



KHDAfrica

We light up your world.

PRODUCT OVERVIEW
HELLA MINING



www.khdafrica.co.za

CONTENT



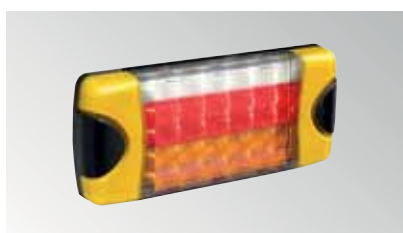
Introduction	2
About HELLA Mining	4
Applications Engineering	5
Quality Standards	6
Examples of Products	8
Haul Truck	8
Rope Shovel	9
Dozer	10
Wheel Loader	11
Excavator	12
Underground Drill Rig	13
Articulated Dump Truck	14
Underground Loader	15



Worklights	16
Features HELLA Mining worklights	18
HypaLUME	19
RokLUME™ 380 N	20
RokLUME™ 380 RFCommSafe™ N	21
RokLUME™ 280 N	22
AS3000 RFCommSafe™	23
RokLUME™ 155 TP	24
RokLUME™ 190 RFCommSafe™ N	25
RokLUME™ 210	26
RokLUME™ 190 RFCommSafe™	26
RokLUME™ 160	27
RokLUME™ 140	27
RokLUME™ 120	27



Beacons	28
K-LED Mining	29
DuraRAY³	29
UltraRAY – R Dual	29
UltraRAY – R Twin	30
UltraRAY – Flashing	30
UltraRAY – R Rotating	30
NaviLED M	31
DuraLED M – High intensity	31
OptiRAY	32
OptiRAY E	32
LED Mine Spec Signal Bar	33



Signal Lights	34
AP 1200 LED Offroad Signal Lights	35
RokLUME™ 140 Green / Red	35
DuraLED Combi RCL	35
DuraLED	36
DuraLED Combi-R	36
DuraLED Combi-S	36
DuraLED M Combi	37
DuraLED Combi MSIP	37
LED Daytime Running Light	37



Interior Lights	38
EuroLED Touch M	39
DuraLED 1000 Lumen Service Light	39
DuraLED 700 Lumen Service Light	39



Alarms and Horns	40
MotoVox Compact 117 dB Horn	42
MotoVox Forward 117 dB Horn	42
MotoVox Compact 107 dB Horn	42
RetroVox Self Adjusting Reversing Alarm	42
RetroVox Ultra Heavy Duty Reversing Alarm	43
RetroVox Compact Broadband 87 dB Alarm	43
RetroVox Compact Broadband 87 – 112 dB Reversing Alarm	43



Accessories	44
HELLA Mine E-Stop	45
LED Buggy Whip	45
Weatherproof Changeover Relay and Connector Assembly Kits	45
Jump Start System	46
Jump Start Plug	46
Jump Start Terminal	46
Battery Master Lockout Switches	46
Battery Master Lockout Switches	47
Crimping Tools	47
DT Connectors	47
Handy Box®	48
Handy Box® Heat Shrink Kit	48
Handy Box® DT Connector Kit	49
Handy Box® Blade Fuse Kit	49
Handy Box® Crimp Terminal Kit	49
SUPERSEAL Connector Kit	50

Additional Information	51
Construction and Meaning of the IP (Ingress Protection) Code	51
Icon Explanation	52
Part Number Index	54



5 Year LED Warranty

HELLA Mining products are covered by a one (1) year warranty which covers faults in material or workmanship only and provided that the product is used for its intended purpose except for globes, ballasts, fuses and sealed beams, which are on fitment. All HELLA Mining LED products are covered by a five (5) year warranty on light output, excluding environmental and physical damage.

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.

Statement of Warranty

HELLA Mining products are covered by a one (1) year warranty which covers faults in material or workmanship only and provided that the product is used for its intended purpose except for globes, ballasts, fuses and sealed beams, which are on fitment. All HELLA Mining LED products are covered by a five (5) year warranty on light output, excluding environmental and physical damage.

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.

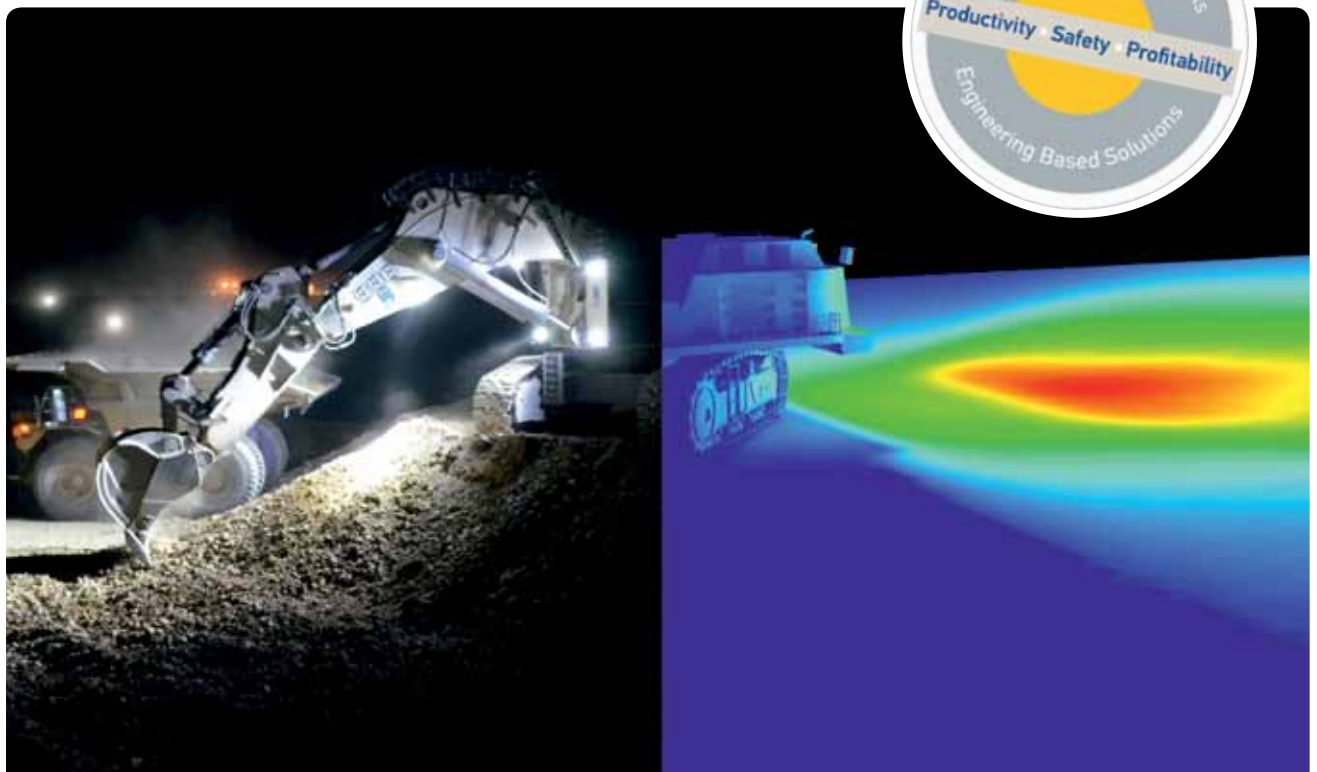
We are fully aware of the wide and sometimes conflicting range of operational requirements, covering the need for greater equipment, operator and maintenance personnel safety, lowered cost of ownership and maintenance, increased productivity requirements and the need for a predictable service life.

