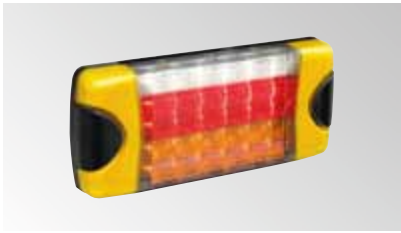




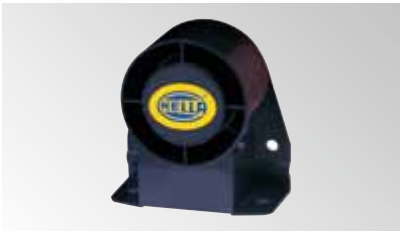
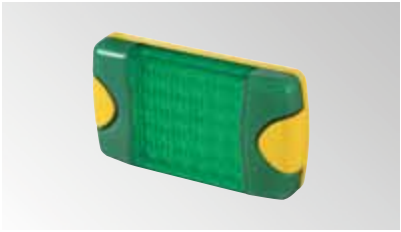
## PRODUCT OVERVIEW HELLA MINING

[www.hellamining.com](http://www.hellamining.com)





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## ABOUT HELLA MINING

The HELLA Mining Centre of Excellence was created in Australia in 2002 to design, develop and manufacture fixed and mobile lighting products specifically for the Mining industry. HELLA uses its research, engineering and logistic expertise to produce lighting products that are designed to world class standards that can be used in Mining applications all over the world.

The research behind the product selection is based upon data collected from Mining equipment in use in many different regions and applications. This data was utilised to set performance parameters as a baseline criteria for survival in a Mining application. These parameters are used in testing our products in house before we can be confident to release them to Mining field trials and later for general release to the Mining industry. This process is vastly different to most of our competitors that will pass on products designed for other target segments and “offered for trial” to Mining companies with little idea of the outcome.

The product sale is also very different to our competitors as only HELLA Mining offer Mining companies a free of charge engineered application service. This service offers the end user information on the product, aiming angles and actual lighting performance prior to any purchase that includes safety as a key area of concern. This service highlights to the customer that HELLA Mining are the Mining professionals for lighting and assists our customers with another value proposition to their Mining purchase.

An area of concern to Mining companies with global shareholders is safety and environment. Any negative concerns from ongoing environmental or safety issues can clearly affect the share price of these multinational firms and therefore there is a major focus on HSE (Health, Safety and the Environment). HELLA Mining has advanced lighting technology that meets the criteria for enhanced safety as vision plays a vital part in an environment that operates 24 hours a day and has large mobile machinery capable of destruction on a grand scale and a highly mobile road network.

HELLA Mining products meet the needs of Mining companies around the world. The concept of “Technology with Vision” highlights the fact that we exceed our customer’s expectations by producing quality products that fulfill the requirements for the harshest industry on earth in an efficient, advanced and professional manner that offers real technology with vision.

HELLA Australia is equipped with highly advanced production and distribution facilities. HELLA Australia has full design and development facilities that include: NATA registered Photometric Laboratory, Chemical Analysis Laboratory

Facilities, and some of the most advanced environmental and physical test simulation facilities available anywhere.

HELLA continues to develop, prove and market innovative products based on worldwide leadership in advanced lighting technology – to demonstrably improve end user profitability in Mining applications. This is achieved through products that offer:

- **Greater safety**
- **Lower operating cost**
- **Greater productivity**
- **Predictable service**
- **Better value**

HELLA Mining products are backed by the renowned global HELLA quality guarantee, and service and distribution network.

### Important Note

Only products specifically identified as ECE or SAE compliant are approved for use on public roads, when installed and operated as required by local regulation on approved vehicles. The responsibility for correct selection, fitment and operation to meet local regulations is that of the vehicle operator. Please ensure local regulations and requirements are met.

### Project Argon: Charting the extremes:

Developing lighting equipment to go the distance in mines requires a deep understanding of their operating systems and specific environmental conditions.

### At HELLA, we don’t guess, we measure.

HELLA Australia’s PROJECT ARGON collects and researches detailed data from a diverse range of mines and machines. A suite of robust sensors with integrated data loggers is mounted on Mining plant and machines to record operating conditions. After the sensors are recovered from the machines, their data is downloaded for analysis and used as the basis of product design and test specifications able to match extreme Mining environments.

## APPLICATIONS ENGINEERING

The HELLA Centre of Excellence – Mining provides an Applications Engineering lighting design service for HELLA Mining customers. The aim of this unique service is to reduce risk to end users and OEMs of implementing an inappropriate lighting design, enabling all stakeholders to evaluate, comment and positively input into the design prior to implementation.

The HELLA team combines decades of lighting expertise across many countries and industries with the most sophisticated software. However, our most valuable asset is ongoing consultation combined with extensive practical on-site Mining experience, enabling us to understand the unique visual and environmental requirements of the Mining industry.

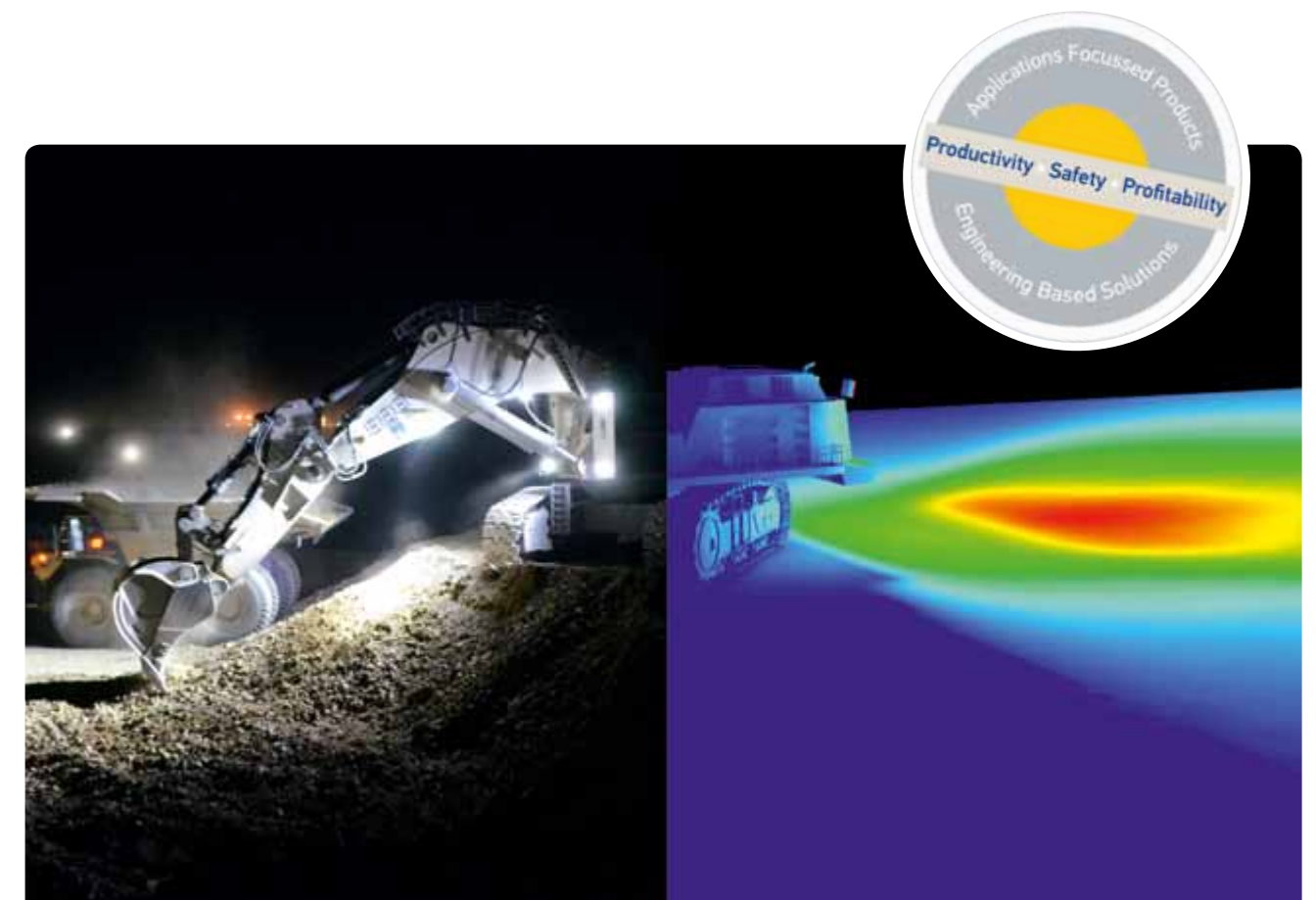
We are fully aware of the wide and sometimes conflicting range of operational requirements, covering the need for greater equipment, operator and maintenance personnel safety, lowered cost of ownership and maintenance, increased productivity requirements and the need for a predictable service life.

We use appropriate, proven technologies and methods to provide the Mining operation with an engineering-based, application-focused, customised solution. The system design not only complies with the relevant occupational health and safety regulations, but also with real life maintenance and operational needs.

HELLA lighting designs typically include; aiming and orientation angles, number and type of luminaires, part numbers, spare parts, illumination level achieved and appropriate standards referenced. Our service extends to both fixed and mobile plant lighting designs. The final design is contained in a clear and concise document that can be presented to all relevant stakeholders, ready to be integrated into on-site maintenance documentation systems.

Our experience in Applications Engineering allows us to create lighting designs in a short time frame and with limited information.

On the following pages you will find light simulations for LED lighting upgrades.



## QUALITY STANDARDS

### HELLA has set itself the ambitious standard of guaranteeing consistently high product quality in every respect.

This is achieved by defining quality criteria and checking every detail using carefully-selected methods throughout the entire manufacturing process. Production quality is ensured by parallel quality monitoring and testing. Quality products from HELLA are subject to different test procedures in accordance with the HELLA standard 67101. These test procedures are conducted by the HELLA test laboratory in Germany.

**First-class quality by conviction:** HELLA guarantees the perfect, long-term functioning of its products and stands for satisfied customers in the spare parts, accessories and light sources areas. As the long-established company from Lippstadt is an efficient partner to the automotive industry, HELLA products are manufactured to meet the respective precision, tolerance specifications. Combined with the use of sophisticated test procedures in the product development, you can depend on HELLA products in any situation.

### HELLA products are subjected to the following tests:



#### Heat, moisture and cold test

In temperature cycle tests, HELLA products are exposed to temperature fluctuations from -40 degrees Celsius to +100 degrees Celsius in climatic chambers which have a volume of 600 – 1,000 liters. In addition, condensation and defogging tests are carried out up to max. 95 % air humidity and up to 80 degrees Celsius. In the so-called „shock chamber“, the temperatures changes within seconds (intervals of max. 6 seconds) between -40 degrees Celsius and +100 degrees Celsius. These tests signify utmost stress on any material, both for lighting as well as for the individual electronics components. The heat and cold tests last up to 48 hours.



#### Dust test

In this test, the products are tested for their dust tightness. Unfired Portland cement is used as a test medium for all products. The test is optionally performed in sample function operation, and with overpressure or under pressure exposure of the device under test.

The tests are evaluated by determining the photometric value before and after the test (IP 6KX). This is the only way that HELLA can ensure that dust will not penetrate the product and can guarantee the long service life of the product.



#### High-pressure cleaner test

In one test system, the products are exposed to a water pressure of up to 120 bar and a water temperature of +85 degrees Celsius. This test simulates cleaning in a carwash or with a pressure cleaner (IP X9K)

#### Immersion and pressure tightness test

Depending on requirements, this test is carried out for all lighting technology products. An immersion pipe can be submerged to a depth of 1m in water. Another test system can reach a depth of 6 meters. Also, an overpressure test up to 1.6 bar is conducted in an immersion pool. All tests are carried out in accordance with the HELLA standard, 67101, as well as the legal requirements (IP X7).



#### Vibration test

This test simulates the behavior of the products over a “poor stretch of road” and shows, for example, reactions to potholes, gravel tracks, gravel, stones, fields and dirt roads. Special rally profiles are tested for selected products, such as auxiliary driving lights. The wide band random vibration test is used to test the mechanical endurance strength in the vertical and horizontal axes. Here, the frequency range extends from 10 to 1000 Hertz. Alongside the vibration test, the products are subjected to a temperature overload of -40 degrees Celsius to +80 degrees Celsius. This includes a check on the ageing process of the plastic. All products are tested for function for up to 24 hours. A mechanical shock test is also carried out as part of testing and is designed to simulate behavior on impact (for example, boxed products during shipping) at an acceleration of 300 to 500 meters per second squared.

#### Shock test

HELLA Mining products must pass the HELLA 200 G shock test before being certified for use in Mining applications. Products are put through 10,000 cycles at 200 G in various orientations to fully test their resistance to shock and vibration.



#### Lumen measurement according to LM-79-08

Currently there is no universally recognised standard for measuring the photometric properties of solid state (LED) lighting. This has resulted in many manufacturers and resellers using theoretical data (e.g. Raw lumens) which offers no actual useful comparison data for the purchaser, who is either unaware or unable to calculate the actual light output taking into account optical, electrical and thermal losses. The IES (illumination Engineers Society) released in 2008 a standard for testing amongst other things, the total luminous flux of LED fixtures. This publication appears to be the front runner in becoming the benchmark standard in testing solid state luminaire photometric, and has been adopted by most top tier manufacturers, including HELLA Mining. In simple terms, the test will determine the effective light output of a Luminaire, ideally using specialised photometric equipment in a NATA accredited laboratory. For the purpose of this comparison, only data obtained using the LM-79-08 standard is utilised.



You will find further information on the HELLA quality criteria at: [www.hella.com/quality](http://www.hella.com/quality)



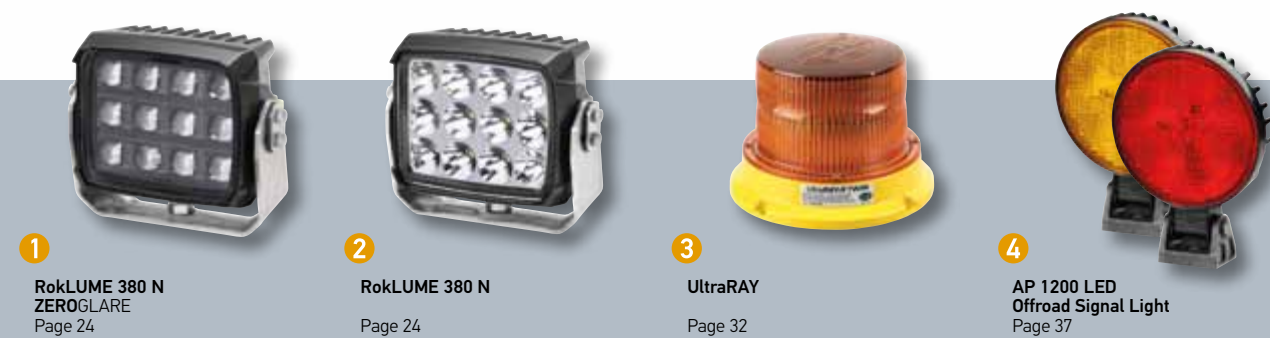
#### 5 Year Warranty

HELLA Mining products are designed and manufactured to fulfill the highest quality standards and to deliver high performance for a long time. HELLA Mining products are covered by a one (1) year warranty; all HELLA Mining LED products are covered by a five (5) year warranty.





HAUL TRUCK

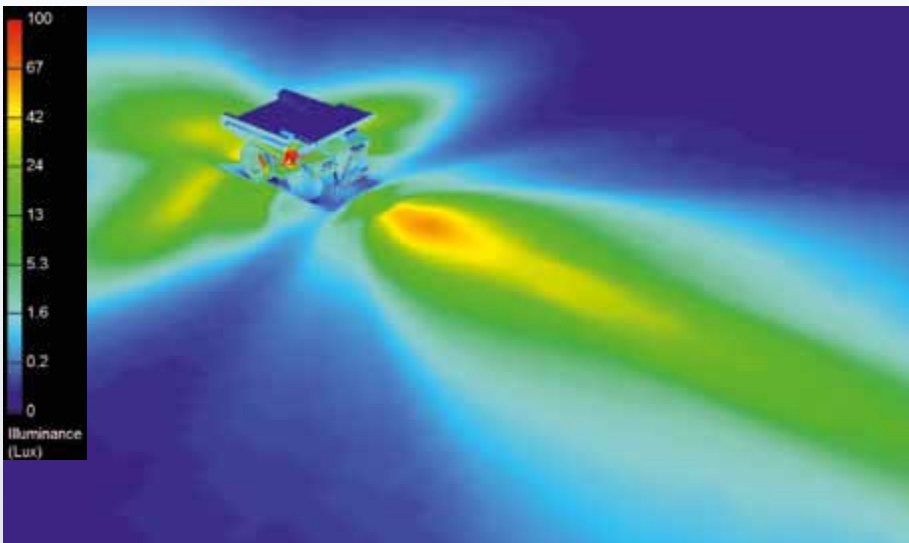


ROPE SHOVEL



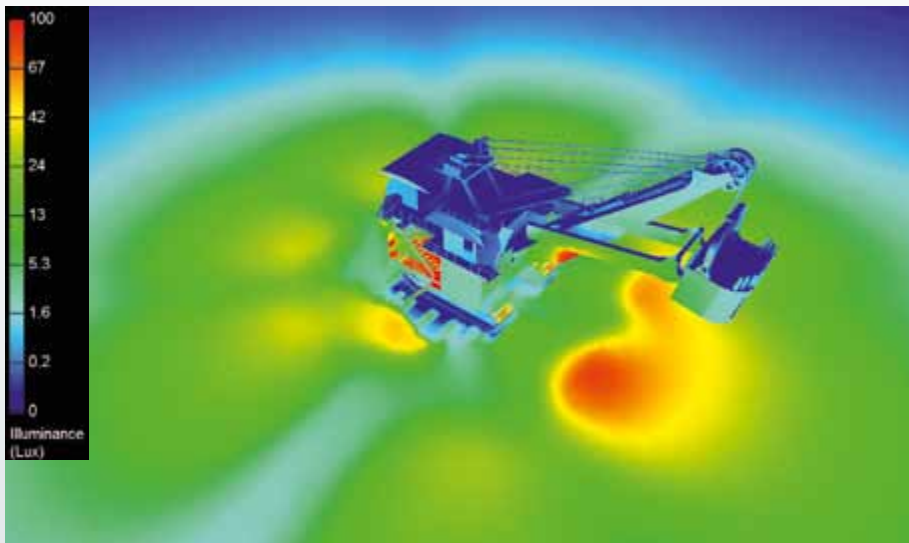
A HELLA Mining lighting solution for Haul Truck applications ensures that there is clear visibility for all operations required. Including forward lighting with glare minimisation for oncoming traffic, dump lighting, reverse lighting and windrow lighting where required.

