

**LIGHTING**

# REVOLUTIONIZING AUTOMOTIVE LIGHTING WITH CUTTING-EDGE LED SOLUTIONS

From Innovative Designs to Advanced  
Functionality, Experience the  
Future of Mobility Lighting



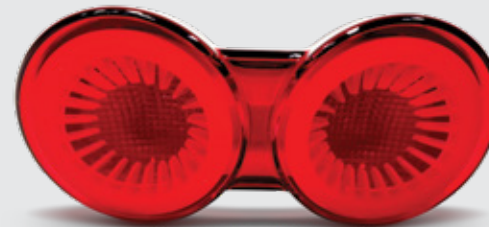
**PERFORM@CHANGE**



**CUTTING-EDGE.  
TAILORED. EFFICIENT.**

**INTRODUCING OUR  
UNIQUE LIGHTING  
VARIANTS**

Varroc provides a varied range of standard modules, spearheading the integration of LED technology in automotive lighting. Our state-of-the-art solutions address prevailing market demands, offering customizable user interfaces, pioneering design concepts like one-step injection strip headlamps surpassing 1.9 meters, compact projectors (HD, DLP) with ground projection capabilities, and economical lighting systems incorporating platform-designed LCU. Our premium modules showcase sophisticated hardware and software algorithms, guaranteeing flawless performance and enabling enhanced design versatility.



# INNOVATIVE DESIGN MEETS HIGH PERFORMANCES

## FULL FUNCTIONS HEADLAMP



Unique style



Enhance visibility  
functions



Compact and  
robust design



### PRODUCT DESCRIPTION

The triple LED front lighting group characterizes this high-performance headlamp.

It is equipped with perimetral DRL, positioned on the contour of the two low beams, central high beam and turn indicators, integrated into the two DRL profiles, which contribute to making the front section even more compact.

Some features contribute to making driving safer: automatic switching on of the low beams and automatic turning OFF direction indicators that flash in the event of emergency braking.

Finally, the “cornering lights” function is an element of active safety: each of the two side lights is equipped with extra reflectors which turn ON automatically when the motorbike leans to curve, thus increasing the light beam inside the curve and the consequent visibility for the driver

### FEATURES

Low beam, high beam, DRL, position light, turn indicators & cornering lights functions

ECE113 class D, FMVSS, CMVSS, CCC & VSCC certified

Free form reflectors for low beam, high beam & cornering light functions

Enhance visibility during bending

Normal operating voltage: 13.5V

Operating voltage range: 9V to 16V

### TYPICAL APPLICATION

Normal operating voltage:  
13.5V DC ( $\pm 0.5V$ )

Wide operating voltage range:  
9V to 16V

Operating temperature:  
-20 to +60 °C

Storage temperature:  
-30°C to 80°C



# RETRO-LUMINESCENT EFFECT TO CREATE STYLE

## HIGH APPEARANCE REAR LAMP



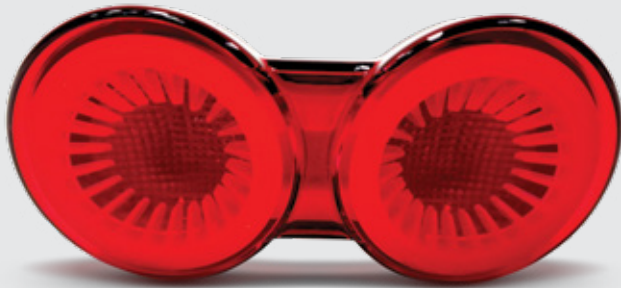
Unique style



Easy technical solution



Extremely compact and robust design



### PRODUCT DESCRIPTION

LED technology for a rear lamp with stop and rear position lamp functions. Free form reflectors for stop lamp function.

Screen of position lamp has a unique design characterized by fins having a retro-luminescent effect to evoke the image of the powerful afterburners of jets taking off.

### FEATURES

- Stop and rear position light functions
- ECE 50, FMVSS, CMVSS & VSCC certified
- Free form reflectors for stop lamp
- Opalescent screen for PL
- Normal operating voltage: 13.5V
- Operating voltage range: 9V to 16V

### TYPICAL APPLICATION

- Normal operating voltage: 13.5V DC ( $\pm 0.5V$ )
- Wide operating voltage range: 9V to 16V
- Operating temperature:  $-20^{\circ}\text{C}$  to  $60^{\circ}\text{C}$
- Storage temperature:  $-30^{\circ}\text{C}$  to  $80^{\circ}\text{C}$



# CLASSIC DESIGN MERGES WITH TECHNOLOGY

## DARK EFFECT HEADLAMP



Unique style



Dark effect of optical surfaces



Extremely compact and robust design



### PRODUCT DESCRIPTION

Full LED headlamp characterized by a classic design but with a modern key. It is made up of four separated optical sectors, three dedicated to the low beam function and one to the high beam function (LB ON when HB ON functional mode). An accurate optical design has allowed to achieve good performances despite the presence of the X-shaped external frame.

The DRL, composed of four circular sectors, has a modern and elegant cut.

### FEATURES

Low beam, high beam, DRL & position light functions

ECE113 class D, FMVSS, CMVSS, CCC & VSCC certified

Free form reflectors for low beam & high beam functions

Light pipe technology for DRL & PL functions

Normal operating voltage: 13.5V

Operating voltage range: 9V to 16V

### TYPICAL APPLICATION

Normal operating voltage: 13.5V DC ( $\pm 0.5V$ )

Wide operating voltage range: 9V to 16V

Operating temperature:  $-20^{\circ}\text{C}$  to  $60^{\circ}\text{C}$

Storage temperature:  $-30^{\circ}\text{C}$  to  $80^{\circ}\text{C}$



# CHARMING & AGGRESSIVE STYLE ALL TOGETHER

## HEADLAMP WITH SECONDARY LOW BEAM



Unique style



Secondary  
low beam



Extremely compact  
and robust design



### PRODUCT DESCRIPTION

An aggressive design that has its focus on the two DRLs that embrace two LEDs modules.