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



HAUL TRUCK



1
RokLUME™ 380 N
ZeroGlare™
Page 20



2
RokLUME™ 380 N
Page 20



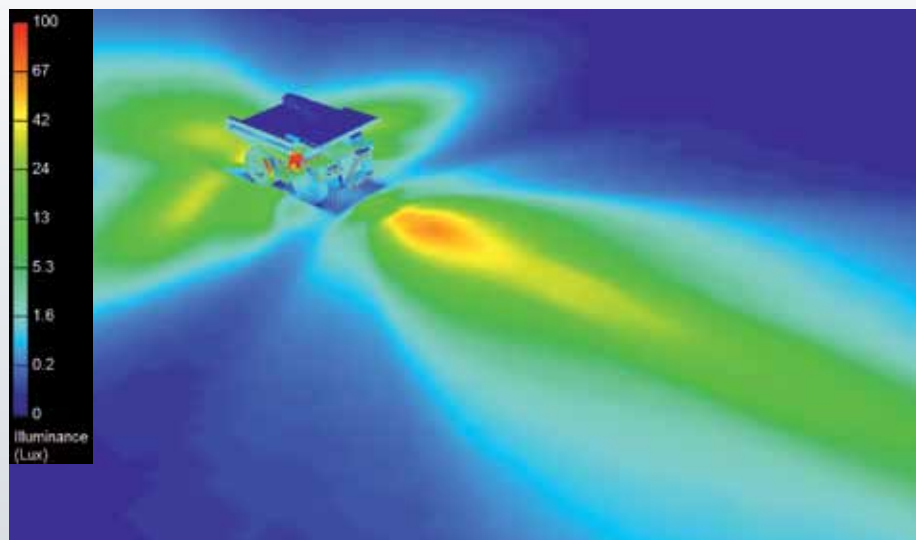
3
DuraRAY³
Page 29



4
AP 1200 LED
Offroad Signal Light
Page 35

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



ROPE SHOVEL



1

HypaLUME

Page 19



2

RokLUME™ 380 N

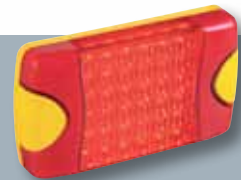
Page 20



3

DuraRAY³

Page 29

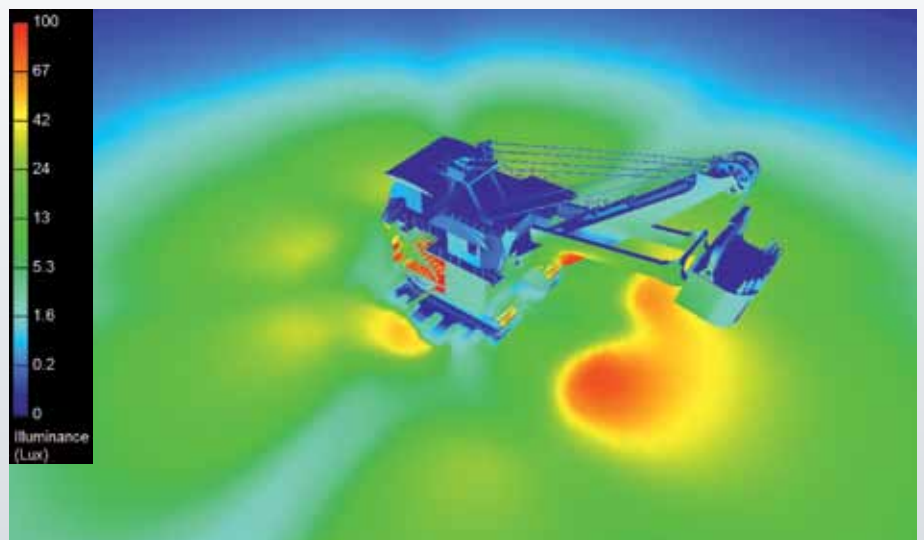


4

DuraLED M
High intensity

Page 31

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 20



2

RokLUME™ 280 N
Close range

Page 22



3

RokLUME™ 190 RFCommSafe™ N

Page 25



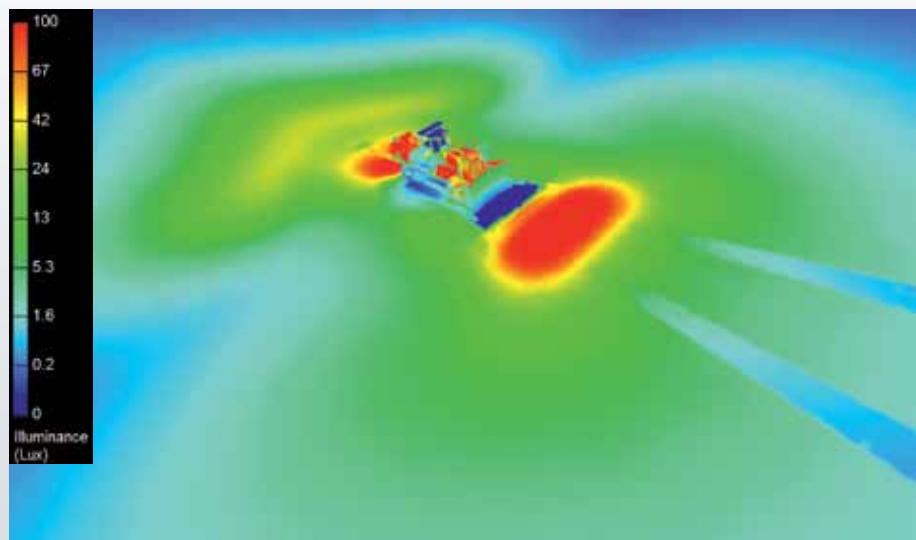
4

DuraRAY³

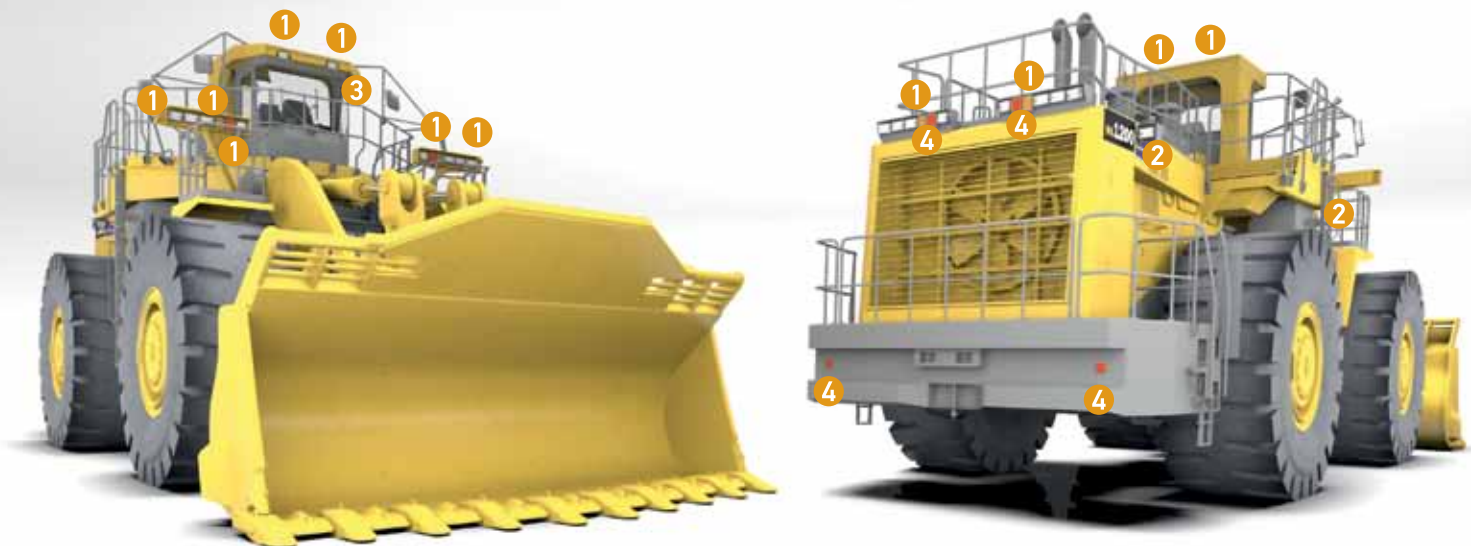
Page 29

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



WHEEL LOADER



1

**RokLUME™ 380 N
ZeroGlare™**
Page 20



2

**RokLUME™ 190 RFCommSafe™ N
Close range**
Page 25



3

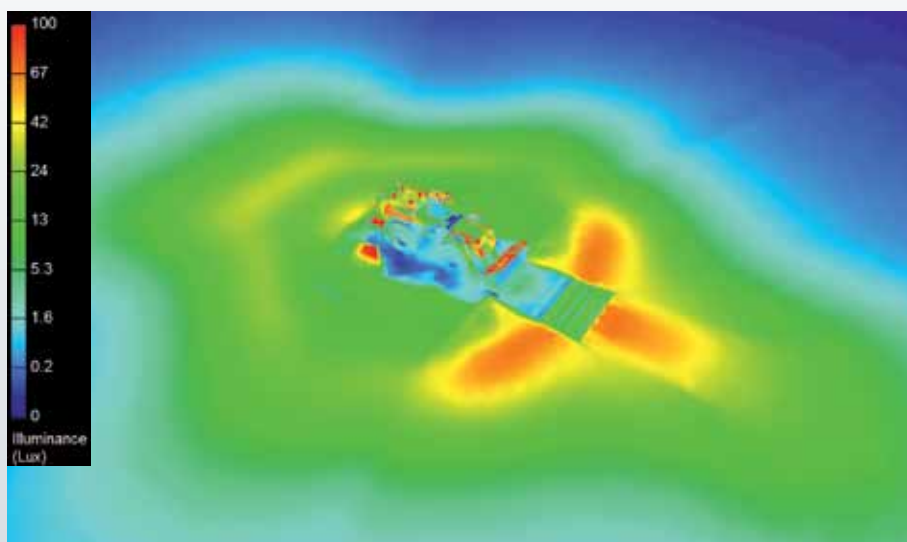
DuraRAY³
Page 29



4

DuraLED
Page 36

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



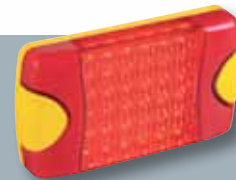
1
HypaLUME
Page 19



2
RokLUME™ 380 RFCommSafe™ N
Page 21