Please contact us for a tailored proposal for your Haul Truck Fleet.



Product illumination pattern

A HELLA Mining lighting solution for Rope Shovels is specifically tailored to each application. A typical lighting setup will ensure the dig face is lit clearly and uniformly for operator visibility and increased safety and production. In addition, the perimeter lighting around the sides and rear of the Rope Shovel is uniform to allow Haul Truck operators to see clearly while moving into position.



Product illumination pattern

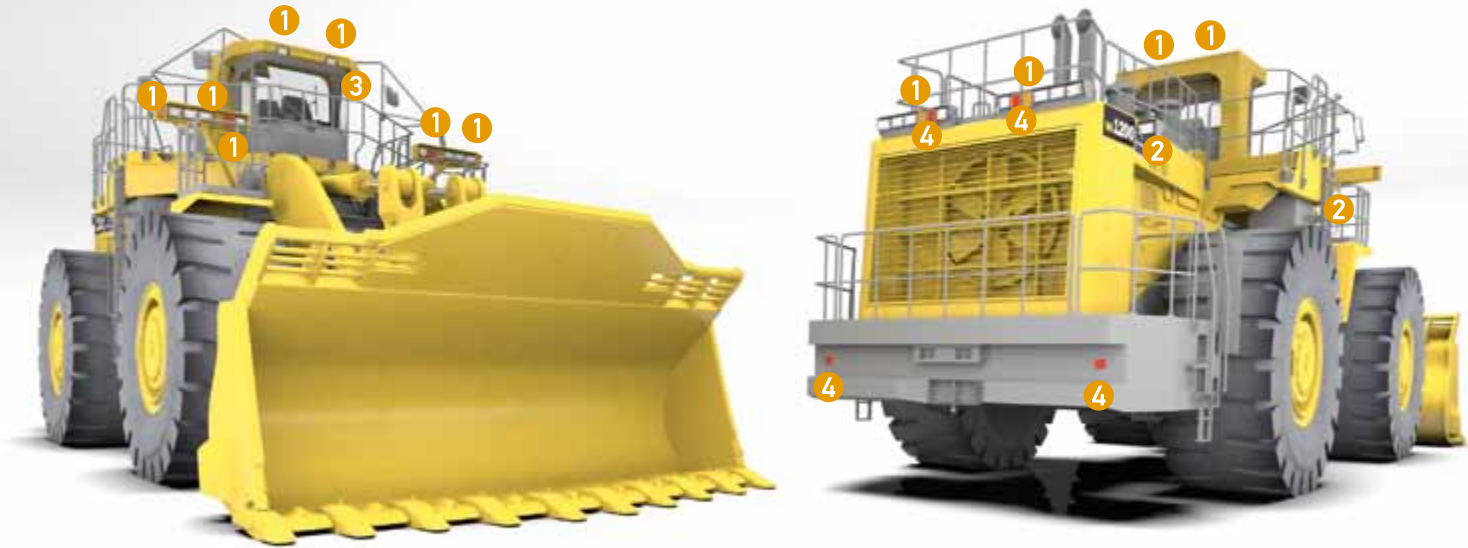




DOZER



1 RokLUME 380 N Page 24  
2 RokLUME 280 N Close range Page 26  
3 RokLUME 190 N RFCommSafe Page 28  
4 UltraRAY Page 32



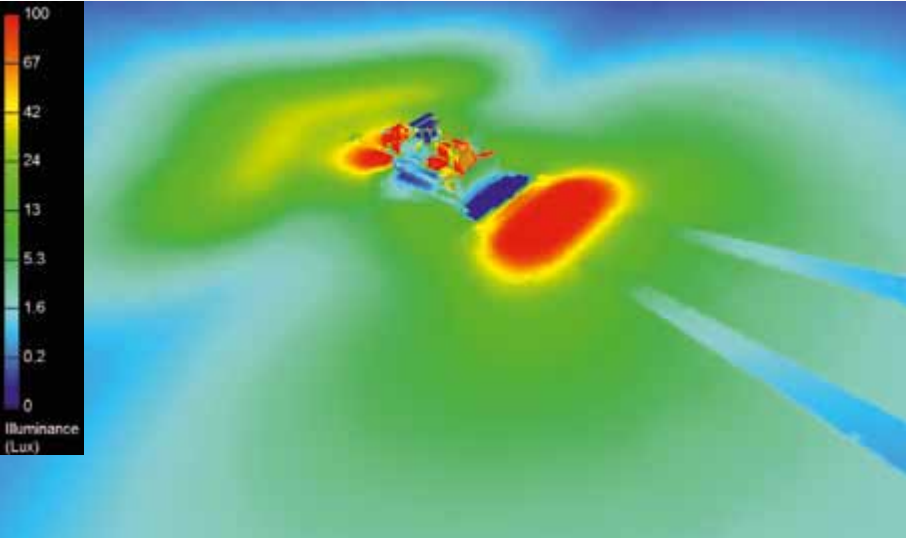
WHEEL LOADER



1 RokLUME 380 N ZEROGLARE Page 24  
2 RokLUME 190 N RFCommSafe Page 28  
3 UltraRAY Page 32  
4 DuraLED Page 39

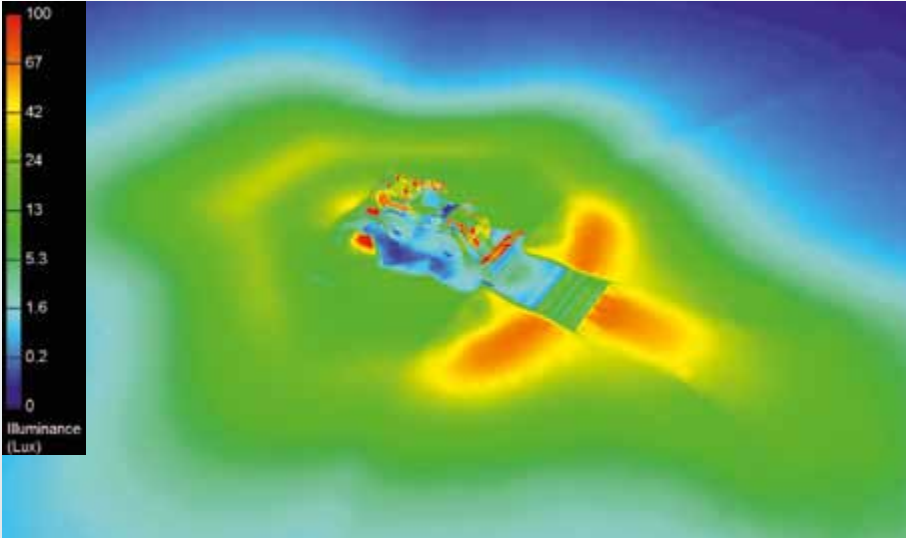
A HELLA Mining lighting solution for Bull Dozers makes for more efficient operation. Clear illumination of the ripper and blade edges ensures high productivity and accuracy for Bull Dozer fleets. Ensuring clear forward and rear long range illumination allows the operator to maintain ripping and shoving direction with ease.

Please contact us for a tailored solution to your specific Bull Dozer requirements.



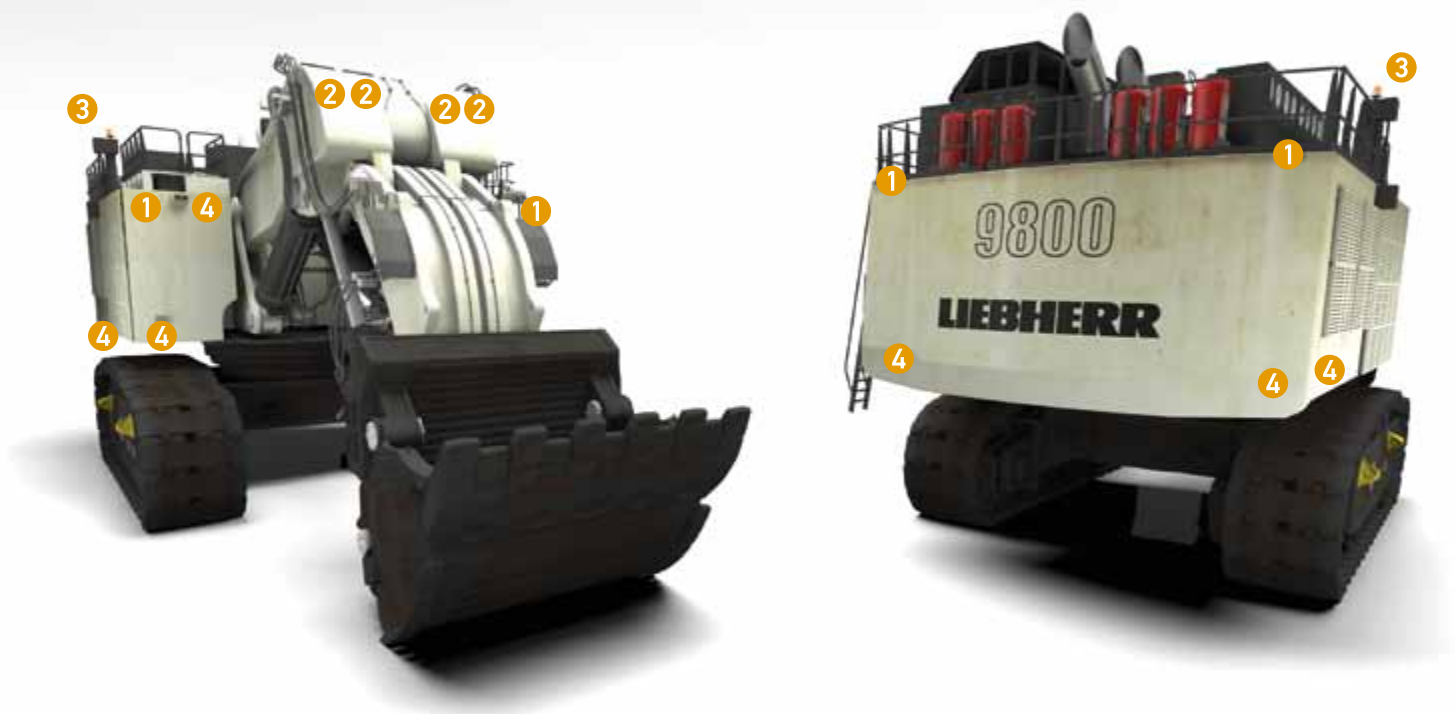
Product illumination pattern

A HELLA Mining lighting solution for Wheel Loaders of all sizes ensures excellent illumination for the operator and ancillary equipment. HELLA Mining lighting setups for wheel loaders ensures full illumination of the dig face and peripheral work areas for maximum safety and productivity. In addition, we ensure that glare is minimised from reflection on hydraulic cylinders during loading operations. Please contact us with your Wheel Loader model for a tailored lighting solution.

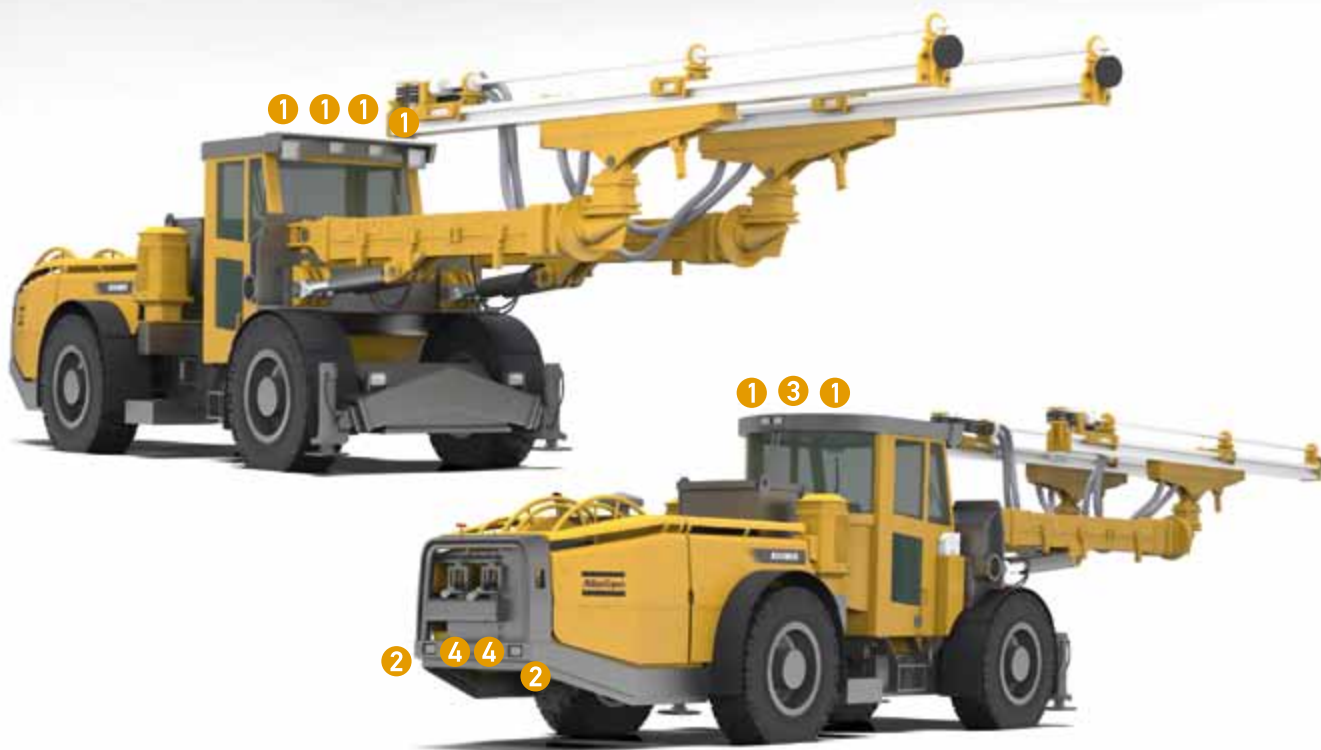


Product illumination pattern





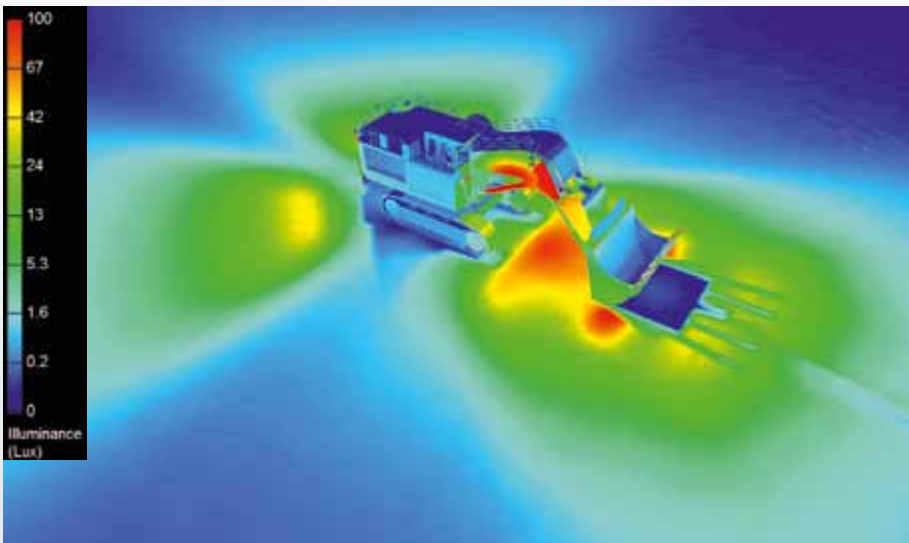
EXCAVATOR



UNDERGROUND DRILL RIG

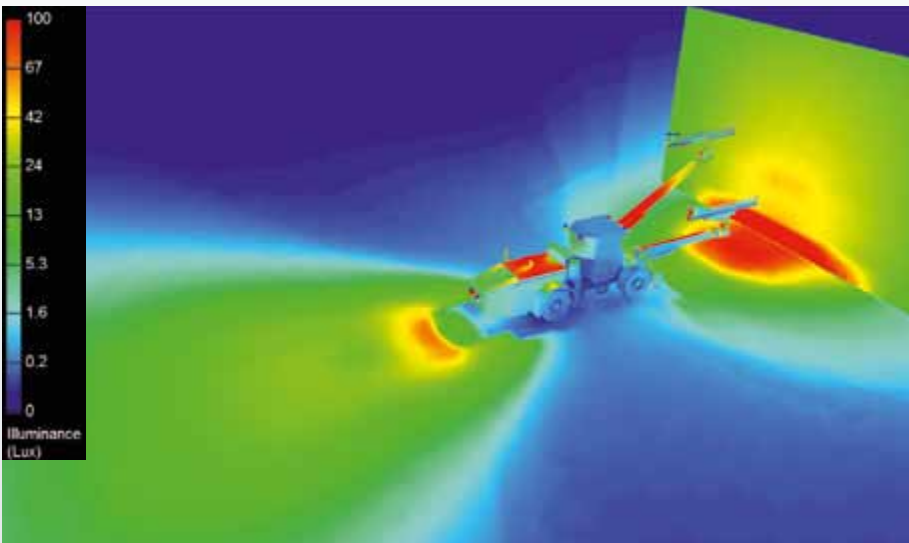


A HELLA Mining lighting solution for Hydraulic Excavators is tailored to each specific model or configuration. Lighting setups vary depending on size of the machine, whether the boom is configured in shovel or excavator format. All these variables must be considered to ensure clear illumination of the work area and around the vehicle.