In each module there are both low beam and high beam functions.

Secondary low beam, embedded into high beam, enhance the style of this headlamp.

The two DRLs have a screen with micro-optics to have a high level of lighting uniformity.

### FEATURES

Low beam, high beam, DRL & position light functions

ECE113 class D, FMVSS, CMVSS & VSCC certified

Free form reflectors for low beam & high beam functions

Micro-optics for DRL & PL functions

Normal operating voltage: 13.5V

Operating voltage range: 9V to 16V

### TYPICAL APPLICATION

Normal operating voltage:  
13.5V DC ( $\pm 0.5V$ )

Wide operating voltage range:  
9V to 16V

Operating temperature:  
-20°C to 60°C

Storage temperature:  
-30°C to 80°C



# CLASSIC STYLE REVIEWED IN MODERN KEY

HIGH PERFORMANCES HEADLAMP WITH  
WELCOME MESSAGE



Unique style



High light  
performances



Extremely compact  
and robust design



## PRODUCT DESCRIPTION

Headlamps are characterized by the ability to mix highly classic styles from the off-road world with modern technological elements, such as full LED headlamp.

Free form reflectors for low beam and high beam functions. The eight sectors of the reflectors have been crossed to enhance performances, driving comfort and light distribution.

The DRL stands out in the front headlight, which with its design clearly outlines the shape of customer logo. Welcome message which evokes inception of eagle's flight.

## FEATURES

Low beam, high beam, DRL & position light functions

ECE113 class D, FMVSS, CMVSS & VSCC certified

Free form reflectors for low beam & high beam functions

Welcome message with animation

Normal operating voltage: 13.5V

Operating voltage range: 9V to 16V

## TYPICAL APPLICATION

Normal operating voltage:  
13.5V DC ( $\pm 0.5V$ )

Wide operating voltage range:  
9V to 16V

Operating temperature:  
 $-20^{\circ}C$  to  $60^{\circ}C$

Storage temperature:  
 $-30^{\circ}C$  to  $80^{\circ}C$





# ONE HEADLAMP DECLINED IN SEVERAL VERSIONS

## FULL LED HEADLAMP WITH & WITHOUT PL



Classic aesthetics



Versatility



Extremely compact and robust design



### PRODUCT DESCRIPTION

Extremely compact full LED headlamp. While low beam function, positioned at the top, and the high beam function, positioned at the bottom, come with freeform reflectors, position lights have an easy optical design made by screens.

This headlamp is covered by a patent for the unique technical solution adopted to integrate driver inside the device itself.

### FEATURES

Low beam, high beam, & position light functions  
ECE113 class D, FMVSS, CMVSS & VSCC certified

Free form reflectors for low beam & high beam functions

Two versions with and without PL function

Normal operating voltage: 13.5V

Operating voltage range: 9V to 16V

### TYPICAL APPLICATION

Normal operating voltage: 13.5V DC ( $\pm 0.5V$ )

Wide operating voltage range: 9V to 16V

Operating temperature:  $-20^{\circ}\text{C}$  to  $60^{\circ}\text{C}$

Storage temperature:  $-30^{\circ}\text{C}$  to  $80^{\circ}\text{C}$

# TECHNOLOGY & PERFORMANCES

## HEADLAMP WITH CANBUS



Canbus



Diagnostic



Extremely compact and robust design



### PRODUCT DESCRIPTION

Full LED headlamp with free form reflector for low beam, high beam and DRL functions.

Position lamp, having a homogenous appearance tank to an opalescent screen, outlines headlamp profile.

A central and vertical heatsink guarantees a comprehensive thermal protection to enhance LED life and performance.

Integrated diagnostic system to automatically turn on the low beam in case of DRL failure or the high beam if the low beam fails.

### FEATURES

Low beam, high beam, DRL & position light functions  
ECE113 class D, FMVSS, CMVSS, VSCC & CCC certified

Free form reflectors for low beam, high beam & DRL

Opalescent screen for PL function

Normal operating voltage: 13.5V

Operating voltage range: 9V to 16V

### TYPICAL APPLICATION

Normal operating voltage: 13.5V DC ( $\pm 0.5V$ )

Wide operating voltage range: 9V to 16V

Operating temperature:  $-20^{\circ}\text{C}$  to  $60^{\circ}\text{C}$

Storage temperature:  $-30^{\circ}\text{C}$  to  $80^{\circ}\text{C}$



# CAPABILITIES

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Specialized injection molding technology for 2K and 3K materials



Assembly area equipped with ESD protection measures



Automated equipment for end-of-line processes



In-house photometric laboratory for precise light measurement



CMM machine for accurate dimensional inspection



Prototyping facility for rapid product development



## Varroc Corporate Office

B-3010, 3<sup>rd</sup> Floor and B-7010, 7<sup>th</sup> Floor, Solitaire Business Hub, Opp. Neco Garden Society, Datta Mandir Chowk, Viman Nagar, Pune - 411014, Maharashtra

## Varroc Registered Office

L-4, MIDC Industrial Area, Waluj, Aurangabad - 431136, Maharashtra

Phone: +91 240 6653600/6653700

E-mail: [connectwithus@varroc.com](mailto:connectwithus@varroc.com)

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