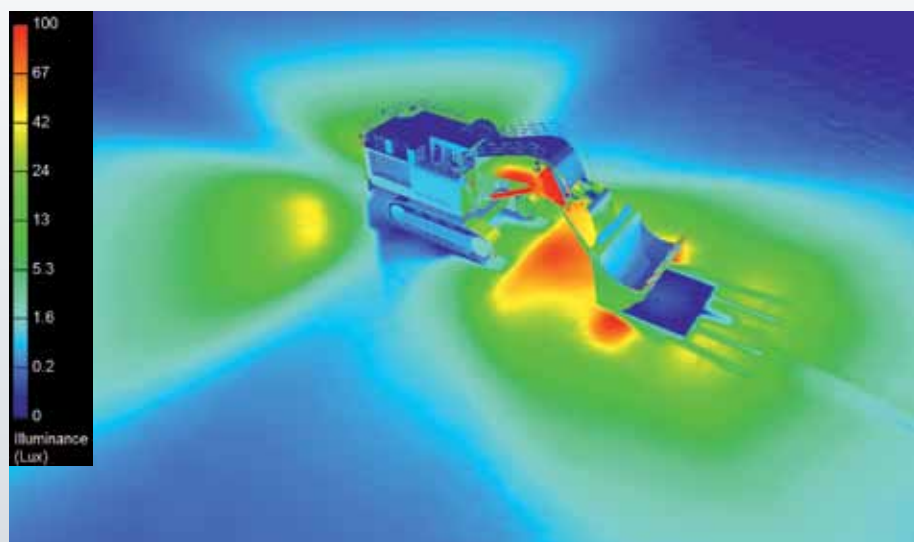


3
DuraRAY³
Page 29



4
DuraLED M
High intensity
Page 31

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



UNDERGROUND DRILL RIG



1

RokLUME™ 280 N
ZeroGlare™
Page 22



2

RokLUME™ 190 RFCommSafe™ N
Page 25



3

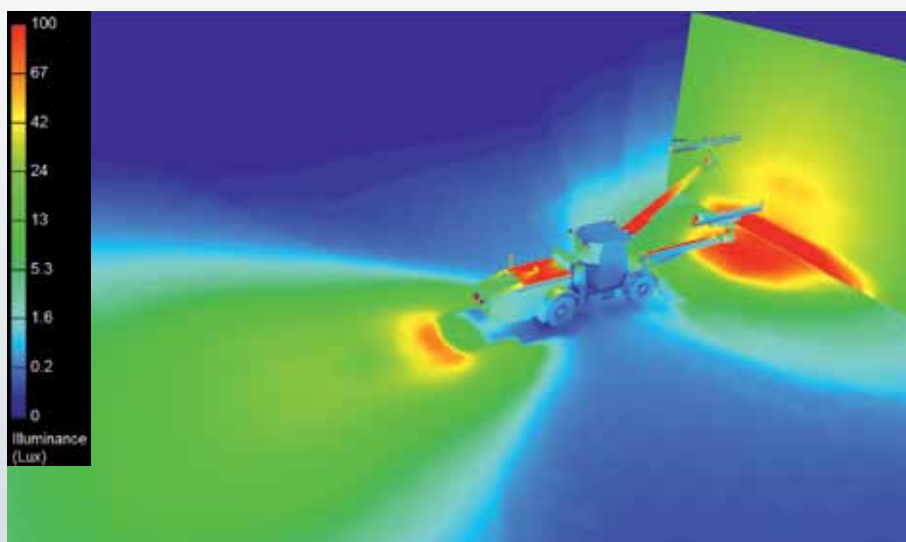
K-LED Mining
Page 29



4

DuraLED Combi-S
Page 36

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 22



2

RokLUME™ 190 RFCommSafe™ N
Page 25



3

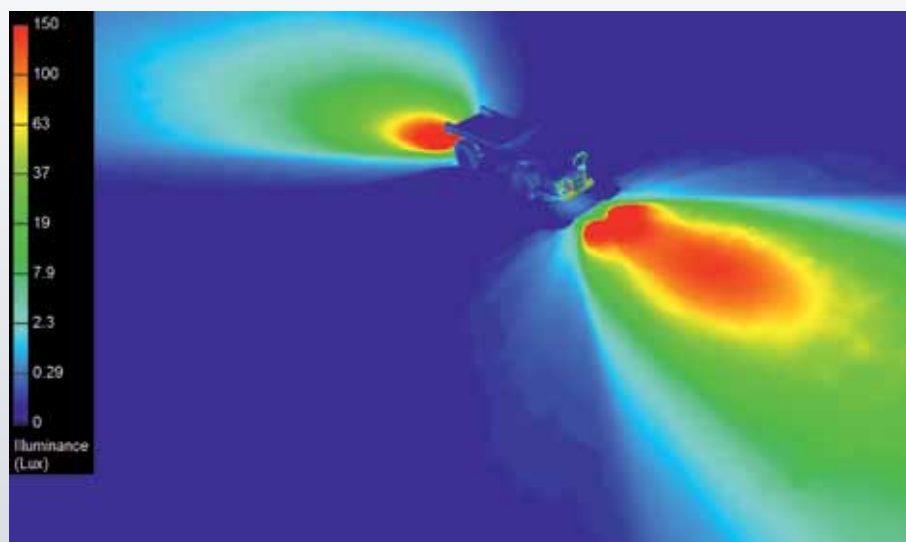
K-LED Mining
Page 29



4

DuraLED
Page 36

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 22



2

RokLUME™ 190 RFCommSafe™ N
Page 25



3

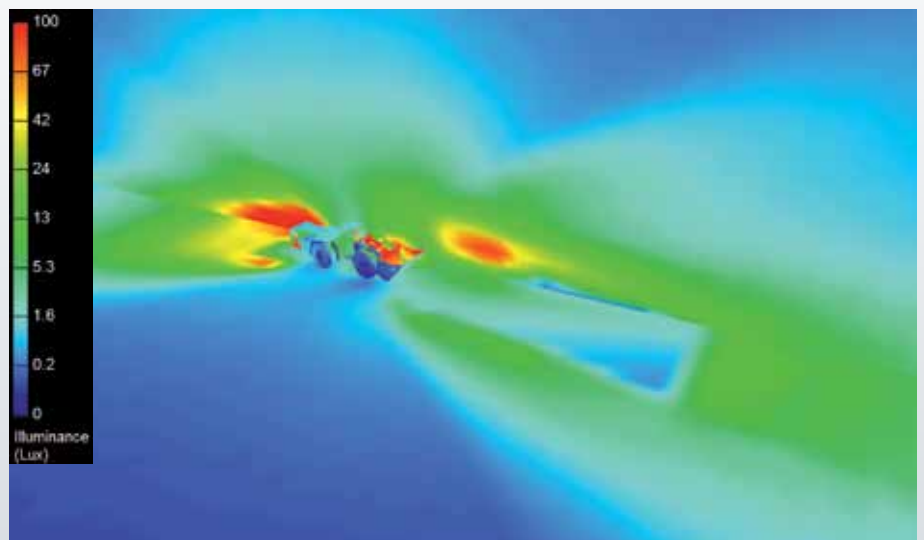
K-LED Mining
Page 29



4

DuraLED
Page 36

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





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)

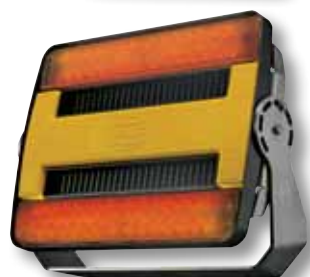
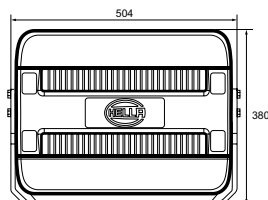
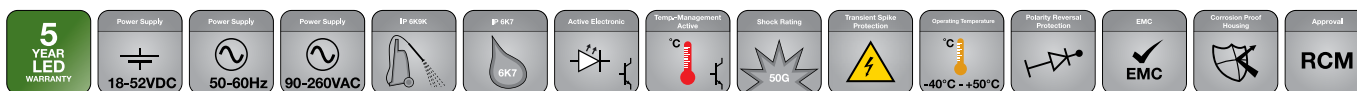
Every LED lamp contains electronic circuitry. It is essential that this circuitry does not cause harmful interference to other devices and at the same time is not susceptible to radiation from other devices.