Product illumination pattern

A HELLA Mining lighting solution for Underground Drill rigs is designed to have a clear and uniform illumination on the work face. The ability to place the drill accurately on drill markers is reliant on a well-lit work area. In addition, the lighting setup for tramming ensures clear forward, rear and side illumination to maximise visibility for the operator.



Product illumination pattern



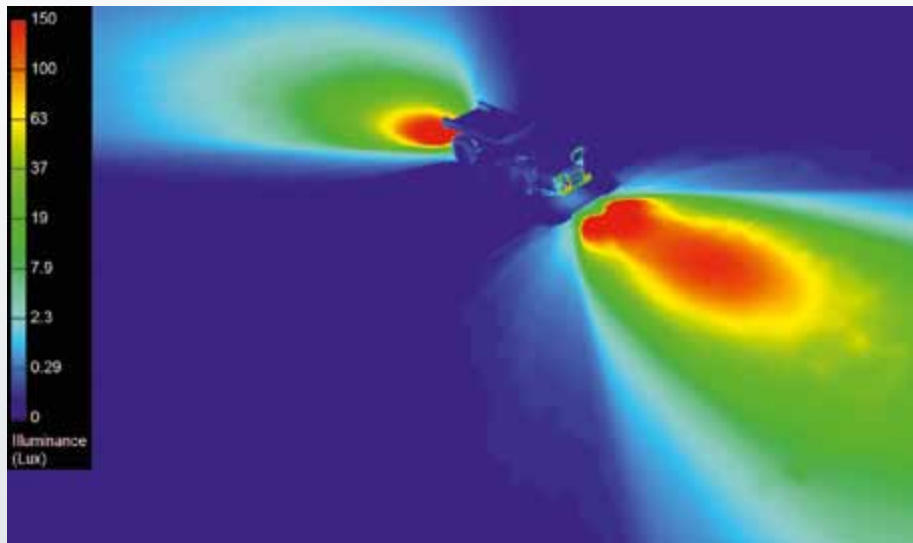


ARTICULATED DUMP TRUCK



**1** RokLUME 280 N ZEROGLARE Page 26  
**2** RokLUME 190 N RFCommSafe Page 28  
**3** K-LED Mining Page 31  
**4** DuraLED Page 39

A HELLA Mining lighting solution for Articulated Dump Trucks ensures that there is clear visibility for all operations required. Forward lighting setups with glare minimisation for oncoming traffic, clear rear and side lighting for tunnel operations and lighting for rear dumping operations are important features. Please contact us for a tailored proposal for your ATD Fleet.



Product illumination pattern

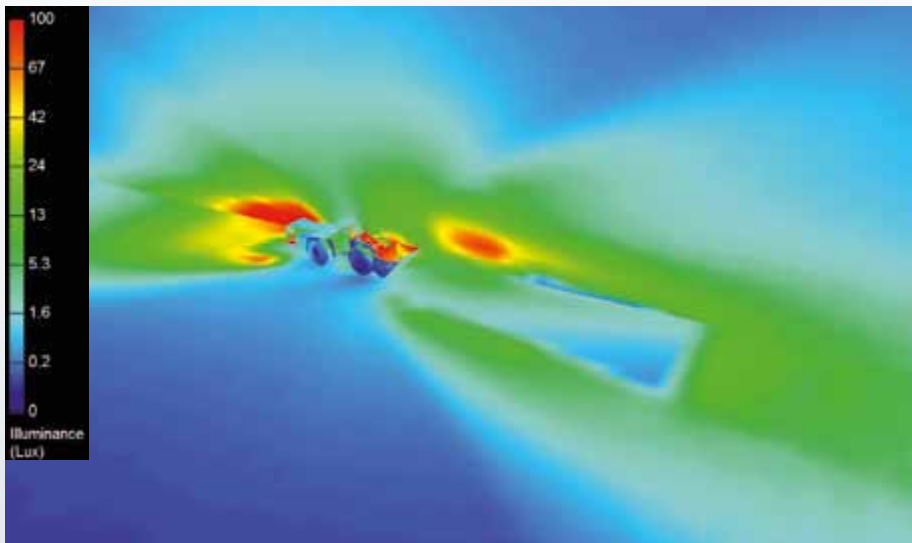


UNDERGROUND LOADER



**1** RokLUME 280 N ZEROGLARE Page 26  
**2** RokLUME 190 N RFCommSafe Page 28  
**3** K-LED Mining Page 31  
**4** DuraLED Page 39

A HELLA Mining lighting solution for Underground Loaders is designed to ensure safe operation in all applications. Clear forward lighting with extreme vibration resistance is required for loading and bogging operations to ensure a long service life. Clear illumination around the vehicle is needed for operator visibility during tramming, loading and unloading operations.



Product illumination pattern









HELLA Mining is proud to introduce the RokLUME 380 and RokLUME 280 LED worklights – incorporating over 100 years of automotive optical design into the worlds most advanced heavy-duty worklights for the Mining industry. By combining the strength and durability of the AS 5000LED with the same optical technology developed for luxury cars, HELLA have created ZEROGLARE, a new benchmark in Mining equipment lighting.



RokLUME 380



RokLUME 280

## ZEROGLARE TECHNOLOGY

HELLA Mining has developed the **ZEROGLARE** optical system to bring the safety and comfort of highway driving to Mining operations! The **ZEROGLARE** optical system ensures no light from oncoming traffic will be directed into the eyes of oncoming drivers eliminating the occurrence of discomfort or disability glare. The innovative optical system has a sharp horizontal cut off to control the light onto the ground in front of the vehicle and not into oncoming operators field of vision.

HELLA Mining utilised the HELLA Automotive LED optical developments for high end LED headlights for luxury cars and developed an extremely robust worklight which offers all the benefits of highway driving.

Most work light manufacturers active in the Mining Industry do not have the capability to design and develop in house optics,

optical systems typically used are “off the shelf” components from household down lights or outdoor flood lights. This means as light outputs increase, so does the issue of glare where lots of the light going into the oncoming operators eyes. This was such an issue that a lot of mine sites that had tested LED worklights reverted back to the original lighting systems, despite the many benefits of LED technology.

At HELLA Mining we consulted with the Mining industry and invested into the research and development of an optical system that would put the light only where it was needed. The end result is **ZEROGLARE** where operators get increased visibility and increased safety without blinding oncoming operators on-site for both surface and underground operations.

Traditional LED worklight vs. **ZEROGLARE** worklight

The RokLUME 380 and RokLUME 280 feature a powerful light engine of up to 7,500 and up to 4,300 measured lumens respectively, with the ability to choose from 5 different light distributions including our industry first **ZEROGLARE** optic. To meet the demands of different weather conditions, the RokLUME worklights are available in 2 colour temperatures, including 5,000° Kelvin colour temperature for enhanced colour rendering in normal conditions and 1,800° Kelvin colour temperature for minimal back scatter in fog or snow use.

Advanced design techniques and assembly robotics ensure that the RokLUME worklights are manufactured to be fully sealed and submersible to meet the stringent requirements of IP 6K9K and IP 6K8, ensuring no dust or water ingress can occur.

The RokLUME worklights feature an advanced NanoSafe non-stick and easy to clean surface coating, and are fast to install thanks to the Nord-Lock washers and the aiming angles laser engraved onto the bracket.

Connecting the RokLUME 380 to the machine is safe thanks to the double insulated silicone supply cable and heavy duty cable gland. We also supply a DT connector with both ends of the plug, so retrofitting as well as new installations are a breeze.

Only the best manufacturing materials were considered during the development stage of the RokLUME worklights, including a high impact resistant hardened polycarbonate compound lens, stainless steel bracket and premium grade anti-corrosion aluminium housing. A proven rubber dampening system keeps everything in check from vibration and statutory approvals include ECE-R10 and RCM compliance.

**Find more information at**  
**[www.hellazeroglare.com](http://www.hellazeroglare.com)**

The **ZEROGLARE** optical system ensures all emitted light is directed below the horizontal plane

The **ZEROGLARE** optics ensure light vehicle operators are not blinded by oncoming Haul Trucks lighting systems

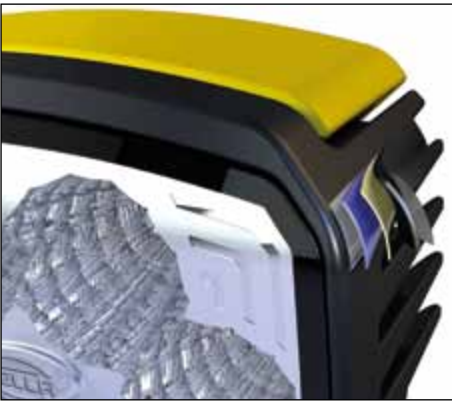


FEATURES HELLA MINING WORKLIGHTS



Lumen measurement according to LM-79-08

The correct way to measure the light output of head- and worklights is usage of a Goniometer. This instrument measures defined sphere angles, normally 90 degree in all directions (a half sphere). As a result we get the nominal illumination values of all detected section angles. With our software “Helios” we analyse the measured values and generate the correct lumen output. All measurements are performed at an ambient temperature of 23°C. The light output is measured after thermal stabilisation time of the light unit after 30 minutes in function, the LEDs have then reached their operating temperature.



NanoSafe

HELLA Mining presents the new extreme corrosion resistant worklights with a special coating to improve the resistance of our Mining worklights in harsh conditions. We call this new technology: NanoSafe technology. For our NanoSafe coating, we implemented three more layers to make our worklights more corrosion resistant and implemented a non-stick and easy to clean surface coating. These three additional layers lead to a much higher and longer resistance against corrosion. The NanoSafe technology will be exclusive to our Mining LED worklights, where the conditions are extremely harsh.



RFCommSafe Electromagnetic Compatibility (EMC)

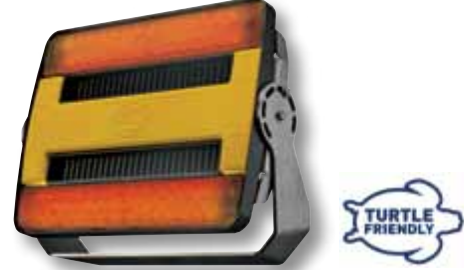
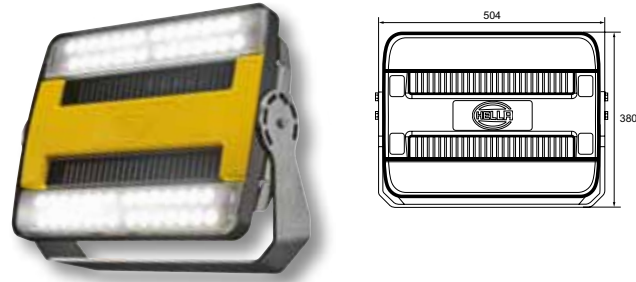
Every LED lamp contains electronic circuitry. It is essential that this circuitry does not cause harmful interference to other devices and at the same time is not susceptible to radiation from other devices.

RFCommSafe products were developed in recognition that some radio communication equipment can self-tune to be very sensitive in remote areas. In these situations the limits prescribed by regulatory requirements and as defined in international standards such as CISPR15 or relevant UNECE Standards may not be sufficient to ensure there is no interference with very sensitive radio communication equipment.

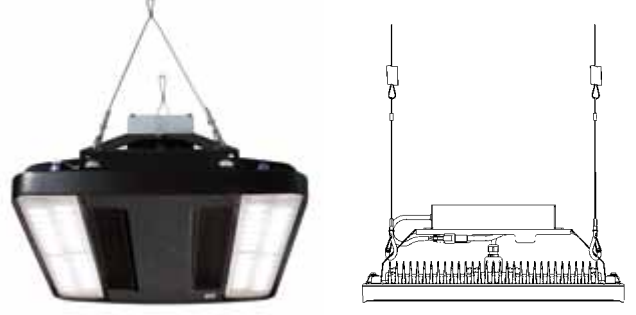
Lamps marketed as RFCommSafe are designed to go well beyond the requirements of CISPR15, CISPR25 and UNECE Standards.

HypaLUME

This LED product has the following features



High Bay Version



HypaLUME

- Developed specifically for Mining applications
- Highly efficient light distribution
- Suitable for energy saving lighting installations

Light output (measured): 24,000 lumen, power requirement: 240 Watt, colour temperature: 5,700° Kelvin, Multivolt, reverse polarity protection, transient spike circuit protection, over-voltage protection, thermal management, IP 6K9K / IP 6K7, double insulated silicone supply cable, non-stick and easy to clean surface coating, high impact grilamid nylon lens, Heavy Duty cable gland offers bend protection, RCM compliance, premium aluminium housing for Mining use, 10 G / 50 G Heavy Duty stainless steel bracket, mounting standing / hanging.

Close range illumination, fix (10 G)	1GJ 011 872-071
Long range illumination, fix (10 G)	1GJ 011 872-081
Extra wide illumination, fix (10 G)	1GJ 011 872-061
Close range illumination, mob (50 G)	1GJ 011 872-021
Long range illumination, mob (50 G)	1GJ 011 872-031
Extra wide illumination, mob (50 G)	1GJ 011 872-011

**Amber Version**  
Light output (measured): 13,000 lumen, 1,800° Kelvin, Heavy Duty surrounding-bracket, mounting standing / hanging and sea turtle friendly.

Close range illumination, mob (50 G)	1GJ 011 872-131
Long range illumination, mob (50 G)	1GJ 011 872-141
Extra wide illumination, mob (50 G)	1GJ 011 872-151

**High Bay Version**  
Light output (measured): 24,000 lumen, 5,700° Kelvin, AC / DC converter is not included.

Extra wide illumination  
AC / DC converter will be installed as part of a complete installation by a suitably qualified person (or electrician). The final installation must be re-confirmed that EMC directives are still met in the respective country.

AC / DC converter  
90-305 V AC, 24 V, Rated Current 13.3 A, 320 Watt, 47-63 Hz, -40-+70°C, IP 67

1GJ 011 872-211

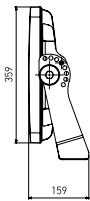
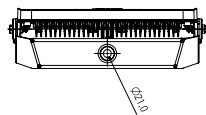
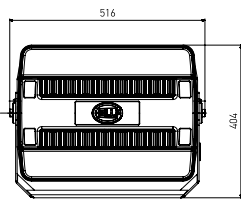
8EN 332 584-021





HypaLUME 48V RFCommSafe

This LED product has the following features



HypaLUME 48V RFCommSafe

- Developed specifically for Mining & Lighting Towers application
- Highly efficient light distribution
- Suitable for energy saving lighting installations

Light output (measured): 28,000 lumen, power requirement: 300 Watt, colour temperature: 5,700° Kelvin, 48 V, reverse polarity protection, transient spike circuit protection, > 60 VDC over-voltage protection, thermal management, IP 6K9K / IP 6K7, Built-in 4 pin DT connector, Soft Start at PIN3, 5 Dimming levels at PIN 4, non-stick and easy to clean surface coating, high impact Grilamid nylon lens, RCM, FCC and CE compliance, premium aluminium housing for Mining use, 50 G Heavy Duty stainless steel bracket, mounting standing / hanging.

