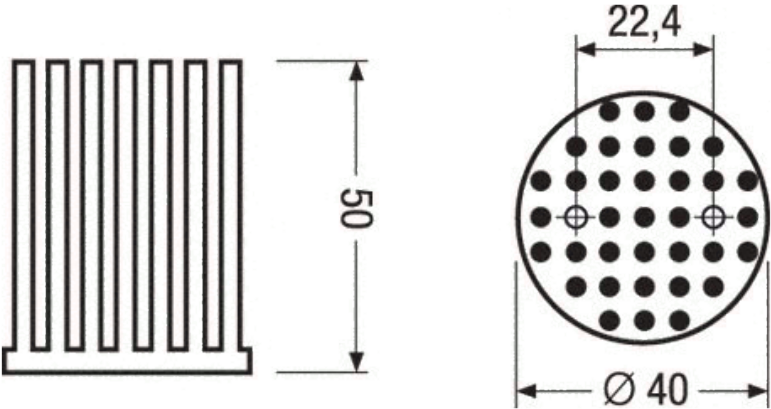
- * 1. Values based on 350mA and a Thermal Pad temperature of 25C.
2. Viewing angle is the off axis angle from lamp centerline where the luminous intensity is ½ of the peak value.
3. This is the maximum operating current that we recommend for this LED. Higher drive currents may be possible, but will require careful design of a suitable cooling system.
4. At the recommended operating current.
5. All LEDs connected in series.
6. Typical thermal resistance from the LED Junction to the bottom of the FR4 board.
7. **This is the value we recommend you use for determining driver input voltage.**

2) Optique: 10509 Carclo 44 ° Frosted Tri-LED Optic with integrated holder

The Carclo 44° Tri-LED frosted lens offers both a very compact footprint and 78% transmission efficiency. The lens has integrated legs making it very easy to secure the lens assembly directly to the PC board with glue or silicone RTV. Carclo optics are manufactured from lens quality polycarbonate, are UL rated and can operate up to 125°C. The frosted front surface of this lens provides better beam averaging, resulting in a smoother distribution of light.



44°	
Circular	Beam Shape
Array	Lens Type
3	Number of LEDs
78%	Efficiency
Polycarbonate	Lens Material
Integrated Legs	Mounting Type
NA	Holder Material
NA	Holder Color
Up To 125°C	Operating Temperature Range (C°)
20D x 6H	Dimensions (mm)



3) Radiateur:

Heat Sink COHS-50 for Osram COINlight Advanced

<http://www.led1.de/shop/lng/en/power-led-accessories/heat-sink-cohs-50-for-osram-coinlight-advanced.html>

4) Tube support et montage:

(reprend le montage de la 2ème génération)

Tube Wirquin 32mm

Raccord laiton mâle-mâle 26-34 /33-42. La partie 26-34 a été enlevée au tour pour faire une portée plane sur laquelle le radiateur est fixé par quatre boulons de 2mm.

5) Diffuseur

Rondelle de Méthacrylique de méthyle épaisseur 10mm

II) MODÈLE 2 - MONTAGE À UNE LED

1) LED:MR-3000-145-20S ANSI White (3045K) Rebel LED, Pre-Mounted on A 20mm Star Base - 85 lm @ 350mA



ANSI White	LED Color
81	Lumens @ 350mA
145	Lumens @ 700mA
197	Lumens @ 1000mA
81	Efficacy (lm/W) @ 350mA
69	Efficacy (lm/W) @ 700mA
3045	Typical Color Temperature (K) (1)
2870 to 3220	Color Temperature Range (K) (1)
95	Color Rendering Index (CRI) (1)
120	Beam Angle (2)
700	Recommended Operating Current (mA) (3)
1000	Maximum Rated Drive Current (mA)
3	Typical Forward Voltage (Vf) (4)
3.5	Maximum Forward Voltage (Vf) (4,6)
12	Thermal Resistance (C°/W) (1,5)
150	Maximum Junction Temperature (C°)
-40 - 135	Operating Temperature Range (C°)
20 x 20 x 3.5	Dimensions L x W x H (mm)

1. Values based on 350mA and a Thermal Pad temperature of 25C.
2. Viewing angle is the off axis angle from lamp centerline where the luminous intensity is ½ of the peak value.
3. This is the maximum operating current that we recommend for this LED. Higher drive currents may be possible, but will require careful design of a suitable cooling system.
4. At the recommended operating current.
5. Typical thermal resistance from the LED Junction to the bottom of the aluminum base.
6. This is the value we recommend you use for determining driver input voltage.

2) Optique:
(même optique que modèle de 2ème génération)

The Carclo 35°, 20mm circular frosted lens is ideally suited for our full line of 20mm Rebel Star LEDs when used with a matching 20mm lens holder. Manufactured from lens quality polycarbonate, this lens has an 74% transmission efficiency, is UL rated and can operate up to 125°C. The frosted front surface of this lens provides better beam averaging, resulting in a smoother distribution of light.

35°	Beam Angle
Circular frosted	Beam Shape
Single Optic	Lens Type
1	Number of LEDs
74%	Efficiency
Polycarbonate	Lens Material
Holder	Mounting Type
NA	Holder Material
NA	Holder Color
Up To 125°C	Operating Temperature Range (C°)
20D x 9.9H	Dimensions (mm)



3) Radiateur:
Référence CONRAD:Dissipateur pour Power-LED
Code produit: **181276 - 62** [Référence: 63500005]

Description

Dissipateur massif en alu pour le refroidissement passif de Power-LEDs ayant une puissance consommée de 3 Watts max.

Caractéristiques techniques

Type	PINBLOC ALU 45 MM
Matériau	Aluminium
Convient pour	Power-LEDs Max. 3 W
R _{th}	4.35 - 4.54 K/W
Dim.	(Ø x H) 45 mm x 30 mm
Poids	38 g

4) Tube support

Raccord Wirquin 32mm. Ecrou laiton chromé pour collet battu 33-42

5) Diffuseur

Rondelle de Méthacrylique de méthyle épaisseur 10mm