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.

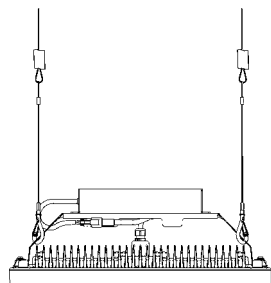
Lamps marketed as RFCommSafe™ are designed to go well beyond the requirements of CISPR15, CISPR25 and UNECE Standards.

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 (high pressure cleaning resistant / submersible), double insulated silicone supply cable with DT Connector, 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.	1GJ 011 872-211
---	------------------------

AC / DC converter 90-305 V AC, 24 V, Rated Current 13.3 A, 320 Watt, 47-63 Hz, -40~+70°C, 200 G, IP 67	8EN 332 584-021
---	------------------------



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): 7,000 lumen, power requirement: 84 Watt, colour temperature: 5,000° Kelvin, 24 V, reverse polarity protection, transient spike circuit protection, overvoltage protection, thermal management, IP 6K9K / IP 6K8 (high pressure cleaning resistant / submersible), 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

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



RokLUME™ 380 RfCommSafe™ N

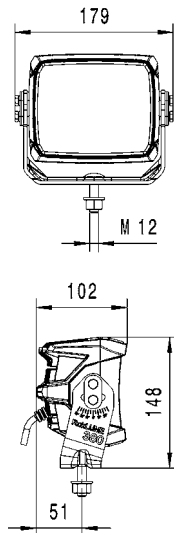
This LED product has the following features



ZeroGlare™ Version



Pencil Beam Version



RokLUME™ 380 RfCommSafe™ N

- 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): 5,000 lumen, power requirement: 85 Watt, colour temperature: 5,000° Kelvin, 24 V, reverse polarity protection, transient spike circuit protection, overvoltage protection, thermal management, IP 6K9K / IP 6K8 (high pressure cleaning resistant / submersible), 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 RfCommSafe™ N ZG	1GA 996 197-101
RokLUME™ 380 RfCommSafe™ N CR	1GA 996 197-111
RokLUME™ 380 RfCommSafe™ N LR	1GA 996 197-121
RokLUME™ 380 RfCommSafe™ N PB	1GA 996 197-141
RokLUME™ 380 RfCommSafe™ N 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



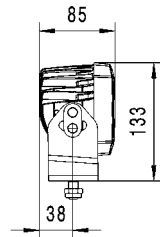
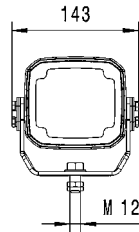
Close range Version



Long range Version



Amber Version



RokLUME™ 280 N

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

Light output (measured): 3,700 lumen, power requirement: 55 Watt, colour temperature: 5,000° Kelvin, Multivolt™, reverse polarity protection, transient spike circuit protection, over-voltage protection, thermal management, IP 6K9K / IP 6K8 (high pressure cleaning resistant / submersible), 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.

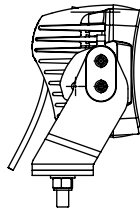
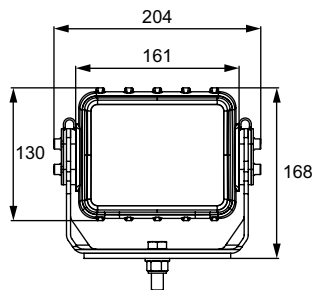
RokLUME™ 280 N ZG	1GA 995 606-541
RokLUME™ 280 N CR	1GA 995 606-501
RokLUME™ 280 N LR	1GA 995 606-511
RokLUME™ 280 N PB	1GA 995 606-521
RokLUME™ 280 A N ZG	1GA 995 606-641
RokLUME™ 280 A N CR	1GA 995 606-601
RokLUME™ 280 A N LR	1GA 995 606-611
RokLUME™ 280 A N PB	1GA 995 606-621

ZG ZeroGlare™
 CR Close range
 LR Long range
 PB Pencil Beam
 N NanoSafe
 A Amber



AS3000 RfCommSafe™

This LED product has the following features



AS3000 RfCommSafe™

- Developed specifically for Mining applications
- Heavy Duty bracket resists against vibration
- RfCommSafe™ for zero EMC emissions

Light output (measured): 3,000 lumen, built-in dimming function (24 V: dims light output to 25% i.e. approx. 750 lumen; 12 V: dims light output to 50% i.e. approx. 1,500 lumen), power requirement (high / dimmed): 45 Watt / 12 Watt engraved on housing, colour temperature: 5,000° Kelvin, 12 / 24 V, reverse polarity protection, transient spike circuit protection, over-voltage protection, thermal management, IP 6K9K / IP 6K7 (high pressure cleaning resistant / submersible), Draco suspension combined with Heavy Duty stainless steel bracket, pre-wired with 2.5 m of 3-core automotive type cable, non-stick and easy to clean surface coating, high impact grilamid nylon lens, Heavy Duty cable gland offers bend protection, RCM compliance, mounting angle guide, premium aluminium housing for mining use, mounting standing / hanging, 3 pin-DT male and female part included.

12 V Dual level

AS3000 RfCommSafe™ CR	1GA 958 060-401
AS3000 RfCommSafe™ PB	1GA 958 060-501
AS3000 RfCommSafe™ XW	1GA 958 060-601

24 V Dual level

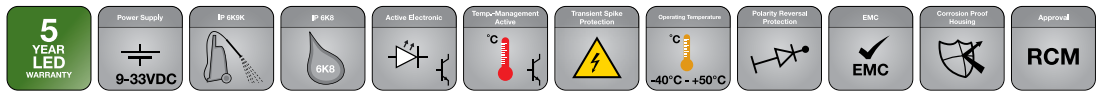
AS3000 RfCommSafe™ CR	1GA 958 060-011
AS3000 RfCommSafe™ PB	1GA 958 060-111
AS3000 RfCommSafe™ XW	1GA 958 060-201

CR Close range
PB Pencil Beam
XW Extra wide

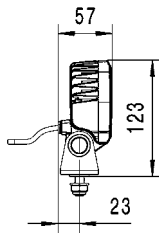
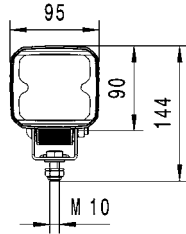


RokLUME™ 155 TP

This LED product has the following features



Amber Version



RokLUME™ 155 TP

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

Light output (measured): 1,200 lumen, power requirement: 22 Watt, colour temperature: 5,000° Kelvin, Multivolt™, reverse polarity protection, transient spike circuit protection, over-voltage protection, thermal management, IP 6K9K / IP 6K8 (high pressure cleaning resistant / submersible), ECE-R10 approved, RCM compliance, high quality thermo plastic housing for Heavy Duty use, mounting standing / hanging, harness with DT Connector, Heavy Duty surrounding-bracket.