HypaLUME 48V RFCommSafe CR	1GJ 011 872-221
HypaLUME 48V RFCommSafe LR	1GJ 011 872-231
HypaLUME 48V RFCommSafe XW	1GJ 011 872-241

Adapter Harness for AC applications

HypaLUME 48V RFCommSafe Accessory Cable, 1.13 mm<sup>2</sup> 2-core PVC sheathed automotive cable, 1 m length with 4-pole DT connector.

8KB 958 304-001
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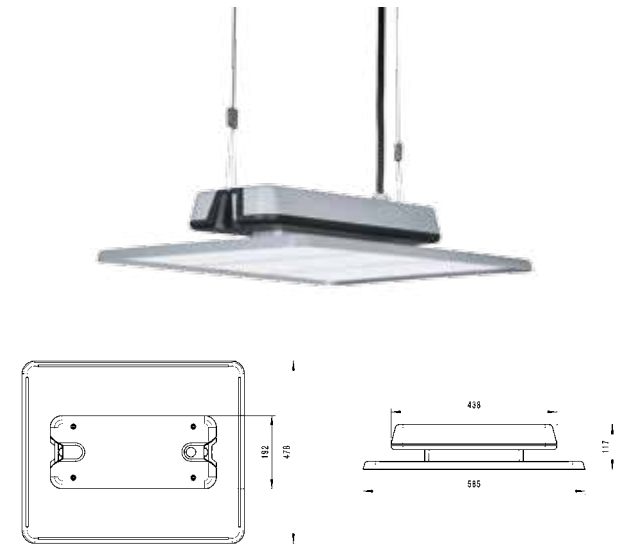
AC/DC converter

90–305 V AC, 48 V, Rated Current 6.7 A, 320 Watt, 47–63 Hz, -40–+70°C, IP 67.

8EN 332 584-031
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CR Close range  
LR Long range  
XW Extra wide

Highbay | IL Up



Highbay | IL Up

- Smart control system with dimming function
- Designed for high temperature use
- 20-year availability of replacement parts
- 5 Year Warranty

ELECTRONICS

Driver	Optionally as ON/OFF, 1-10 Volt dimming or DALI
Mains connection	220–240 VDC, 120–277 VDC / 50–60 Hz
Protection class	Class I
Power factor	≥ 0.95 c
Power requirement	100 W/ 160 W/ 230 W
Surge voltage protection	> 4 kV

LIGHT TECHNOLOGY

Light output	14,000 lm / 20,000 lm / 30,000 lm
Color temperature	4,000 K (840) / 5,000 K (850) / 6,500 k (865)
Color rendering index (CRI)	RA > 80
Color consistency	< 3SDCM
Luminous flux over lifetime	L80B10 after 60,000 h (in accordance with IES LM 80 and TM 21-11)

Optics (angle of radiation)	N optics: narrow beam W optics: wide beam
Interface control system	DALI (CLO-Option), 1–10 V, On / Off

ADDITIONAL DATA	IL UP M	IL UP L
Dimensions	480 x 405 x 125 mm	585 x 480 x 125 mm
Weight	8.2 kg	10.8 kg

Materials	Aluminum die cast
Lens	PMMA, integrated optics

Mounting	2 or 4 point suspension with cable, bracket for ceiling or wall installation
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Frame color	Two-colored RAL 9005 / RAL 9006
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Impact resistance	IK 08 (IK 10 with protective screen)
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Ambient temperature range	-30 °C to +50 °C
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IP Certification (Luminaire)	IP 65
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Certification	CE, TÜV, ENEC, D
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RokLUME 380 N

This LED product has the following features



RokLUME 380 N

- Developed specifically for Mining applications
- Heavy Duty bracket resists against vibration
- Light distribution optimised for Mining machinery

Light output (measured): up to 7,500 lumen, power requirement: max. 84 Watt, colour temperature: 5,000° Kelvin, 24 V, -40°C to +90°C (overheat protection), reverse polarity protection, transient spike circuit protection, overvoltage protection, thermal management, IP 6K9K / IP 6K8, ECE-R10 approved, RCM compliance, Heavy Duty stainless steel surrounding bracket 165 mm, double insulated silicone supply cable with DT connector, NanoSafe (non-stick and easy to clean surface coating), high impact hardcoated PC lens, Heavy Duty cable gland offers bend protection, mounting angle guide, premium aluminium housing for Mining use, mounting standing / hanging, Nord-Lock washers, DT counterpart included.

RokLUME 380 N ZG	1GA 996 197-001
RokLUME 380 N CR	1GA 996 197-011
RokLUME 380 N LR	1GA 996 197-021
RokLUME 380 N PB	1GA 996 197-041
RokLUME 380 N F	1GA 996 197-031
RokLUME 380 A N ZG	1GA 996 197-051
RokLUME 380 A N CR	1GA 996 197-061
RokLUME 380 A N LR	1GA 996 197-071
RokLUME 380 A N PB	1GA 996 197-091
RokLUME 380 A N F	1GA 996 197-081

**RokLUME 380 N Auxiliary Light**  
Light output (measured): 7,500 lumen, power requirement: 84 Watt, colour temperature: 5,000° Kelvin, ECE-R112.01-B approved

RokLUME 380 N Auxiliary Light, 12 V	1FA 996 197-151
RokLUME 380 N Auxiliary Light, 24V	on request

ZG	ZEROGLARE
CR	Close range
LR	Long range
PB	Pencil Beam
F	Flood
N	NanoSafe
A	Amber

RokLUME 380 N RFCommSafe

This LED product has the following features



RokLUME 380 N RFCommSafe

- Developed specifically for Mining applications
- Heavy Duty bracket resists against vibration
- Light distribution optimised for Mining machinery
- RFCommSafe for zero EMC emissions

Light output (measured): up to 6,500 lumen, power requirement: max. 95 Watt, colour temperature: 5,000° Kelvin, 24 V, -40°C to +90°C (overheat protection), reverse polarity protection, transient spike circuit protection, overvoltage protection, thermal management, IP 6K9K / IP 6K8, ECE-R10 approved, RCM compliance, Heavy Duty stainless steel surrounding bracket 165 mm, double insulated silicone supply cable with DT connector, NanoSafe (non-stick and easy to clean surface coating), high impact hardcoated PC lens, Heavy Duty cable gland offers bend protection, mounting angle guide, premium aluminium housing for Mining use, mounting standing / hanging, Nord-Lock washers, DT counterpart included.

RokLUME 380 N RFCommSafe ZG	1GA 996 197-101
RokLUME 380 N RFCommSafe CR	1GA 996 197-111
RokLUME 380 N RFCommSafe LR	1GA 996 197-121
RokLUME 380 N RFCommSafe PB	1GA 996 197-141
RokLUME 380 N RFCommSafe F	1GA 996 197-131

ZG	ZEROGLARE
CR	Close range
LR	Long range
PB	Pencil Beam
F	Flood
N	NanoSafe





RokLUME 280 N

This LED product has the following features



RokLUME 280 N

- Compact size suitable for all Mining machinery
- Corrosion resistant NanoSafe coating
- Heavy Duty bracket resists against vibration

Light output (measured): up to 4,300 lumen, power requirement: max. 55 Watt, colour temperature: 5,000° Kelvin, Multivolt, reverse polarity protection, transient spike circuit protection, over-voltage protection, thermal management, IP 6K9K / IP 6K8, DT connector, high impact nylon lens, NanoSafe (non-stick and easy to clean surface coating), mounting angle guide, ECE-R10 approved, RCM compliance, premium aluminium housing for Mining use, Nord-Lock washers, DT counterpart included, mounting standing / hanging, Heavy Duty surrounding-bracket, RCM compliance.

RokLUME 280 N ZG	1GA 995 606-541
RokLUME 280 N CR	1GA 995 606-501
RokLUME 280 N LR	1GA 995 606-511
RokLUME 280 N PB	1GA 995 606-521
RokLUME 280 A N ZG	1GA 995 606-641
RokLUME 280 A N CR	1GA 995 606-601
RokLUME 280 A N LR	1GA 995 606-611
RokLUME 280 A N PB	1GA 995 606-621
RokLUME 280 G N ZG	1GA 995 606-741
RokLUME 280 G N PB	1GA 995 606-721

ZG ZEROGLARE  
CR Close range  
LR Long range  
PB Pencil Beam  
N NanoSafe  
A Amber  
G Green

RokLUME 155 TP

This LED product has the following features



RokLUME 155 TP

- Developed specifically for Mining applications
- Thermo plastic housing
- Compact size

Light output (measured): 1,000 lumen, power requirement: 15 Watt, colour temperature: 5,000° Kelvin, Multivolt, reverse polarity protection, transient spike circuit protection, over-voltage protection, thermal management, IP 6K9K / IP 6K8, ECE-R10 approved, RCM compliance, high quality thermo plastic housing for Heavy Duty use, mounting standing / hanging, harness with DT connector, Heavy Duty bracket.

RokLUME 155 TP CR	1GA 996 284-051
RokLUME 155 TP LR	1GA 996 284-061
RokLUME 155 TP A CR	1GA 996 284-071

CR Close range  
LR Long range  
A Amber



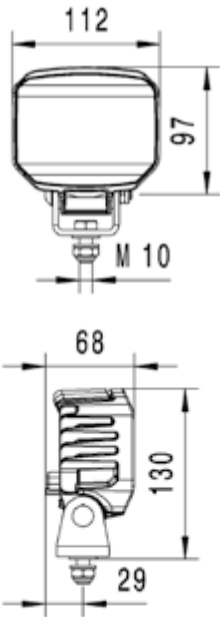


RokLUME 190 RFCommSafe

This LED product has the following features



Long range Version



RokLUME 190 RFCommSafe

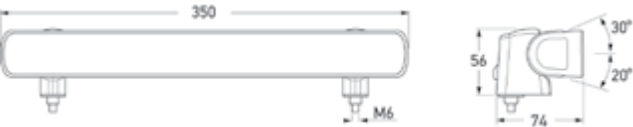
- Developed specifically for Mining applications
- Corrosion resistant NanoSafe coating
- RFCommSafe™ for zero EMC emissions

Light output (measured): 1,850 lumen, power requirement: 36 Watt, colour temperature: 5,000° Kelvin, single voltage (24 Volt), reverse polarity protection, transient spike circuit protection, over-voltage protection, thermal management, IP 6K9K / IP 6K8, non-stick and easy to clean surface coating, ECE-R10 approved, RCM compliance, premium aluminium housing for Mining use, ADR / GGVSEB approved, mounting standing / hanging, DT connector, RCM compliance, NanoSafe version incl. Nord-Lock washers.

RokLUME 190 N RFCommSafe CR	1GA 996 388-541
RokLUME 190 N RFCommSafe LR	1GA 996 388-551
RokLUME 190 RFCommSafe CR	1GA 996 388-561
RokLUME 190 RFCommSafe LR	1GA 996 388-571

CR Close range  
LR Long range  
N NanoSafe

This LED product has the following features



RokLUME 210

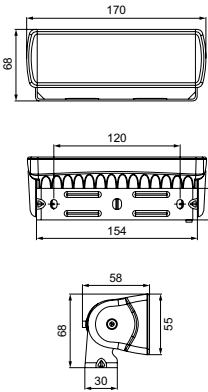
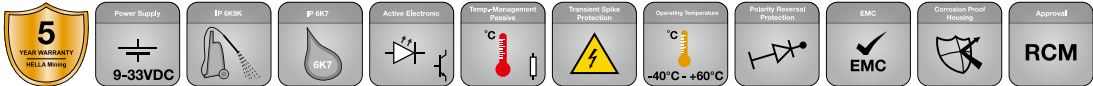
- Non-metal thermally conductive polymer housing
- Heavy Duty bracket resists against vibration

Light output (measured): 2,200 lumen, power requirement: 25 Watt, colour temperature: 5,000° Kelvin, Multivolt, reverse polarity protection, transient spike circuit protection, over-voltage protection, thermal management, IP 6K9K / IP 6K7, CE EMC approved, RCM compliance, high quality thermally conductive polymer housing, mounting hanging, connection via 2.5 m wire.

RokLUME 210 XW	1GJ 958 040-501
RokLUME 210 CR	1GJ 958 040-551
RokLUME 210 LR	1GJ 958 040-601

XW Extra wide  
CR Close range  
LR Long range

This LED product has the following features



RokLUME 160

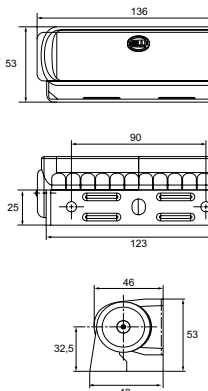
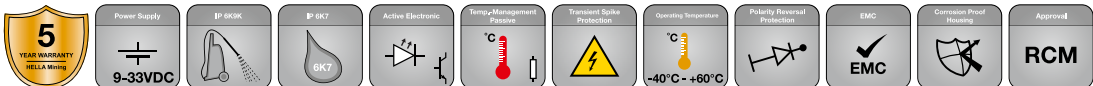
- Non-metal thermally conductive polymer housing
- Compact size
- Heavy Duty bracket resists against vibration

Light output (measured): 1,300 lumen, power requirement: 18 Watt, colour temperature: 5,000° Kelvin, Multivolt, reverse polarity protection, transient spike circuit protection, over-voltage protection, thermal management, IP 6K9K / IP 6K7, CE EMC approved, RCM compliance, high quality thermally conductive polymer housing, mounting hanging, connection via 2.5 m wire.

RokLUME 160 CR	1GA 980 740-321
RokLUME 160 LR	1GA 980 740-221
RokLUME 160 XW	1GA 980 740-021

CR Close range  
LR Long range  
XW Extra wide

This LED product has the following features



RokLUME 120

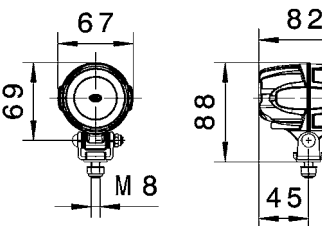
- Non-metal thermally conductive polymer housing
- Compact size
- Heavy Duty bracket resists against vibration

Light output (measured): 550 lumen, power requirement: 7 Watt, colour temperature: 5,000° Kelvin, Multivolt, reverse polarity protection, transient spike circuit protection, over-voltage protection, thermal management, IP 6K9K / IP 6K7, CE EMC approved, RCM compliance, high quality thermally conductive polymer housing, connection via 2.5 m wire.

RokLUME 120 CR	1GA 980 573-101
RokLUME 120 LR	1GA 980 573-301
RokLUME 120 XW	1GA 980 573-001

CR Close range  
LR Long range  
XW Extra wide

This LED product has the following features



RokLUME 140

- Ultra compact worklight
- Heavy Duty bracket resists against vibration
- Suitable for engine bays and inspection areas

Light output (measured): 800 lumen, power requirement: 15 Watt, colour temperature: 6,500° Kelvin, Multivolt, reverse polarity protection, transient spike circuit protection, over-voltage protection, thermal management, IP 6K9K / IP 6K8, ECE-R10 approved, RCM compliance, high quality aluminum housing for Heavy Duty use, ADR / GGVSEB approved, DT connector.

RokLUME 140 CR, standing	1G0 995 050-001
RokLUME 140 CR, hanging	1G0 995 050-011
RokLUME 140 LR, standing / hanging	1G0 995 050-021

CR Close range  
LR Long range



This LED product has the following features

5  
YEAR WARRANTY  
HELLA MINING

Power Supply  
9-33VDC

IP 6K9K

IP 6K7

Temp-Management  
Active

Shock Rating  
200G

Transient Spike  
Protection

Operating Temperature  
-40°C - +60°C

Flashing

Rotating

Polarity Reversal  
Protection

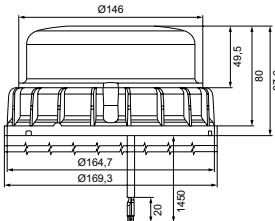
EMC  
EMC

Approved  
ECE

Approved  
RCM

Approved  
SAE

K-LED Mining



Multivolt 10 – 32 VDC, max. 30 Watt, Transient Spike Protection, Reverse Polarity Protection, IP 6K9K / IP 6K7, ADR / GGVSEB approved, ECE-R10 approved, low profile beacon, height only 87.6 mm, installation Ø 130 mm and SAE Ø 150 mm possible, amber and red ECE (ECE-R65 TA2, ECE-R65 TR2) and SAE (SAE J845 class 1) compliant, impact resistant Polycarbonate lens, RCM compliance, rotating or 17 flashing pattern, light sensor for daylight detection.

amber, direct mount	2XD 011 557-001
amber, magnetic mount	2XD 011 557-051
amber, pole mount	2XD 011 557-041
red, direct mount	2XD 011 557-021
blue, direct mount	2XD 011 557-011
green, direct mount	2XD 011 557-031

This LED product has the following features

5  
YEAR WARRANTY  
HELLA MINING

Power Supply  
9-33VDC

IP 6K9K

IP 6K7

Temp-Management  
Active

Shock Rating  
200G

Transient Spike  
Protection

Operating Temperature  
-40°C - +60°C

Flashing

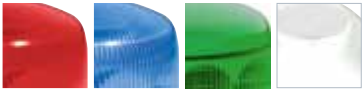
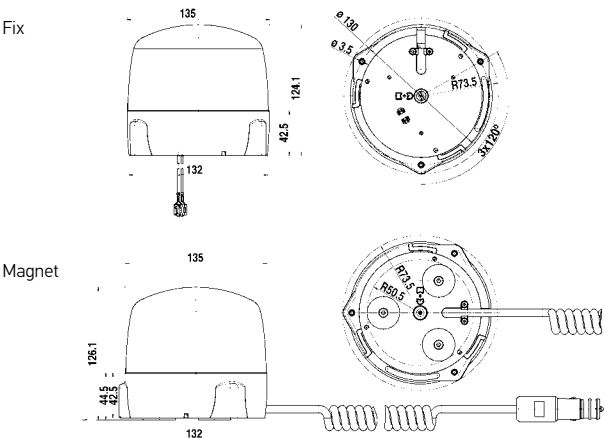
Rotating

EMC  
EMC

Approved  
ECE

Approved  
RCM

Approved  
SAE



OptiRAY 2.0/2.1

Multivolt 10 – 32 VDC, max. 12 Watt, Transient Spike Protection, Reverse Polarity Protection, IP 6K9K / IP 6K7, ADR / GGVSEB approved, ECE-R10 approved, RCM compliance, Installation Ø 130 mm, SAE (SAE J845 class 2), impact resistant Polycarbonate lens.

Rotating:  
amber and blue ECE (ECE-R65 TA1, ECE-R65 TB1) compliant

Flashing:  
amber, blue and red ECE (ECE-R65 TA1, ECE-R65 TB1 and ECE-R65 TR1) compliant

OptiRAY 2.0 fix amber	2RL 010 979-201
OptiRAY 2.0 fix blue	2RL 010 979-301
OptiRAY 2.0 fix red	2RL 010 979-401
OptiRAY 2.0 fix green	2RL 010 979-601
OptiRAY 2.0 fix white	2RL 010 979-701

OptiRAY 2.0 magnet amber	2RL 010 979-221
OptiRAY 2.0 magnet blue	2RL 010 979-321
OptiRAY 2.0 magnet red	2RL 010 979-421
OptiRAY 2.0 magnet green	2RL 010 979-621
OptiRAY 2.0 magnet white	2RL 010 979-721

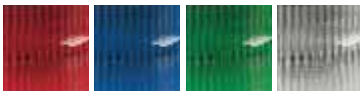
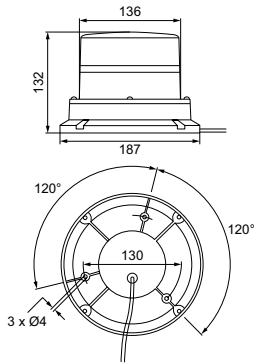
OptiRAY 2.1 fix amber	2XD 012 878-301
OptiRAY 2.1 fix blue	2XD 012 878-401
OptiRAY 2.1 fix red	2XD 012 878-501
OptiRAY 2.1 fix green	2XD 012 878-601
OptiRAY 2.1 fix white	2XD 012 878-701

OptiRAY 2.1 magnet amber	2XD 012 878-321
OptiRAY 2.1 magnet blue	2XD 012 878-421
OptiRAY 2.1 magnet red	2XD 012 878-521
OptiRAY 2.1 magnet green	2XD 012 878-621
OptiRAY 2.1 magnet white	2XD 012 878-721

2.0 Rotating  
2.1 Flashing



This LED product has the following features



UltraRAY – R Twin

User selectable output (rotate or quad flash patterns), impact resistant smooth Polycarbonate lens, precision fresnel optics, powder coated cast alloy base and power requirement: max. 50 Watt. SAE J845 Class 1 (red and amber version), RCM compliance.

amber, direct mount	2RL 910 097-001
red, direct mount	2RL 182 653-502
blue, direct mount	2RL 182 653-102
green, direct mount	2RL 182 653-302
white, direct mount	2RL 182 653-702
amber, magnetic mount	2RL 182 653-002
red, magnetic mount	2RL 182 653-602
blue, magnetic mount	2RL 182 653-202
green, magnetic mount	2RL 182 653-402
white, magnetic mount	2RL 182 653-802

UltraRAY – R Rotating

User selectable "rotating" or quad flash patterns", impact resistant, Polycarbonate lens, precision fresnel optics, powder coated cast alloy base, SAE J845 class 1 (amber and red), power requirement: max. 20 Watt, RCM compliance.

amber, direct mount	2RL 910 087-001
red, direct mount	2RL 910 087-081
blue, direct mount	2RL 910 087-041
green, direct mount	2RL 910 087-061
white, direct mount	2RL 910 087-101
amber, magnetic mount	2RL 910 087-031
red, magnetic mount	2RL 910 087-091
blue, magnetic mount	2RL 910 087-051
green, magnetic mount	2RL 910 087-071
white, magnetic mount	2RL 910 087-111

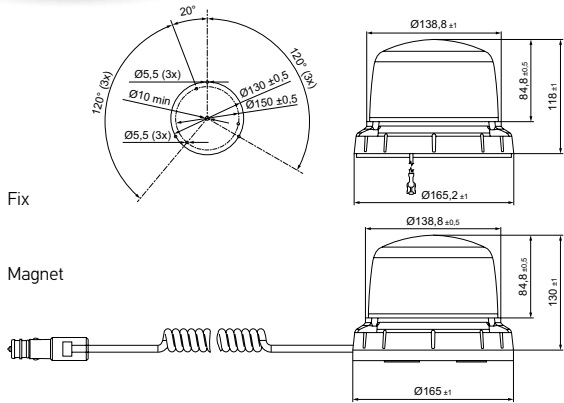
\* Preset to "rotating" pattern

UltraRAY – Flashing

User selectable flash patterns (4), automatic daylight detection, impact resistant smooth, Polycarbonate lens, clear precision fresnel optics, cast alloy base and SAE J845 class 1 (amber and red), power requirement: max. 20 Watt, RCM compliance.

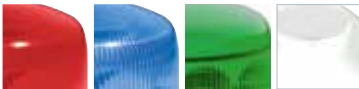
amber, direct mount	2RL 910 081-001
red, direct mount	2RL 910 081-031
blue, direct mount	2RL 910 081-011
green, direct mount	2RL 910 081-021
white, direct mount	2RL 910 081-041
amber, magnetic mount	2RL 910 082-001
red, magnetic mount	2RL 910 082-031
blue, magnetic mount	2RL 910 082-011
green, magnetic mount	2RL 910 082-021
white, magnetic mount	2RL 910 082-041

This LED product has the following features



Fix

Magnet



MiniRAY 2.1

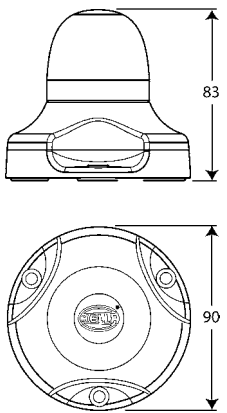
Multivolt 9–30 VDC, max. 4 Watt, Transient Spike Protection, Reverse Polarity Protection, IP 6K9K / IP 6K7, ADR / GGVSEB approved, ECE-R10 approved, RCM compliance, Installation Ø 130 mm and SAE Ø 150 mm possible, impact resistant Polycarbonate lens, amber and red SAE (SAE J845 class 3) compliant.

MiniRAY 2.1 fix amber	2XD 012 480-301
MiniRAY 2.1 fix blue	2XD 012 480-321
MiniRAY 2.1 fix red	2XD 012 480-311
MiniRAY 2.1 fix green	2XD 012 480-341
MiniRAY 2.1 fix white	2XD 012 480-331

MiniRAY 2.1 magnet amber	2XD 012 480-401
MiniRAY 2.1 magnet blue	2XD 012 480-411
MiniRAY 2.1 magnet red	2XD 012 480-421
MiniRAY 2.1 magnet green	2XD 012 480-441
MiniRAY 2.1 magnet white	2XD 012 480-431

2.1 Flashing

This LED product has the following features



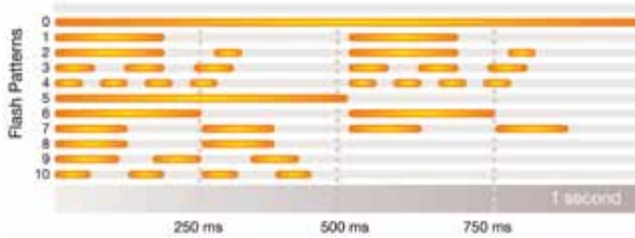
NaviLED M

User selectable flash patterns, high visibility yellow, impact resistant acrylic base, clear UV and chemical resistant modified acrylic lens, function colours coded into lens caps, power requirement: < 5 Watt, RCM compliance, ECE-R10 approved.

amber	2XD 980 911-621
red	2XD 980 911-421
blue	2XD 980 911-721
green	2XD 980 911-221
white	2XD 980 911-021

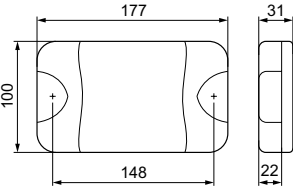
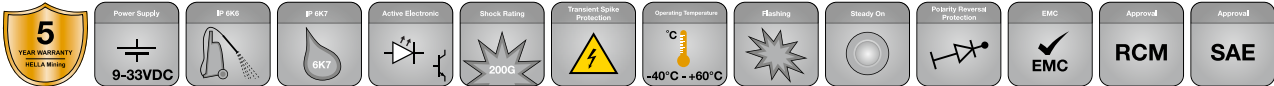
amber with DT connector	2RL 910 141-071
red with DT connector	2RL 910 141-051
blue with DT connector	2RL 910 141-091
green with DT connector	2RL 910 141-031
white with DT connector	2RL 910 141-011

MultiFLASH®

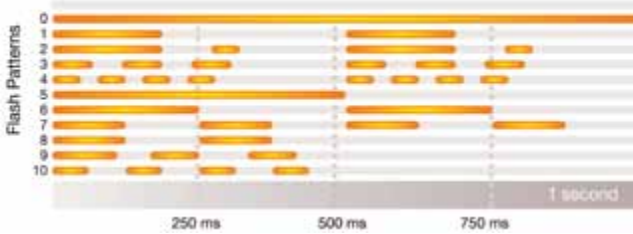




This LED product has the following features



MultiFLASH®

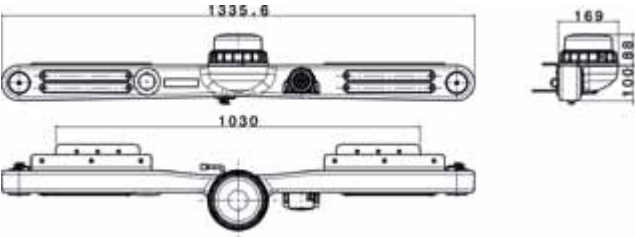


DuraLED M – High intensity

User selectable flash patterns, high impact Grilamid nylon lens, clear precision micro optics, Multivolt 9 – 33 VDC, power requirement: < 10 Watt, fully sealed "Fit and Forget" design, IP 6K6 / IP 6K7, RCM compliance, ECE-R10 approved.

with 2.5 cable, bare wire	
amber (SAE)	2XD 959 037-101
red (SAE)	2XD 959 037-001
blue	2XD 959 037-601
green	2XD 959 037-801
white	2XD 959 037-901
with 250 mm cable and DT plug	
amber (SAE)	2XD 959 037-141
red (SAE)	2XD 959 037-021
blue	2XD 959 037-621
green	2XD 959 037-821
white	2XD 959 037-921

Mounting example:  
LED Mine Spec Signal Bar Kit with roof rack kit  
and with 2 pieces RokLUME 140 mounted on it.



LED Mine Spec Signal Bar

Low profile LED Mine Spec Signal Bar, specifically designed for Mining industry light vehicles. It is designed to be an all-in-one solution for service vehicles and has a contoured design to suit a vehicle roof line with a low physical footprint.

This new product offers a solution to replace multiple products on a light vehicle fleet. Fitting one quality solution can achieve fleet standardisation, reducing inventory and inspection times and improve performance, reliability and safety.

Designed specifically for Mining light vehicles, Low profile mounting position, Low EMC output of integral products ensures no radio interference, corrosion resistant aluminium brackets, and auxiliary 2 pin DT connectors for further user customisation such as additional worklights and/or Buggy Whip.

1) LED Mine Spec Signal Bar Pod

Content:	
1 x Black Pod*	
2 x Stop/Tail light*	
1 x Broadband Reverse Alarm*	
1 x Brackets (9XX 196 289-101)	2SD 196 293-001
1 x K-LED Beacon*	
2 x Turn signal light	
1 x Reverse indication light*	
1 x External Harness (8KB 196 292-011)	

\* The accessories are pre-assembled

2) LED Mine Spec Signal Bar Kit

Content:	
1 x Mine Spec Signal Bar Kit 2SD 196 293-001	
1 x Roof Rack Kit*	
4 x Sliders (8XX 196 291-001)	
To suit all Toyota Hilu x 4 Door Dual Cab models (MY2006 onwards)	2SD 012 074-001
To suit FORD Ranger 4 Door PX Dual cab models (MY2012 onwards)	2SD 012 074-101

\* Note: Roof Rack and Brackets are not pre-assembled as shown in picture

Spare parts

Brackets	9XX 196 289-101
Sliders	8XX 196 291-001
External harness	8KB 196 292-011





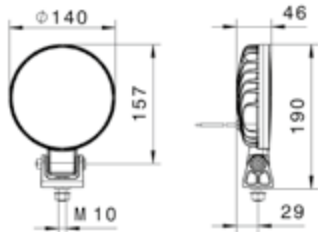
This LED product has the following features



AP 1200 LED Offroad Signal Light

LED Offroad Signal Light, power requirement: 22 Watt, Multivolt, reverse polarity protection, over-voltage protection, thermal management, IP 6K9K / IP 6K7, ECE-R10 approved, RCM compliance, 2-pole DT connector, 300 mm cabling length, mounting standing / hanging.

amber	1G4 011 722-501
green	1G4 011 722-511
red	1G4 011 722-521
blue	1G4 011 722-531



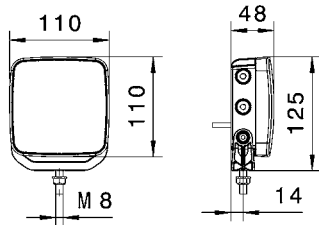
This LED product has the following features



Repulse LED Offroad Signal Light

LED Offroad Signal Light, power requirement: 11 Watt, Multivolt, reverse polarity protection, overvoltage protection, thermal management, IP 6K9K / IP 6K7, ECE-R10 approved, ADR approved, 2-pole DT connector and 150 mm cabling length, mounting standing / hanging bracket width 109 mm.

amber	2ZR 012 456-411
blue	2ZR 012 456-421
green	2ZR 012 456-431
red	2ZR 012 456-441





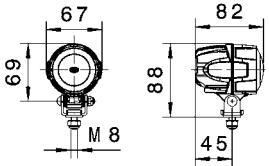
This LED product has the following features



RokLUME 140 Green/ Red



Illuminated



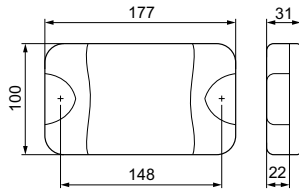
Power requirement: 15 Watt, Multivolt, reverse polarity protection, transient spike circuit protection, over-voltage protection, thermal management, IP 6K9K / IP 6K8, ECE-R10 approved, RCM compliance, ECE-R10 approved, high quality aluminum housing for Heavy Duty use, ADR / GGVSEB approved, DT connector.

RokLUME 140 G	1G0 995 050-091
RokLUME 140 R	1G0 995 050-101

This LED product has the following features



DuraLED



Power requirement: Rear Direction Indicator 9 Watt, Rear Position Lamp 2 Watt, Park Lamp 2 Watt, Stop Lamp 9 Watt, Multivolt, reverse polarity protection, over-voltage protection, impact resistant Polycarbonate lens, IP 6K6 / IP 6K7, low power, high efficiency, ultra long "Fit and Forget" service life and RCM compliance, ECE-R10 approved. Mounting horizontal and vertical standing. Connection via 2.5 m wire.

ECE, stop / rear position (amber/red, horizontal mount only)	2SB 959 060-621
ECE, rear direction indicator (amber/red, horizontal mount only)	2BA 959 070-621
SAE, stop / tail / rear turn signal lamp (red)	2SB 959 060-321
SAE, rear turn signal (amber)	2BA 959 070-321

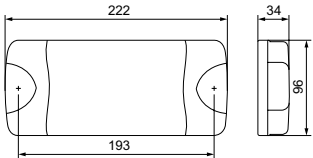
This LED product has the following features



DuraLED Combi RCL



DuraLED RCL Part No. 2SK 980 615-021 (with integrated DT) shown



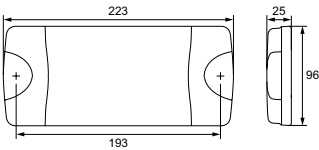
DuraLED rear combination lamp (stop / tail / indicator / reverse), power requirement: < 10 Watt, Multivolt, reverse polarity protection, over-voltage protection, clear UV, impact and chemical resistant Grilamid lens, IP 6K9K / IP 6K7, low power, high efficiency, ultra long "Fit and Forget" service life. Optic appears clear until illuminated and RCM compliance, ECE-R10 approved. Mounting horizontal.