RokLUME™ 155 TP CR	1GA 996 283-051
RokLUME™ 155 TP LR	1GA 996 283-061
RokLUME™ 155 TP A CR	1GA 996 283-071

CR Close range
 LR Long range
 A Amber



RokLUME™ 190 RFCommSafe™ N

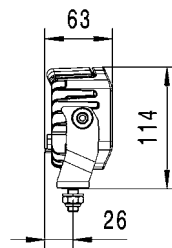
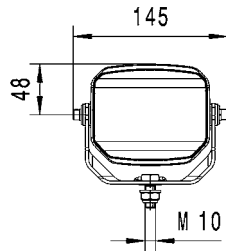
This LED product has the following features



Close range Version



Long range Version



RokLUME™ 190 RFCommSafe™ N

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

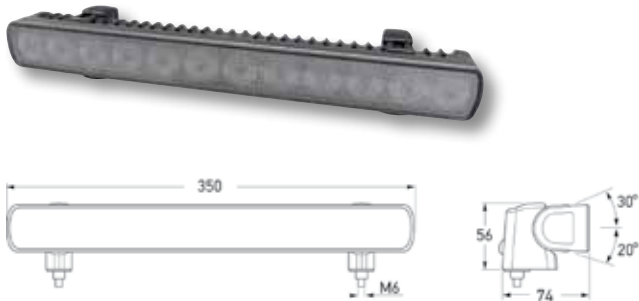
Light output (measured): 1,850 lumen, power requirement: 36 Watt, colour temperature: 5,000° Kelvin, single voltage (24 Volt), reverse polarity protection, transient spike circuit protection, over-voltage protection, thermal management, IP 6K9K / IP 6K8 (high pressure cleaning resistant / submersible), 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, Heavy Duty surrounding-bracket, RCM compliance.

RokLUME™ 190 RFCommSafe™ N CR	1GA 996 388-501
RokLUME™ 190 RFCommSafe™ N LR	1GA 996 388-511

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 (high pressure cleaning resistant / submersible), 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



Close range Version

Long range Version

RokLUME™ 190 RFCommSafe™

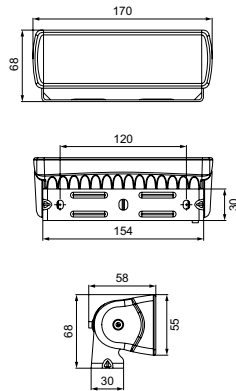
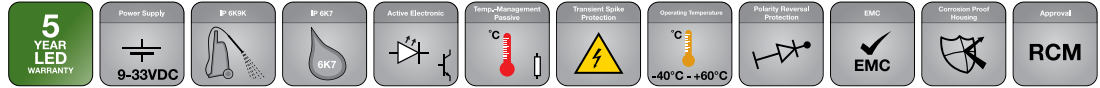
- Developed specifically for Mining applications
- Heavy Duty bracket resists against vibration
- RFCommSafe™ for zero EMC emissions

Light output (measured): 1,850 lumen, power requirement: 36 Watt, colour temperature: 5,000° Kelvin, single voltage (12 or 24 Volt), reverse polarity protection, transient spike circuit protection, over-voltage protection, thermal management, IP 6K9K / IP 6K8 (high pressure cleaning resistant / submersible), ECE-R10 approved, RCM compliance, high quality aluminium housing for mining use, ADR / GGVSEB approved, mounting standing / hanging, DT Connector, Heavy Duty surrounding-bracket.

RokLUME™ 190 RFCommSafe™ CR	1GA 996 388-521
RokLUME™ 190 RFCommSafe™ LR	1GA 996 388-531

CR Close range
LR Long range

This LED product has the following features



RokLUME™ 160

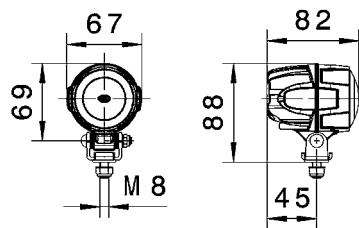
- Non-metal thermally conductive polymer housing
- Compact size
- Heavy Duty bracket resists against vibration

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 (high pressure cleaning resistant / submersible), 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 PB	1GA 980 740-221
RokLUME™ 160 XW	1GA 980 740-021

CR Close range
PB Pencil Beam
XW Extra wide

This LED product has the following features



RokLUME™ 140

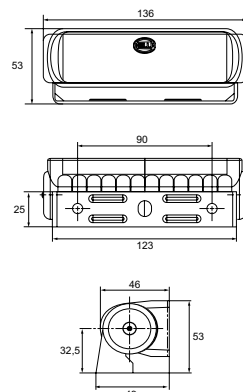
- Ultra compact worklight
- Heavy Duty bracket resists against vibration
- Suitable for engine bays and inspection areas

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 (high pressure cleaning resistant / submersible), ECE-R10 approved, RCM compliance, high quality aluminum housing for Heavy Duty use, ADR / GGVSEB approved, DT Connector.

RokLUME™ 140 CR, standing	160 995 050-001
RokLUME™ 140 CR, hanging	160 995 050-011
RokLUME™ 140 LR, standing / hanging	160 995 050-021

CR Close range
LR Long range

This LED product has the following features



RokLUME™ 120

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

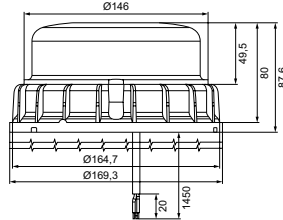
Light output (measured): 550 lumen, power requirement: 7 Watt, colour temperature: 5,000° Kelvin, Multivolt™, reverse polarity protection, transient spike circuit protection, over-voltage protection, thermal management, IP 6K9K / IP 6K7 (high pressure cleaning resistant / submersible), CE EMC approved, RCM compliance, high quality thermally conductive polymer housing, connection via 2,5 m wire.

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

CR Close range
PB Pencil Beam
XW Extra wide



This LED product has the following features



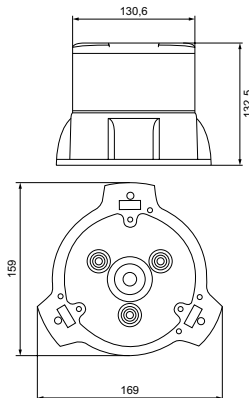
K-LED Mining

Multivolt™ 10 – 32 VDC, max. 30 Watt, Transient Spike Protection, Reverse Polarity Protection, IP 6K9K / IP 6K7, ADR / GGVSEB approved, ECE-R10 approved, (high pressure cleaning resistant / submersible) 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

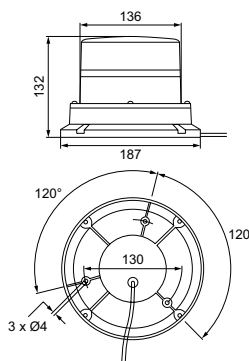


DuraRAY³

High impact resistant Xylex® lens system, Heavy Duty cast alloy base and cap for increased mechanical strength and vibration resistance, advanced self cleaning surface coating for optimal corrosion and UV protection, ISO 13766-2006, polarity reversal protection, power requirement: max. 30 Watt, RCM compliance.

amber	2RL 011 585-001
-------	-----------------

This LED product has the following features



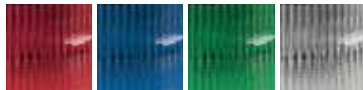
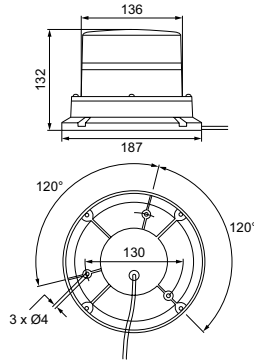
UltraRAY – R Dual

Dual colour beacon allowing flashing or rotating pattern, can run one colour only or both colours intermittently, switching between colours and patterns by hardwiring or by the use of a toggle switch.

Impact resistant Polycarbonate lens, Precision Fresnel optics, powder coated cast alloy base, direct or pipe mount option (Pipe mount kit: 2RL 910 085-001), power requirement: max. 20 Watt and RCM compliance.

red / green	2RL 910 087-201
red / amber	2RL 910 087-211

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: 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 – 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: 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

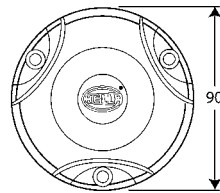
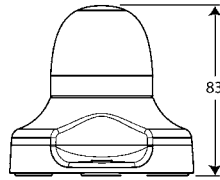
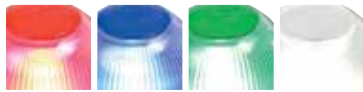
UltraRAY – R Rotating

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: 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

This LED product has the following features

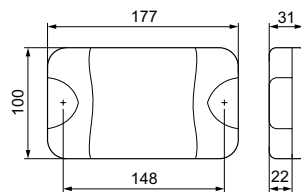


Naviled M

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.