2.5 m bare wire	2SK 980 603-511
0.25 m bare wire with 6-pole DT	2SK 980 603-521
Integrated 6-pole DT	2SK 980 615-021

This LED product has the following features



DuraLED Combi-R



DuraLED rear combination lamp (stop / tail / indicator / reflex reflector), power requirement: Stop Lamp 5 Watt, Rear Position Lamp 1 Watt, Rear Direction Indicator 5 Watt, Multivolt, reverse polarity protection, over-voltage protection, clear UV, impact and chemical resistant Grilamid lens, IP 6K9K / IP 6K7, low power, high efficiency, ultra long "Fit and Forget" service life and RCM compliance, ECE-R10 approved. Only horizontal mount.

2.5 m bare wire	2VA 980 710-071
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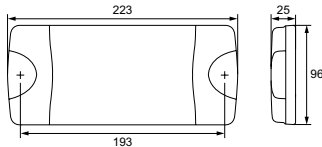
This LED product has the following features



DuraLED Combi-S



DuraLED Combi-S  
Part no. 2SD 980 602-011



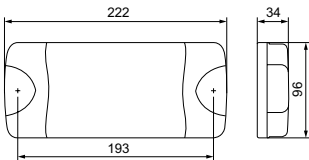
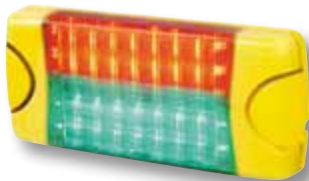
DuraLED rear combination lamp (stop / tail / indicator), power requirement: Stop Lamp 5 Watt, Rear Position Lamp 1 Watt, Rear Direction Indicator 5 Watt, Multivolt, reverse polarity protection, over-voltage protection, clear UV, impact and chemical resistant Grilamid lens, IP 6K9K / IP 6K7, low power, high efficiency, ultra long "Fit and Forget" service life and RCM compliance, ECE-R10 approved. Optic appears clear until illuminated. Mounting horizontal and vertical standing.

2.5 m bare wire	2SD 980 613-011
Integrated 6-pole DT	2SD 980 602-011

This LED product has the following features



DuraLED Combi MSIP



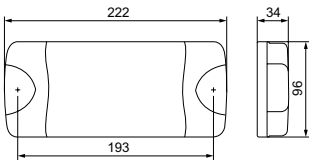
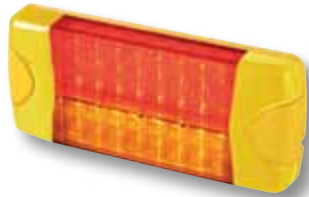
DuraLED MSIPs (Mine Safety Indicator Panel) offer both red and green LED signals in one compact housing, engineered for ultra Heavy Duty applications where safety is important, such as underground transport equipment sharing space with foot traffic. Power requirement: < 10 Watt, Multivolt, reverse polarity protection, over-voltage protection, clear UV, impact and chemical resistant Grilamid lens, IP 6K6 / IP 6K7, low power, high efficiency, ultra long "Fit and Forget" service life and RCM compliance, ECE-R10 approved. Optic appears clear until illuminated. Mounting horizontal and vertical standing.

6 m bare wire	2XA 959 050-301
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This LED product has the following features



DuraLED M Combi



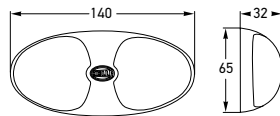
DuraLED rear combination lamp (stop / tail / indicator), power requirement: < 10 Watt, Multivolt, reverse polarity protection, over-voltage protection, clear UV, impact and chemical resistant Grilamid lens, IP 6K6 / IP 6K7, low power, high efficiency, ultra long "Fit and Forget" service life and RCM compliance, ECE-R10 approved. Optic appears clear until illuminated. Mounting horizontal.

6 m bare wire	2SD 959 050-061
0.25 m bare wire with 4-pole DT	2SD 959 050-071

This LED product has the following features



DuraLED Side Marker Lamp



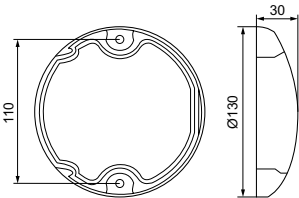
Power requirement: 3 Watt, Multivolt, reverse polarity protection, 5,000 Watt Transient Voltage Suppressor, over-voltage protection, impact resistant Polycarbonate lens, IP 6K9K / IP 6K7, ultra long "Fit and Forget" service life, RCM compliance, ECE-R10 approved. Mounting horizontal and vertical standing. Connection via 2.5 m sheathed multi-core cable.

DuraLED Side Marker Lamp, amber	2BM 959 700-001
DuraLED Side Marker Lamp, red	2XA 959 700-301
DuraLED Side Marker Lamp, green	2PS 959 700-221





This LED product has the following features

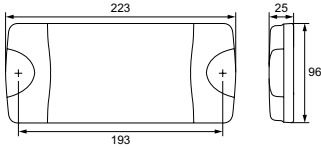


EuroLED Touch M

Dual colour interior lamp, power requirement: white < 4 Watt, red < 1.5 Watt, Multivolt, touch sensitive switching, dimming function, over-voltage protection, reverse polarity, transient spike circuit protection, RCM and CE-EMC compliance and surface mount.

with 2.5 m cable	2JA 959 950-211
with 0.5 m cable and DT plug	2JA 959 950-221

This LED product has the following features

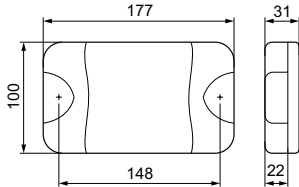


DuraLED 1000 Lumen Service Light

Light output (measured): 1,000 lumen, power requirement: 12 Watt, Multivolt, reverse polarity protection, over-voltage protection, thermal management, clear UV, impact and chemical resistant Grilamid lens, IP 6K6 / IP 6K7, RCM and CE-EMC compliance and spread illumination.

Close range illumination, surface mount, connection via 2.5 m cable	2JA 980 604-021
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This LED product has the following features



DuraLED 700 Lumen Service Light

Light output (measured): 700 lumen, power requirement: 9 Watt, Multivolt, reverse polarity protection, over-voltage protection, thermal management, clear UV, impact and chemical resistant Grilamid lens, IP 6K6 / IP 6K7, ECE-R10 approved, RCM and CE-EMC compliance, with 2.5 m cable and surface mount.

Close range illumination	2JA 959 037-221
Long range illumination	2JA 959 037-421





This LED product has the following features

5

YEAR WARRANTY

HELLA MINING

Power Supply

9-33VDC

IP 6K9K

IP 6K8

Active Electronic

Temp-Management Active

Shock Rating

200G

Transient Spike Protection

Operating Temperature

-40°C ~ +50°C

Polarity Reversal Protection

EMC

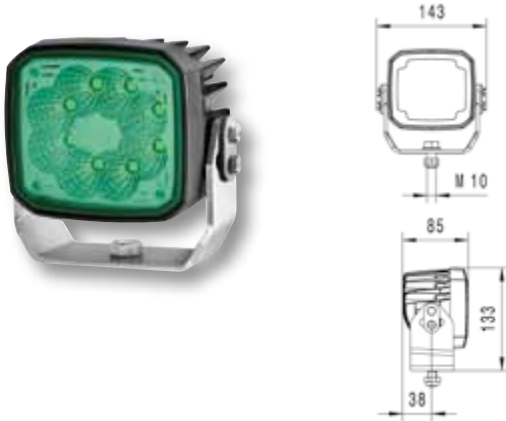
EMC

Corrosion Proof Housing

Approved

RCM

ZEROGLARE



RokLUME 280 G N

→ Compact size suitable for all Mining machinery

→ Corrosion resistant NanoSafe coating

→ Heavy Duty bracket resists against vibration

Light output (measured): up to 4,300 lumen, power requirement: 55 Watt, Multivolt, reverse polarity protection, transient spike circuit protection, over-voltage protection, thermal management, IP 6K9K / IP 6K8, DT connector, high impact nylon lens, NanoSafe (non-stick and easy to clean surface coating), mounting angle guide, ECE-R10 approved, RCM compliance, premium aluminium housing for Mining use, Nord-Lock washers, DT counterpart included, mounting standing / hanging, Heavy Duty surrounding-bracket, RCM compliance.

RokLUME 280 G N ZG	1GA 995 606-741
RokLUME 280 G N PB	1GA 995 606-721

ZG

ZEROGLARE

PB

Pencil Beam

G

Green

N

NanoSafe

This LED product has the following features

5

YEAR WARRANTY

HELLA MINING

Power Supply

9-48VDC

IP 6K9K

IP 6K8

Active Electronic

Temp-Management Active

GGVSE

Transient Spike Protection

Operating Temperature

-40°C ~ +50°C

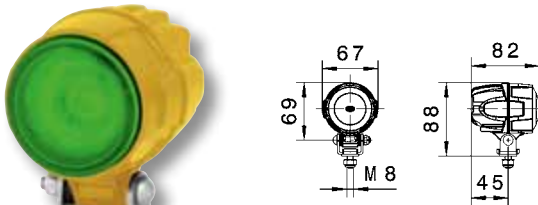
Polarity Reversal Protection

EMC

EMC

Approved

RCM



Illuminated

RokLUME 140 G

Power requirement: 15 Watt, Multivolt, reverse polarity protection, transient spike circuit protection, over-voltage protection, thermal management, IP 6K9K / IP 6K8, ECE-R10 approved, RCM compliance, ECE-R10 approved, high quality aluminum housing for Heavy Duty use, ADR / GGVSEB approved, DT connector.

RokLUME 140 G	1G0 995 050-091
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This LED product has the following features

5

YEAR WARRANTY

HELLA MINING

Power Supply

9-33VDC

IP 6K8

IP 6K7

Active Electronic

Shock Rating

200G

Transient Spike Protection

Operating Temperature

-40°C ~ +60°C

Flashing

Steady On

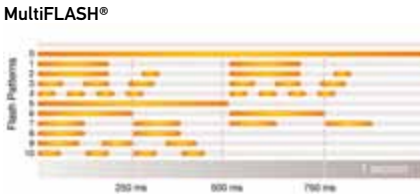
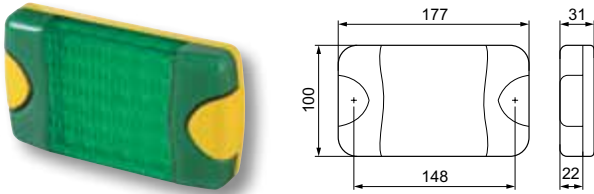
Polarity Reversal Protection

EMC

EMC

Approved

RCM



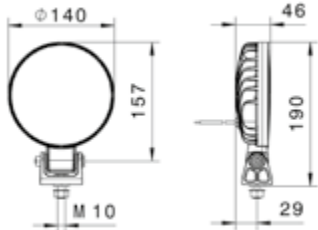
DuraLED M – High intensity

User selectable flash patterns, high impact Grilamid nylon lens, clear precision micro optics, Multivolt 9–33 VDC, power requirement: < 10 Watt, fully sealed "Fit and Forget" design, IP 6K6 / IP 6K7, ECE-R10 approved, RCM compliance.

with 2.5 cable, bare wire	2XD 959 037-801
with 250 mm cable and DT plug	2XD 959 037-821



This LED product has the following features

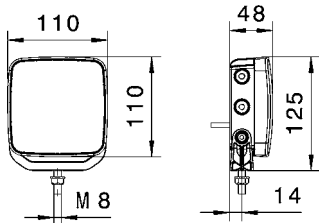


AP 1200 LED Offroad Signal Light

LED Offroad Signal Light, power requirement: 22 Watt, Multivolt, reverse polarity protection, over-voltage protection, thermal management, IP 6K9K / IP 6K7, ECE-R10 approved, RCM compliance, 2-pole DT connector, 300 mm cabling length, mounting standing / hanging.

AP 1200 LED Offroad Signal Light 1G4 011 722-511

This LED product has the following features

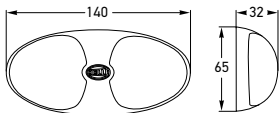


Repulse LED Offroad Signal Light

LED Offroad Signal Light, power requirement: 11 Watt, Multivolt, reverse polarity protection, overvoltage protection, thermal management, IP 6K9K / IP 6K7, ECE-R10 approved, ADR approved, 2-pole DT connector and 150 mm cabling length, mounting standing / hanging bracket width 109 mm rectangular shape.

Repulse LED Offroad Signal Light 2ZR 012 456-431

This LED product has the following features

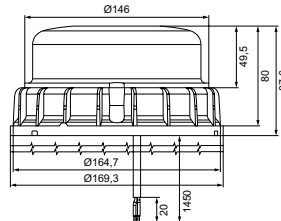
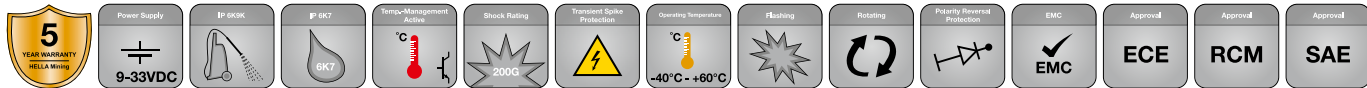


DuraLED Side Marker Lamp

Power requirement: 3 Watt, Multivolt, reverse polarity protection, 5,000 Watt Transient Voltage Suppressor, over-voltage protection, impact resistant Polycarbonate lens, IP 6K9K / IP 6K7, ultra long "Fit and Forget" service life, RCM compliance, ECE-R10 approved. Mounting horizontal and vertical standing. Connection via 2.5 m sheathed multi-core cable.

DuraLED Side Marker Lamp, green 2PS 959 700-221

This LED product has the following features

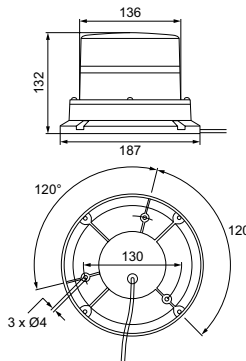
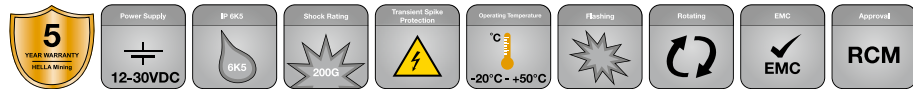


K-LED Mining

Multivolt 10 – 32 VDC, max. 30 Watt, Transient Spike Protection, Reverse Polarity Protection, IP 6K9K / IP 6K7, ADR / GGVSEB approved, ECE-R10 approved, low profile beacon, height only 87.6 mm, installation Ø 130 mm and SAE Ø 150 mm possible, amber and red ECE (ECE-R65 TA2, ECE-R65 TR2) and SAE (SAE J845 class 1) compliant, impact resistant Polycarbonate lens, RCM compliance, rotating or 17 flashing pattern, light sensor for daylight detection.

K-LED Mining, direct mount 2XD 011 557-031

This LED product has the following features

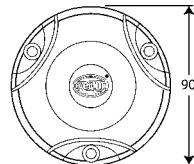
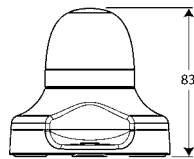
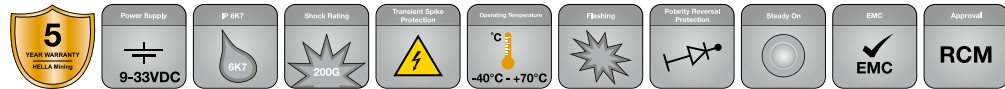


UltraRAY

User selectable output (rotate or quad flash patterns), impact resistant smooth Polycarbonate lens, precision fresnel optics, powder coated cast alloy base and power requirement: 50 Watt. RCM compliance.

UltraRAY – R Twin	
Direct mount	2RL 182 653-302
Magnetic mount	2RL 182 653-402
UltraRAY – Flashing	
Direct mount	2RL 910 081-021
Magnetic mount	2RL 910 082-021
UltraRAY – R Rotating	
Direct mount	2RL 910 087-061
Magnetic mount	2RL 910 087-071

This LED product has the following features



NaviLED M

User selectable flash patterns, high visibility yellow, impact resistant acrylic base, clear UV and chemical resistant modified acrylic lens, function colours coded into lens caps, power requirement: < 5 Watt, RCM compliance, ECE-R10 approved.

NaviLED M	2XD 980 911-221
NaviLED M with DT connector	2RL 910 141-031



This LED product has the following features

5

YEAR WARRANTY

HELLA WIRING

Power Supply

9-33VDC

IP 6K9K

IP 6K7

Active Electronic

Temp-Management Active

Shock Rating

200G

Transient Spike Protection

Operating Temperature

-40°C - +60°C

Flashing

Rotating

EMC

EMC

Approval

ECE

Approval

RCM

Approval

SAE

OptiRAY 2.0/2.1

Multivolt 10–32 VDC, max. 12 Watt, Transient Spike Protection, Reverse Polarity Protection, IP 6K9K / IP 6K7, ADR / GGVSEB approved, ECE-R10 approved, RCM compliance, Installation Ø 130 mm, SAE (SAE J845 class 2), impact resistant Polycarbonate lens, rotating: amber and blue ECE (ECE-R65 TA1, ECE-R65 TB1) compliant.

OptiRAY 2.0 fix green	2RL 010 979-601
OptiRAY 2.0 magnet green	2RL 010 979-621

OptiRAY 2.1 fix green	2XD 012 878-601
OptiRAY 2.1 magnet green	2XD 012 878-621

2.0 Rotating  
2.1 Flashing

This LED product has the following features

5

YEAR WARRANTY

HELLA WIRING

Power Supply

9-33VDC

IP 6K9K

IP 6K7

Active Electronic

Temp-Management Active

Shock Rating

200G

Transient Spike Protection

Operating Temperature

-40°C - +60°C

Flashing

Polarity Reversal Protection

EMC

EMC

Approval

RCM

Approval

SAE

MiniRAY 2.1

Multivolt 9–30 VDC, max. 4 Watt, Transient Spike Protection, Reverse Polarity Protection, IP 6K9K / IP 6K7, ADR / GGVSEB approved, ECE-R10 approved, RCM compliance, Installation Ø 130 mm and SAE Ø 150 mm possible, impact resistant Polycarbonate lens, amber and red SAE (SAE J845 class 3) compliant.

MiniRAY 2.1 fix green	2XD 012 480-341
MiniRAY 2.1 magnet green	2XD 012 480-441

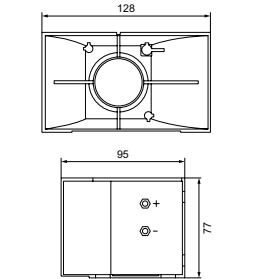
2.1 Flashing









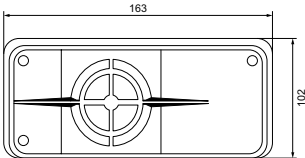


MotoVox Compact 117 dB Horn

Solid state electronic horn designed for extremely long life and to replace high maintenance electromechanical horns. This model is designed to meet or exceed all applicable SAE specifications. Used by major OEMs.

117 db @ 1.2 m  
SAE J1105 Sept 89, Type K.  
U.L. recognised for electric vehicles and fork lifts

12 – 24 VDC, bare wire connection 3TA 910 156-021

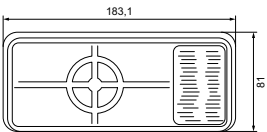


RetroVox Ultra Heavy Duty Reversing Alarm

One of the most rugged adjustable, Heavy Duty alarms on the market. These alarms are designed to withstand the most punishing environments. They have 8 – 32 UNC terminal studs on the back of the unit. Used by major OEMs.

97, 107, 112 db @ 1.2 m  
SAE J994 Types A, B and C

12 – 36 VDC, bare wire connection 3TA 910 174-001

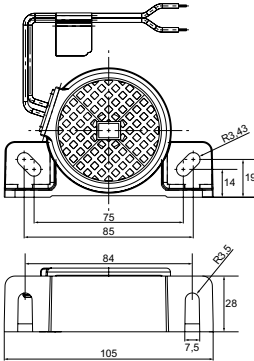


MotoVox Forward 117 dB Horn

Electronic forward horn is designed to be used where a high-decibel rugged horn is necessary.

117 db @ 1.2 m  
SAE J1105 Sept 89, Type J @ 24 V systems  
SAE J1105 Sept 89, Type K @ 12 V systems

12 – 24 VDC, bare wire connection 3TA 910 156-011

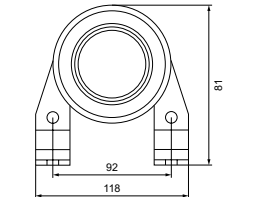


RetroVox Compact Broadband 87 dB Alarm

Noise pollution can be an issue for mine sites close to residential areas. HELLA have introduced a range of broadband or “white noise” reversing alarms to prevent miners from having to compromise on safety. By emitting sound over a large range of frequencies, the sound dissipates faster and is localised so that sound doesn’t carry. The RetroVOX features a rugged design, which is highly reliable and unaffected by continuous vibration, moisture, heat, cold, sun glare and dirt.”

87 db @ 1.2 m  
SAE J994 class E 11  
CE and EMC approved

12 – 24 VDC, bare wire connection 3SL 910 344-001

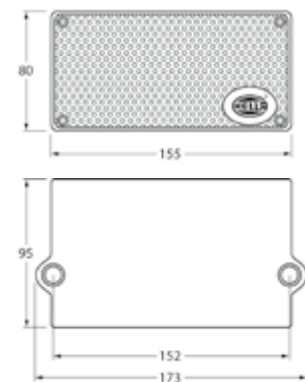


MotoVox Compact 107 dB Horn

Solid state electronic horn designed for extremely long life and to replace high maintenance electromechanical horns. This model is designed to meet or exceed all applicable SAE specifications. Used by major OEMs.

107 db @ 1.2 m  
SAE J1105 Sept 89, Type L

12 – 48 VDC, bare wire connection 3TA 910 156-001

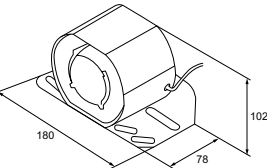


RetroVox Compact Broadband 87 – 112 dB Reversing Alarm

Noise pollution can be an issue for mine sites close to residential areas. HELLA have introduced a range of broadband or “white noise” reversing alarms to prevent miners from having to compromise on safety. By emitting sound over a large range of frequencies, the sound dissipates faster and is localised so that sound doesn’t carry. The RetroVOX features a rugged design, which is highly reliable and unaffected by continuous vibration, moisture, heat, cold, sun glare and dirt.

87 – 112 dB @ 1.2 m

12 – 24 VDC, bare wire connection 3TA 910 174-241



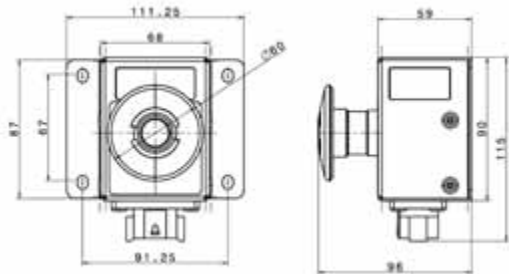
RetroVox Self Adjusting Reversing Alarm

Steel housing and construction for rugged applications. Integral bracket includes same mounting pattern with OEMs, self adjusting. Suitable for high pressure washing, epoxy encapsulated circuit board protects alarm against moisture and vibration damage.

87 – 112 db @ 1.2 m  
SAE J994 Type D

12 – 24 VDC, bare wire connection 3TA 910 174-031





This LED product has the following features

Power Supply  
12VDC

Power Supply  
24VDC

IP 6K9

IP 6K8

HELLA Mine E-Stop

HELLA Mining's new Mine E-Stop. Versatility, Safety, Fast Installation. This Heavy Duty unit features LED illumination visible from 3 sides, user-friendly 60 mm push button, DT connection and direct mount capability.

Fast Installation: Most E-Stops need dismantling to be fitted however the Hella Mine E-Stop mounts directly, saving time on initial installation and damage replacement.

Features and benefits:  
Added safety through illumination via LED (visible from 3 sides), IP 6K9 / IP 6K8 rated, all units pressure tested, fully sealed unit, "Plug and Play", supplied with mating DT connector, high visibility yellow powder-coated 304 stainless steel, user friendly, large 60 mm mushroom button, 2 normally closed and 1 normally open contacts (rated 10 A each).

Mine E-Stop	6HF 012 416-001
-------------	-----------------

This LED product has the following features

Power Supply  
9-33VDC

LED Buggy Whip

Light source: high quality bright LED, Multivolt, low power requirement, cross flag yellow.



Red flag – „X“ reflective tape, Whip colour Orange, 1.2 m long	2AA 910 084-211
Red flag – „X“ reflective tape, Whip colour Orange, 1.8 m long	2AA 910 084-221
Red flag – „X“ reflective tape, Whip colour Orange, 2.4 m long	2AA 910 084-231
Buggy Whip Mounting Kit	2AA 910 084-201

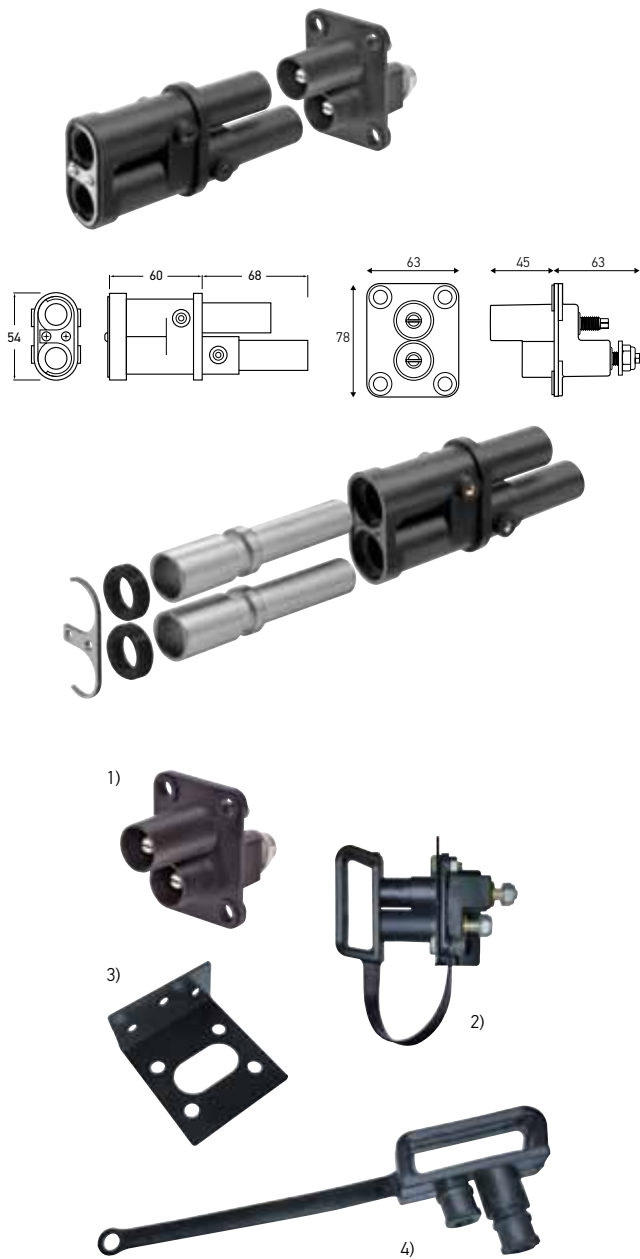


Weatherproof Changeover Relay and Connector Assembly Kits

Dustproof IP 54 to IEC 529 with mounting bracket, weight 35 g, terminals tin plated ISO 8092-1 ambient, shock resistance: 20 G, drop test: 1 Metre onto concrete max, flammability: exceeds UL94-HB, overload current: 240 A for 1 second, 140 A for 5 seconds, 80 A for 40 seconds, 54 A for 1,800 seconds.

12 V	8KW 910 182-001
24 V	8KW 910 182-011





Jump Start System

Heavy Duty, high capacity jump-start connectors for vehicles and equipment. Ideal for use where access to terminals is restricted or dangerous. Eliminates chance of cross polarity connections through the specially shaped plug.

Reduces chance of sparking and possible ignition of flammable materials. Mounting bracket, protective cap, and kit containing the terminal, bracket and cap are also available.

Jump Start Plug

Jump Start Plug – high impact ABS plastic.  
Copper (silver brass coated) terminals.  
Suitable for 70 mm² cable. Connection via crimping and soldering process.

8JA 177 305-101

Jump Start Terminal

1) <b>Jump start Terminal</b> Removes risk of terminal crossing, high impact ABS plastic, zinc coated terminals.	8JB 177 305-001
2) <b>Terminal Kit</b> Kit of jump start terminal, bracket and cap.	8HG 177 305-031
3) <b>Terminal Bracket</b> Bracket for mounting jump start terminal to vehicle body.	8HG 177 305-021
4) <b>Terminal Cap</b> Cap to protect terminal from external environment when not in use.	9HD 177 305-011

Battery Master Lockout Switches

Battery lockout switches provide a reliable power disconnection and safety cutoff that protects the vehicle against tampering, theft and battery drain. It also protects personnel from electrical hazards during service operations. The 4 Pole 9MK 910 109-201 allows isolation of both positive and negative sides from the battery, or isolation of 2 circuits with only one switch.

125 Amps at 6–36V DC Continuous (9MK 910 109-201), 300 Amps at 6–36 V DC Continuous (9MK 910 109-101 / -111), operating temperature -40°C to +29°C, silver environment contact surfaces, brass electrical contact surfaces, 45 degree switch travel, UL listed, suits panel thickness up to 6.5 mm.

2 Pole and Field Terminals Switch, Red Handle	9MK 910 109-101
2 Pole and Field Terminals Switch, Yellow Handle	9MK 910 109-111
4 pole Switch	9MK 910 109-201

Spare parts:

Red lockout lever	9MK 910 109-301
Yellow lockout lever	9MK 910 109-311



Crimping Tools

1) DT contact Crimping Tool 0.5–4.00 mm	8PE 910 118-011
2) SUPERSEAL connector Crimping Tool	8PE 980 838-001
3) DT connector Crimping Tool	8PE 980 837-001

DT connectors

Environmentally sealed connectors rated -55°C to +125°C. Supplied complete with removable, solid copper crimp contacts (1.0–2.0 mm²) and secondary locks. All contacts rated 13 A.

2 Pole DT connector Set	8KW 959 772-821
2 Pole DT connector Half-Set*	9MK 910 095-001
3 Pole DT connector Set	8KW 959 772-851
3 Pole DT connector Half-Set*	8KW 959 773-847
4 Pole DT connector Set	8KW 959 772-861
6 Pole DT connector Set	8KW 959 774-821
6 Pole DT connector Half-Set*	8KW 959 774-817
8 Pole DT connector Set	8KW 959 774-831
12 Pole DT connector Set	8KW 959 774-841

\* Half-Set = female socket with male contacts



Battery Master Lockout Switches

The Battery Lockout Switch provides a reliable power disconnection and safety cut-off that protects the vehicle against tampering, theft and battery drain. It also protects service personnel from electrical hazards during service operations.

Composite-engineered polymer housing that will not corrode. 300 A continuous current rating at 12 V and 250 A at 24 V. Temperature operating range -40°C to +85°C. Divider on base prevents accidental shorting of battery cables. Easy to read designations on bezel and 90° switch travel make it easy to identify switch position.

Lockout Switch, Red Handle	9MK 910 109-001
Lockout Switch, Yellow Handle	9MK 910 109-011







Handy Box		
<b>Complete set:</b> Carry case complete with all four Handy Box kits – DT connector kit, blade fuse kit, heat shrink kit and crimp terminal kit.		
	<b>9XX 910 121-101</b>	
<b>Carry Case (empty)</b> Storage room for four assortment kits.		
	<b>9XX 011 959-001</b>	



Handy Box DT connector kit		
<b>Handy Box DT connector kit (incl. Crimping Tool 8PE 910 118-011)</b>		
Content: 10 x 2-Way Male DT connector incl. wedge 10 x 3-Way Male DT connector incl. wedge 8 x 6-Way Male DT connector incl. wedge 10 x 2-Way Female DT connector incl. wedge 10 x 3-Way Female DT connector incl. wedge 8 x 6-Way Male DT connector incl. wedge 100 x Male DT connector socket 100 x Female DT connector socket 1 x Crimping Tool 1 x DT Wedge Removal Tool		
Crimping Tool		<b>8PE 910 118-011</b>
2 Pin DT Plug Set		<b>8KW 905 683-101</b>
2 Pin DT Receptacle Set		<b>8KW 905 684-101</b>
3 Pin DT Plug Set		<b>8KW 905 683-111</b>
3 Pin DT Receptacle Set		<b>8KW 905 684-111</b>
6 Pin DT Plug Set		<b>8KW 905 683-131</b>
6 Pin DT Receptacle Set		<b>8KW 905 684-131</b>