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

This LED product has the following features



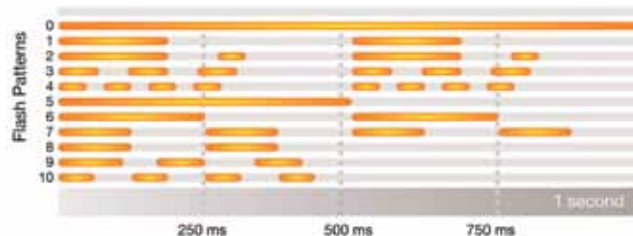
DuraLED M – High intensity

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 6K9K and IP6K6, RCM compliance.

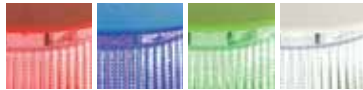
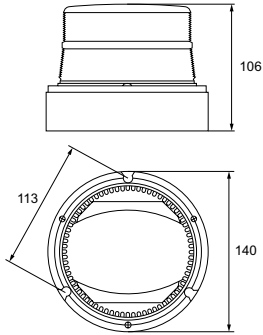
with 2.5 cable, bare wire	
amber	2XD 959 037-101
red	2XD 959 037-001
blue	2XD 959 037-601
green	2XD 959 037-801
white	2XD 959 037-901

with 250 mm cable and DT plug	
amber	2XD 959 037-141
red	2XD 959 037-021
blue	2XD 959 037-621
green	2XD 959 037-821
white	2XD 959 037-921

MultiFLASH®



This LED product has the following features

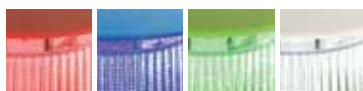
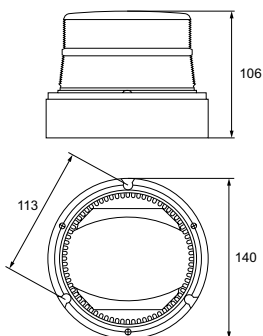
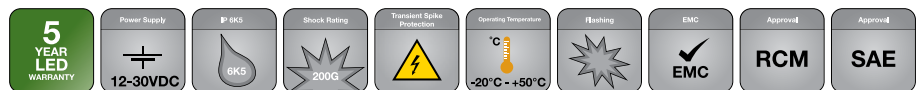


OptiRAY

SAE J845 (Class 1 red, Class 2 amber), RCM compliance, automatic daylight detection, impact resistant smooth Polycarbonate lens, clear precision Fresnel optics, 16 user selectable flash patterns.

amber, direct mount	2RL 910 078-021
red, direct mount	2RL 910 078-111
blue, direct mount	2RL 910 078-061
green, direct mount	2RL 910 078-081
white, direct mount	2RL 910 078-131
amber, magnetic mount	2RL 910 078-041
red, magnetic mount	2RL 910 078-121
blue, magnetic mount	2RL 910 078-071
green, magnetic mount	2RL 910 078-091
white, magnetic mount	2RL 910 078-141

This LED product has the following features

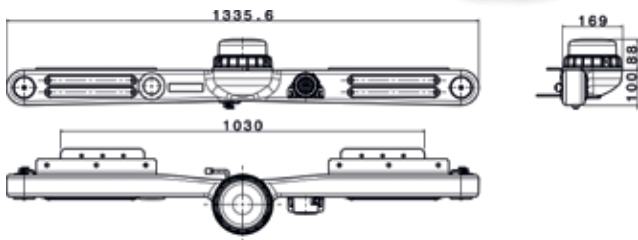


OptiRAY E

SAE J845 (Class 1 red, Class 2 amber), RCM compliance, impact resistant smooth Polycarbonate lens, clear precision Fresnel optics.

amber, direct mount	2RL 910 073-001
red, direct mount	2RL 910 075-051
blue, direct mount	2RL 910 075-011
green, direct mount	2RL 910 075-031
white, direct mount	2RL 910 075-071
amber, magnetic mount	2RL 910 075-001
red, magnetic mount	2RL 910 075-061
blue, magnetic mount	2RL 910 075-021
green, magnetic mount	2RL 910 075-041
white, magnetic mount	2RL 910 075-081

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)
 - 1 x K-LED Beacon*
 - 2 x Turn signal light
 - 1 x Reverse indication light*
 - 1 x External Harness (8KB 196 292-011)

2SD 196 293-001

* 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

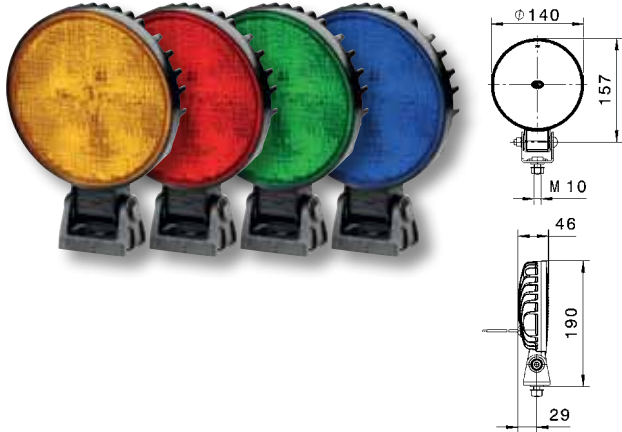
Spare parts

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 Lights

Round shape Offroad Signal Light, power requirement: 22 Watt, Multivolt™, reverse polarity protection, over-voltage protection, thermal management, IP 6K9K / IP 6K7 (high pressure cleaning resistant / submersible), ECE-R10 approved, RCM compliance, 2-pole DT Connector, 300 mm cabling length, mounting standing / hanging.

amber	160 011 722-501
red	160 011 722-521
green	160 011 722-511
blue	160 011 722-531

This LED product has the following features



RokLUME™ 140 Green/Red

Light output (measured): 800 lumen, power requirement: 15 Watt, Multivolt™, reverse polarity protection, transient spike circuit protection, over-voltage protection, thermal management, IP 6K9K / IP 6K8 (high pressure cleaning resistant / submersible), ECE-R10 approved, RCM compliance, high quality aluminum housing for Heavy Duty use, ADR / GGVSEB approved, DT Connector.

green	160 995 050-091
red	160 995 050-101

This LED product has the following features



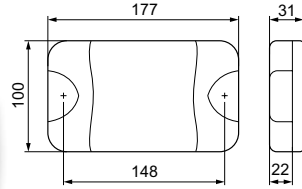
DuraLED Combi RCL

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 (high pressure cleaning resistant / submersible), low power, high efficiency, ultra long "Fit and Forget" service life. Optic appears clear until illuminated and RCM compliance. Only horizontal mount.

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

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

This LED product has the following features

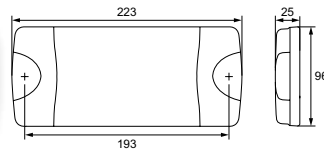
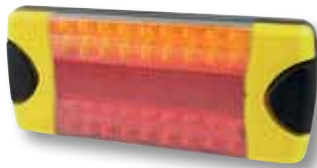


DuraLED

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 6K9K / IP 6K7 (high pressure cleaning resistant / submersible), low power, high efficiency, ultra long "Fit and Forget" service life and RCM compliance. 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 turn signal (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 / indicator (amber)	2BA 959 070-321

This LED product has the following features

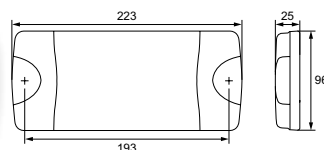


DuraLED Combi-R

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 6K7 / IP 6K9K (high pressure cleaning resistant / submersible), low power, high efficiency, ultra long "Fit and Forget" service life and RCM compliance. Only horizontal mount.