Handy Box Heat Shrink Kit		
<b>Heat Shrink Kit</b> (Heat Shrink not adhesive lined)		
Content: 20 x red, shrinking 2,4 (-1,2), Length 50 mm 20 x yellow shrinking 2,4 (-1,2), Length 50 mm 20 x blue shrinking 2,4 (-1,2), Length 50 mm 30 x transparent shrinking 2,4 (-1,2), Length 50 mm 30 x black shrinking 2,4 (-1,2), Length 50 mm 20 x red shrinking 3,2 (-1,6), Length 50 mm 20 x yellow 3,2 (-1,6), Length 50 mm 20 x blue 3,2 (-1,6), Length 50 mm 30 x transparent 3,2 (-1,6), Length 50 mm 30 x black 3,2 (-1,6), Length 50 mm 20 x red shrinking 4,8 (-2,4), Length 50 mm 20 x yellow 4,8 (-2,4), Length 50 mm 20 x blue 4,8 (-2,4), Length 50 mm 30 x transparent 4,8 (-2,4), Length 50 mm 30 x black 4,8 (-2,4), Length 50 mm 20 x red shrinking 6,4 (-3,2), Length 50 mm 20 x yellow shrinking 6,4 (-3,2), Length 50 mm 20 x blue shrinking 6,4 (-3,2), Length 50 mm 30 x transparent shrinking 6,4 (-3,2), Length 50 mm 30 x black shrinking 6,4 (-3,2), Length 50 mm 4 x black shrinking 9,5 (-4,8), Length 100 mm 4 x transparent shrinking 9,5 (-4,8), Length 100 mm 4 x red shrinking 9,5 (-4,8), Length 100 mm 4 x yellow shrinking 9,5 (-4,8), Length 100 mm 4 x blue shrinking 9,5 (-4,8), Length 100 mm 4 x black shrinking 12,5 (-6,2), Length 100 mm 4 x transparent shrinking 12,5 (-6,2), Length 100 mm 4 x red shrinking 12,5 (-6,2), Length 100 mm 4 x yellow shrinking 12,5 (-6,2), Length 100 mm 4 x blue shrinking 12,5 (-6,2), Length 100 mm 10 x black shrinking 19,1 (-9,5), Length 100 mm 10 x transparent shrinking 19,1 (-9,5), Length 100 mm 5 x black shrinking 9,5 (-4,8), Length 200 mm 5 x transparent shrinking 9,5 (-4,8), Length 200 mm 5 x red shrinking 9,5 (-4,8), Length 200 mm 5 x yellow shrinking 9,5 (-4,8), Length 200 mm 5 x blue shrinking 9,5 (-4,8), Length 200 mm 5 x black shrinking 25,4 (-12,7), Length 200 mm 5 x black shrinking 19,1 (-9,5), Length 200 mm		
Heat Shrink Tubing 3 Colors 1,2...5		<b>9MJ 178 458-002</b>
Heat Shrink Tubing BK/TR 1,2...50		<b>9MJ 178 458-012</b>
Heat Shrink Tubing 3-COLOR 1,6...50		<b>9MJ 178 458-022</b>
Heat Shrink Tubing BK/TR 1,6...50		<b>9MJ 178 458-032</b>
Heat Shrink Tubing 3-COLOR 2,4...50		<b>9MJ 178 458-042</b>
Heat Shrink Tubing BK/TR 2,4...50		<b>9MJ 178 458-052</b>
Heat Shrink Tubing 3-COLOR 3,2...50		<b>9MJ 178 458-062</b>
Heat Shrink Tubing BK/TR 3,2...50		<b>9MJ 178 458-072</b>
Heat Shrink Tubing 5-COLOR 4,8-100		<b>9MJ 178 458-082</b>
Heat Shrink Tubing 5-COLOR 6,2-100		<b>9MJ 178 458-092</b>
Heat Shrink Tubing BK/TR 9,5-100		<b>9MJ 178 458-102</b>
Heat Shrink Tubing 5-COLOR 4,8-200		<b>9MJ 178 458-112</b>
Heat Shrink Tubing BK 9,5/12,7-200		<b>9MJ 178 458-122</b>



Handy Box Blade Fuse Kit		
<b>Handy Box Blade Fuse Kit</b>		
Content: 1 x 8PE 713 576-011, A 96 20 x Mini 2 A, D138 20 x Mini 3 A, D139 20 x Mini 4 A, D140 20 x Mini 5 A, D141 20 x Mini 7,5 A, D142 20 x Mini 10 A, D143 20 x Mini 15 A, D144 20 x Mini 20 A, D145 20 x Mini 25 A, D146 20 x Mini 30 A, D147 25 x ATO 2 A, D129 25 x ATO 3 A, D69 25 x ATO 4 A, D188 25 x ATO 5 A, D70 25 x ATO 7,5 A, D71 25 x ATO 10 A, D72 25 x ATO 15 A, D73 25 x ATO 20 A, D74 25 x ATO 25 A, D75 25 x ATO 30 A, D76 25 x ATO 40 A, D130		



Handy Box Crimp Terminal Kit		
<b>Handy Box Crimp Terminal Kit</b>		
Content: 20 x M4, 0,5–1,5 mm², A 67 20 x M5, 0,5–1,5 mm², A 69 20 x 6,3 mm, 0,5–1,0 mm², A 52 20 x 6,3 mm, 0,5–1,0 mm², A 59 20 x 4 mm, 0,5–1,0 mm², A 61 20 x M5, 1,5–2,5 mm², A 78 20 x 6,3mm, 1,5–2,5 mm², A 53 20 x M4, 1,5–2,5 mm², A 68 20 x M5, 1,5–2,5 mm², A 70 20 x M6, 1,5–2,5 mm², A 72 20 x 1,5–2,5 mm², A 80 20 x 6,3mm, 1,5–2,5 mm², A 58 20 x 6,3 mm, 1,5–2,5 mm², A 60 20 x 4 mm, 0,5–1,0 mm², A 63 20 x 2,8 mm, 0,5–1,0 mm², A 50 20 x 6,3 mm, 0,5–1,0 mm², A 82 20 x M5, 4,0–6,0 mm², A 71 20 x M6, 4,0–6,0 mm², A 73 20 x A 84 20 x I 50 1 x Crimping Tool		





SUPERSEAL Connector Kit	
SUPERSEAL Connector Kit	8JA 009 256-801
Content: 5 of each SUPERSEAL connector plug and socket 100 x Plug Terminals 100 x Socket Terminals 100 x Yellow conductor seals 100 x Red cavity plugs	
1 Pole SUPERSEAL Plug	8KW 959 881-516
1 Pole SUPERSEAL Socket	8KW 959 881-016
2 Pole SUPERSEAL Plug	8KW 959 881-526
2 Pole SUPERSEAL Socket	8KW 959 881-006
3 Pole SUPERSEAL Plug	8KW 959 881-536
3 Pole SUPERSEAL Socket	8KW 959 881-036
4 Pole SUPERSEAL Plug	8KW 959 881-546
4 Pole SUPERSEAL Socket	8KW 959 881-046
5 Pole SUPERSEAL Plug	8JA 959 881-556
5 Pole SUPERSEAL Socket	8JA 959 881-056
6 Pole SUPERSEAL Plug	8KW 959 881-566
6 Pole SUPERSEAL Socket	8KW 959 881-066
Plug Terminals to suit cable 0.35 – 0.50 mm²	8KW 959 882-818
Plug Terminals to suit cable 0.75 – 1.50 mm²	8KW 959 882-518
Socket Terminals to suit cable 0.35 – 0.50 mm²	8KW 959 882-418
Socket Terminals to suit cable 0.75 – 1.50 mm²	8KW 959 882-118
Green Seal to suit cable insulation 1.4 – 1.7 mm²	9GD 959 883-208
Yellow Seal to suit cable insulation 1.8 – 2.4 mm²	9GD 959 883-008
Red Seal to suit cable insulation 2.5 – 3.3 mm²	9GD 959 883-308
Red Cavity Plug	9GD 959 883-508

CONSTRUCTION AND MEANING OF THE IP (INGRESS PROTECTION) CODE

The specification of a degree of protection for protection against access and foreign object includes all lower degrees of protection.

The degrees of protection 1 to 6K for protection against water include all the lower degrees of protection.

Due to different physical affects, this does not automatically have to apply to water protection grades 7, 8 and 9K.

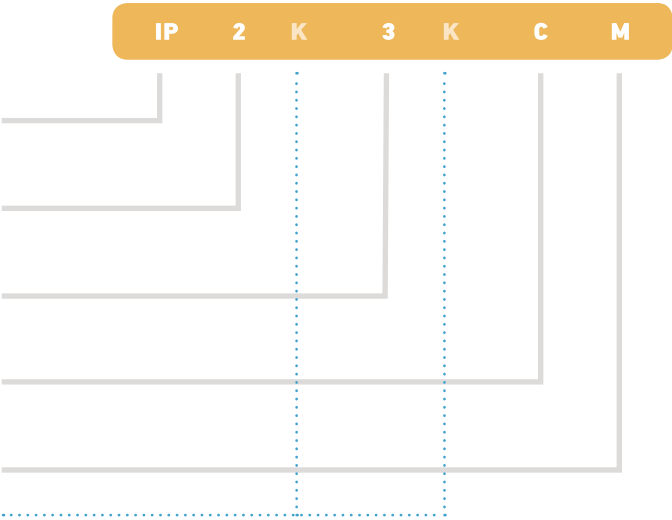
Code letters  
(Ingress Protection)

First characteristic numeral  
(Numerals 0 to 6 or letter X)

Second characteristic numeral  
(Numerals 0 to 8 or letter X)

Additional letter (optional)  
(Letters A, B, C, D)

Supplementary letter (optional)  
(Letters M, S)  
(Letter K)

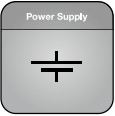


Element	Numeral / letter	Meaning for the protection of electrical equipment	Meaning for the protection of persons
First characteristic numeral / supplementary letter	0	Against the ingress of solid foreign objects (including dust): Not protected	Against access to hazardous parts (unless described by extra letters): Not protected
	1	With Ø ≥ 50 mm	With back of hand
	2	With Ø ≥ 12.5 mm	With finger
	3	With Ø ≥ 2.5 mm	With tool
	4	With Ø ≥ 1 mm	With wire
	5K	Dust-protected	With wire
	6K	Dust-tight	With wire
Second characteristic numeral / supplementary letter	0	Against the ingress of water: Not protected	
	1	Vertical dripping	
	2	Dripping (inclined 15°)	
	3	Spraying	
	4	Splashing	
	4K	Same with increased pressure	
	5	Jetting	
	6	Powerful jetting	
	6K	Same at increased pressure	
	7	Temporary immersion	
Additional letter (optional)	8	Continuous immersion	
	9K	High-pressure / steam jet cleaning	
	A	Meaning for the protection of electrical equipment	Against access to hazardous parts (unless described by first characteristic numeral): With back of hand
	B		With finger
Supplementary letter (optional)	C		With tool
	D		With wire
	M	Movement of moving parts during water test	
	S	Standstill of moving parts during water test	
	K	Specifically for the electrical equipment in road vehicles	



ICON EXPLANATION

Vehicle electrical system voltage



Defines the voltage supply of the light.  
  
Multivolt is the most flexible: Requires fewer versions, but has more electronic circuit components and is therefore more expensive.



Dust and water protection IP

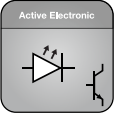


International Protection (IP) as per DIN 40050, Part 9. Specific definition for road vehicles.  
5K = Dust protected  
6K = Dust tight  
9K = Protection against water during pressure / steam cleaning.



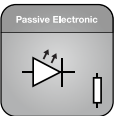
The higher the protective category, the better the protection against penetrating media. IP 67 maximum value.  
→ Completely sealed against dust and water.

Electronic circuit



Basically, two different circuits are possible for LED lamps:  
  
**Active:**  
LED current regulation by means of active electronics.

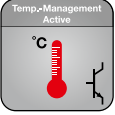
Active



**Passive:**  
Setting a specific voltage range for the LED by means of a series resistor. Inexpensive solution without complex protection measures. No EMC approval required.

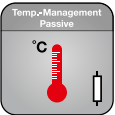
Passive

Thermal management



**Active:**  
Electronic power control of the LED in case of impermissibly high ambient temperatures. This ensures the protection of the LED against destruction by overheating. More development overhead with active thermal management and higher parts prices ensure optimal conditions for maximum design life.

Active



**Passive**  
Optimised layout of the components for even temperature distribution and spread. The warmer the LED gets through exterior factors or heating caused by its own operation, the shorter the service life.

Passive

Rated shock resistance



Operational duty cycles in Mining are some of the most demanding, and field research by HELLA has measured shock and vibration levels of remarkable magnitudes. Equipment designed for less demanding environments will fail rapidly when used in Mining, and often when most needed. Our design aim is to produce equipment that will function reliably in a continuously shock and vibration laden environment.

Draco® Dampening



Draco® Dampening systems greatly reduce the vibration and shock forces that are consistently experienced on Mining vehicles. The system provides a non-rigid mounting arrangement between the vibration source (the Mining machine) and load (the light fitting), ensuring greater product lifespan and reduced servicing intervals.

Approval for transport of dangerous goods



Light approved for transport of dangerous goods according to Hazardous Waste Road Directive (GGVS).  
  
Generally required for lorry and trailer lighting. Pre-conditioned for approval: damage to the light source must not cause explosive media to ignite.

Transient spike protection



In some circumstances, the electrical system of Mining vehicles can experience sudden high voltage spikes which have the potential to destroy sensitive electronic equipment, such as lighting. Products marked with this symbol ensures there is adequate protection from these instances.

Supplement to the electronics for protecting the LEDs against high voltages / currents in the vehicle electrical system as per ISO 7637-2.

Overloading of the LEDs can be caused by voltage peaks in the vehicle because of:  
→ Jump-starting  
→ Deffective control units  
→ Load-Dump Impulse (incorrect battery contact)

They stress / damage the LEDs, which can cause the function to fail or the service life to be reduced. Adding additional components to the circuit protects the circuit and can extend the service life or even prevent an outage.

Operating Temperature



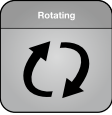
Whether it's in cold or warm climates, our products have to perform every time. Thermal management and a well designed housing allows full function of our products in all operating conditions. To ensure this performance we test our products from -40°C up to 100°C.

ICON EXPLANATION

Signal light beacons



Flashing signal light



Rotating signal light



Steady On signal light

Polarity reversal protection



Even if the connecting cable is connected the wrong way round, there is still no danger for the electronics. The semiconductor in an LED must always be operated with the correct polarity. Inverse polarity damages the LED, so that LED lamps are always equipped with a reverse polarity protection (diode).

This function only works when "+" and "-" are correctly connected, however. If a lamp has a bi-polar circuit, the functioning is independent of the contact connections. This ensures Poka-yoke (avoiding faulty installations) in connection with the indentation clamping technology, for instance.

Electromagnetic compatibility



Electromagnetic compatibility (EMC) tested.  
  
If the lamp has not been built to EMC specifications, and is thus not certified, interactions that impair other safety-relevant electronic systems may occur.

Examples:  
Interference in the radio loudspeaker, impairment of ABS electronics, or failure of the lamp due to sensitivity to interference.

Corrosion Proof Housing



Corrosion Proof Housing means new extreme corrosion resistant worklights with a special housing to improve the resistance of our Mining worklights in harsh conditions.

Approval



Product is licensed according to ECE guidelines.



Product is licensed according to RCM guidelines.  
  
From 2013, Products marketed in Australia and New Zealand will share a common electrical safety standard. As part of the registration process, suppliers must make a declaration that all the equipment they sell meets relevant standards and is electrically safe. The RCM mark will eventually superceed the C-Tick and A-Tick marks.



Product is licensed according to SABS guidelines.



Product is licensed according to SAE guidelines.

RFCCommSafe Electromagnetic Compatibility (EMC)



Every LED lamp contains electronic circuitry. It is essential that this circuitry does not cause harmful interference to other devices and at the same time is not susceptible to radiation from other devices.

RFCCommSafe products were developed in recognition that some radio communication equipment can self-tune to be very sensitive in remote areas. In these situations the limits prescribed by regulatory requirements and as defined in international standards such as CISPR15 or relevant UNECE Standards may not be sufficient to ensure there is no interference with very sensitive radio communication equipment.

ZEROGLARE



The **ZEROGLARE** light distribution is designed specifically for low beam applications to completely remove glare for oncoming traffic. **ZEROGLARE** brings on-road lighting safety and technology to the mine site.

Sea turtle friendly product



Turtles' vision is in a higher frequency range than that of humans. It extends from about 580 nm up into the ultraviolet, peaking in the blue-green. So light at 590 nm and below. Amber is invisible to the turtles.

Sea turtle friendly lights will be used to avoid that hatchlings will walk toward civilisation instead of toward the ocean.



5 YEAR WARRANTY

HELLA Mining products are designed and manufactured to fulfill the highest quality standards and to deliver high performance for a long time. HELLA Mining products are covered by a one (1) year warranty; all HELLA Mining LED products are covered by a five (5) year warranty.

The warranty period begins on the date of production as marked on the product. Where a repair is not possible or is deemed uneconomical HELLA will replace the product with a new or refurbished product. If the product is not available anymore HELLA will provide an adequate replacement (e.g. successor or a product with similar performance). The warranty applies only if the product has been handled properly for its intended use and if it has been mounted correctly. In the event that you have questions concerning handling and mounting, we recommend that you first consult the mounting instruction and get in contact with HELLA.

**The warranty does not cover labor expenses, shipping costs, consequential damages, loss of business and does not apply for:**

- LED lumen maintenance L70 / B10 or greater
- Damages caused by environmental effects
- Physical damages
- Improper handling or mounting
- Normal wear and tear
- Product modifications
- Operation beyond the product specification or the intended purpose
- Production date was removed or made illegible

In the unlikely event of a defect, HELLA Mining has the right to request information and to investigate the problem. Warranty claims are statute-barred after two years beginning with the end of the year in which the defect was reported. Verbal ancillary agreements do not exist. All ancillary agreements must be in writing. If a provision of these conditions should be or become invalid, this shall not impair the validity of the remaining provisions. The warranty terms are in addition to the compulsory legal provisions and do not preclude any legal rights or remedies.



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## NOTES

This image shows a full page of blank white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for writing or drawing. There are no margins, text, or other markings on the page.