2.5 m bare wire	2VA 980 710-071
-----------------	-----------------

This LED product has the following features



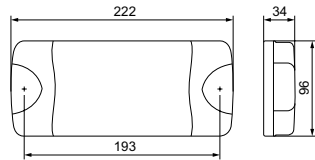
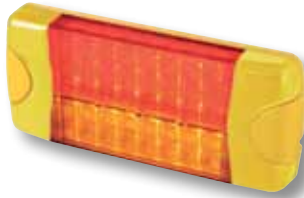
DuraLED Combi-S

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 6K7 / IP 6K9K (high pressure cleaning resistant / submersible), low power, high efficiency, ultra long "Fit and Forget" service life and RCM compliance. 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

DuraLED Combi-S
Part no. 2SD 980 602-011
(with integrated DT) shown

This LED product has the following features

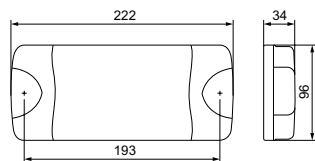
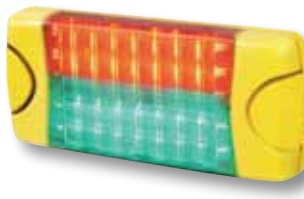


DuraLED M Combi

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 6K7 / IP 6K9K (high pressure cleaning resistant / submersible), low power, high efficiency, ultra long "Fit and Forget" service life and RCM compliance. Optic appears clear until illuminated. Mounting horizontal and vertical standing.

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

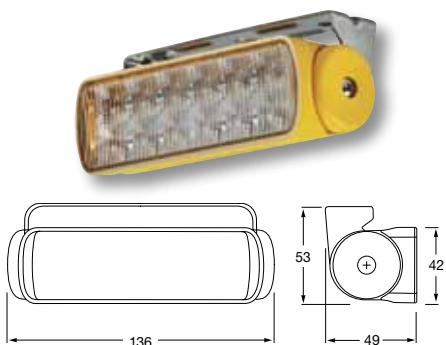
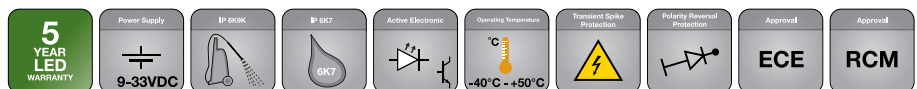


DuraLED Combi MSIP

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 6K9K / IP 6K7 (high pressure cleaning resistant / submersible), low power, high efficiency, ultra long "Fit and Forget" service life and RCM compliance. Optic appears clear until illuminated. Mounting horizontal and vertical standing.

6 m bare wire	2XA 959 050-301
---------------	------------------------

This LED product has the following features



LED Daytime Running Light

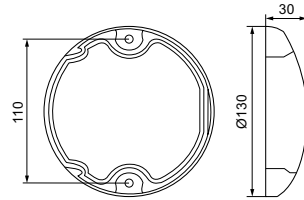
On mine site safety is paramount. On most sites the use of headlights on vehicles is mandatory at all times, however dipped beam headlights are less visible during daylight hours than dedicated "Daytime Running Lamps" (DRLs).

Power requirement: < 2 Watt, Multivolt™, reverse polarity protection, over-voltage protection, clear UV, impact and chemical resistant Grilamid® lens, IP 6K7 / IP 6K9K (high pressure cleaning resistant / submersible), low power, high efficiency, ultra long "Fit and Forget" service life and RCM compliance. Optic appears clear until illuminated. Mounting horizontal standing. Connection via 2.5 m wire with ECE-DRL (SS bracket).

2PT 980 670-821



This LED product has the following features

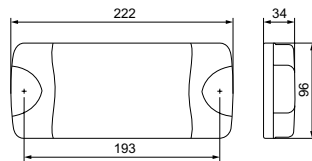


EuroLED Touch M

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 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

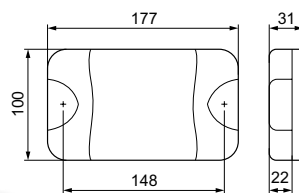
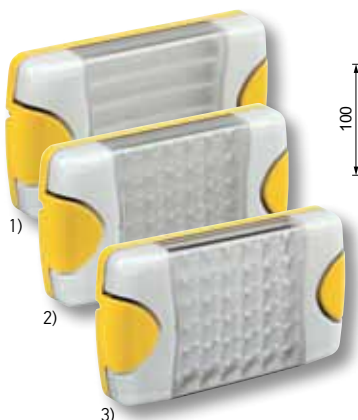
Light output (measured): 1,000 lumen, power requirement: 12 Watt, Multivolt™, reverse polarity protection, over-voltage protection, thermal management, clear UV, impact and chemical resistant Grilamid® lens, IP 6K6 / IP 6K7 (high pressure cleaning resistant / submersible), RCM compliance and spread illumination.

Close range illumination, surface mount, connection via 2.5 m cable	2JA 980 604-021
---	------------------------

Extra wide illumination	
9 – 33 V, magnetic mount, CIG / DIN plug	1GA 910 057-001
9 – 33 V, magnetic mount, DT Connector	1GA 910 057-011



This LED product has the following features



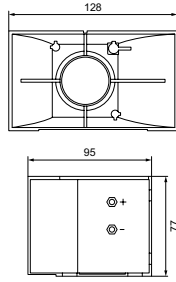
DuraLED 700 Lumen Service Light

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 (high pressure cleaning resistant / submersible), RCM compliance, with 2.5 m cable and surface mount.

1) Close range illumination	2JA 959 037-221
2) Long range illumination	2JA 959 037-421
3) Spot illumination	2JA 959 037-321





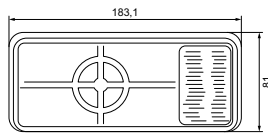
**MotoVox Compact 117 dB Horn**

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

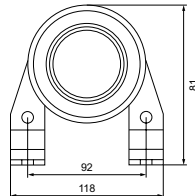
**MotoVox Forward 117 dB Horn**

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

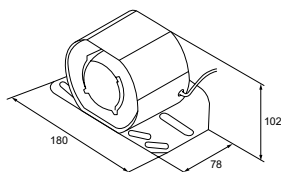
**MotoVox Compact 107 dB Horn**

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

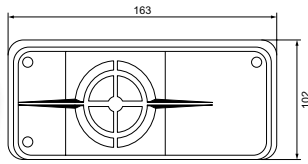
**RetroVox Self Adjusting Reversing Alarm**

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



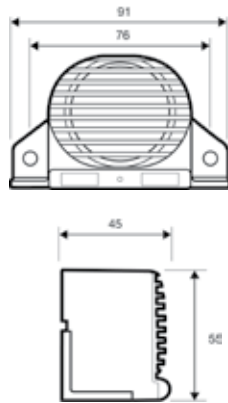
RetroVox Ultra Heavy Duty Reversing Alarm

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



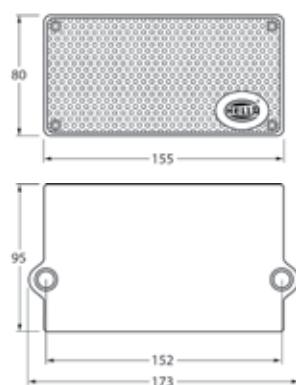
RetroVox Compact Broadband 87 dB Alarm

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



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.

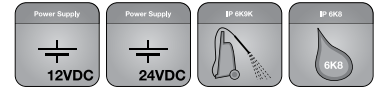
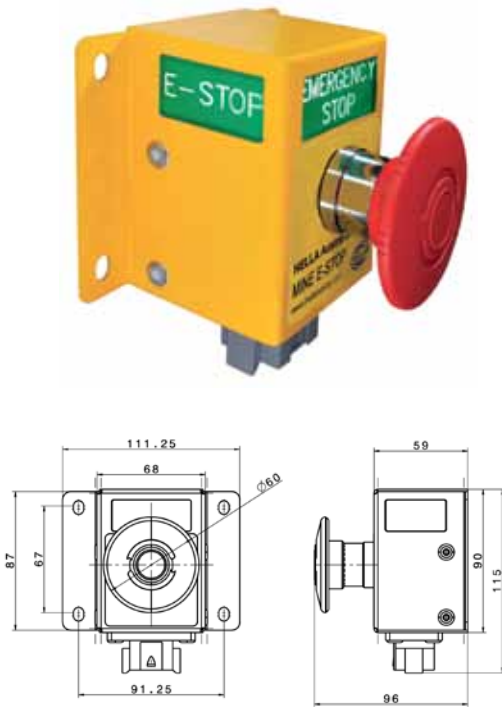
87–112 db @ 1.2 m

12–24 VDC, bare wire connection

3TA 910 174-241



This LED product has the following features



HELLA Mine E-Stop

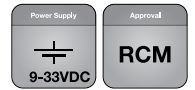
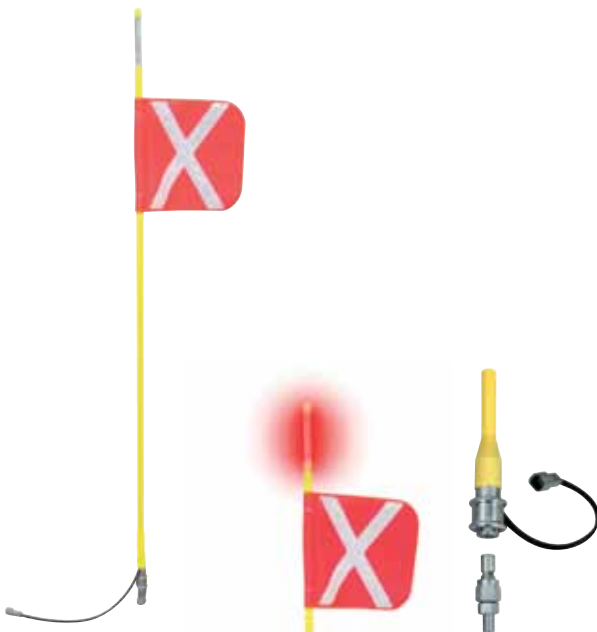
HELLA Mining's new Mine E-Stop. Versatility, Safety, Fast Installation. This Heavy Duty unit features LED illumination visible from 3 sides, user-friendly 60 mm push button, DT connection and direct mount capability.

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 und 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



LED Buggy Whip

Light source: quality bright LED, Multivolt™, low power requirement, integrated mounting bolt on base with snap on / off quick-release shaft for quick and easy installation, connection via 2 pin DT and RCM compliance.

red LED, 1,2 m long	2AA 910 084-001
red LED, 1,8 m long	2AA 910 084-011
red LED, 2,4 m long	2AA 910 084-021
red LED, 3,0 m long	2AA 910 084-031
red LED, 3,6 m long	2AA 910 084-041
green LED, 2,4 m long	2AA 910 084-091

Replacement

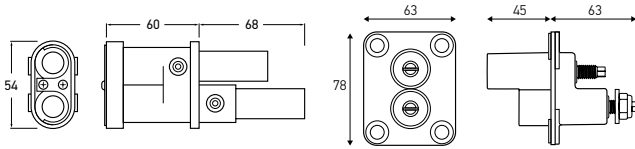
Cross flag, silver	8XX 910 084-051
Cross flag, yellow	8XX 910 084-061
Quick release, male pin connection	9XX 910 084-071
Buggy whip, spring	9KX 910 084-081



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.

8JA 177 305-101

Suitable for 70 mm² cable. Connection via crimping and soldering process.

Jump Start Terminal

1) Jump start Terminal

Removes risk of terminal crossing, high impact ABS plastic, zinc coated terminals.

8JB 177 305-001

2) Terminal Kit

Kit of jump start terminal, bracket and cap.

8HG 177 305-031

3) Terminal Bracket

Bracket for mounting jump start terminal to vehicle body.

8HG 177 305-021

4) Terminal Cap

Cap to protect terminal from external environment when not in use.

9HD 177 305-011

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



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



Handy Box®

Complete set:

Carry case complete with all four Handy Box® kits – DT Connector kit, blade fuse kit, heat shrink kit and crimp terminal kit.

9XX 910 121-101

Carry Case (empty)

Storage room for four assortment kits.

9XX 011 959-001



Handy Box® Heat Shrink Kit

Heat Shrink Kit

(Heat Shrink not adhesive lined)

9MJ 178 458-821

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	9MJ 178 458-002
Heat Shrink Tubing BK/TR 1,2...50	9MJ 178 458-012
Heat Shrink Tubing 3-COLOR 1,6...50	9MJ 178 458-022
Heat Shrink Tubing BK/TR 1,6...50	9MJ 178 458-032
Heat Shrink Tubing 3-COLOR 2,4...50	9MJ 178 458-042
Heat Shrink Tubing BK/TR 2,4...50	9MJ 178 458-052
Heat Shrink Tubing 3-COLOR 3,2...50	9MJ 178 458-062
Heat Shrink Tubing BK/TR 3,2...50	9MJ 178 458-072
Heat Shrink Tubing 5-COLOR 4,8-100	9MJ 178 458-082
Heat Shrink Tubing 5-COLOR 6,2-100	9MJ 178 458-092
Heat Shrink Tubing BK/TR 9,5-100	9MJ 178 458-102
Heat Shrink Tubing 5-COLOR 4,8-200	9MJ 178 458-112
Heat Shrink Tubing BK 9,5/12,7-200	9MJ 178 458-122



Handy Box® DT Connector Kit

**Handy Box® DT Connector Kit
(incl. Crimping Tool 8PE 910 118-011)**

8KW 910 119-101

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	8PE 910 118-011
2 Pin DT Plug Set	8KW 905 683-101
2 Pin DT Receptacle Set	8KW 905 684-101
3 Pin DT Plug Set	8KW 905 683-111
3 Pin DT Receptacle Set	8KW 905 684-111
6 Pin DT Plug Set	8KW 905 683-131
6 Pin DT Receptacle Set	8KW 905 684-131



Handy Box® Blade Fuse Kit

Handy Box® Blade Fuse Kit

8JS 009 257-831

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

Handy Box® Crimp Terminal Kit

8KW 009 254-841

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 mm ²	8KW 959 882-818
Plug Terminals to suit cable 0.75 – 1.50 mm ²	8KW 959 882-518
Socket Terminals to suit cable 0.35 – 0.50 mm ²	8KW 959 882-418
Socket Terminals to suit cable 0.75 – 1.50 mm ²	8KW 959 882-118
Green Seal to suit cable insulation 1.4 – 1.7 mm ²	9GD 959 883-208
Yellow Seal to suit cable insulation 1.8 – 2.4 mm ²	9GD 959 883-008
Red Seal to suit cable insulation 2.5 – 3.3 mm ²	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.

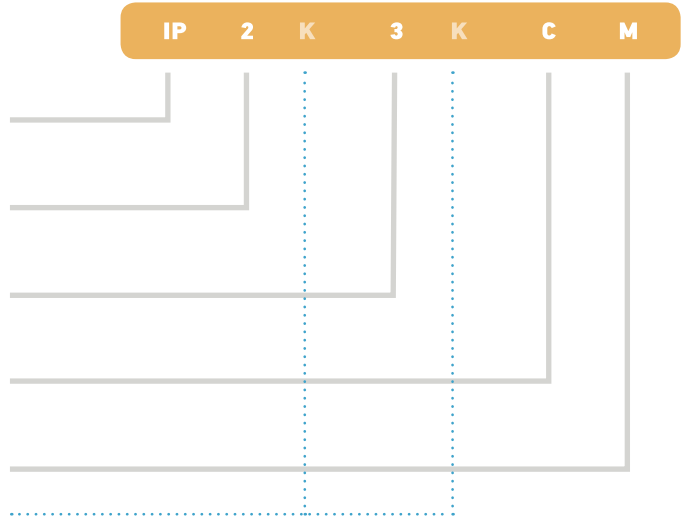
Code letters
(Ingress Protection)

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)

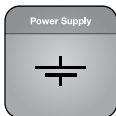
Supplementary letter (optional)
(Letters M, S)
(Letter K)



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 $\varnothing \geq 50$ mm	With back of hand
	2	With $\varnothing \geq 50$ mm	With finger
	3	With $\varnothing \geq 50$ mm	With tool
	4	With $\varnothing \geq 50$ 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	
	8	Continuous immersion	
9K	High-pressure / steam jet cleaning		
Additional letter (optional)		Meaning for the protection of electrical equipment	Against access to hazardous parts (unless described by first characteristic numeral):
	A		With back of hand
	B		With finger
	C		With tool
Supplementary letter (optional)	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



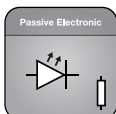
Basically, two different circuits are possible for LED lamps:

Active:

LED current regulation by means of active electronics.

Higher expenditure during development because of complex circuit and necessary EMC approval. Higher price because of electronic components, but electronic current regulation allows for maximum LED service life.

Active

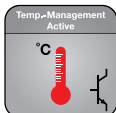


Passive:

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.

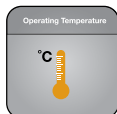
Supplement to the electronics for protecting the LEDs against high voltages / currents in the vehicle electrical system as per ISO 7637-2.

Overloading of the LEDs can be caused by voltage peaks in the vehicle because of:

- Jump-starting
- Deceptive 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



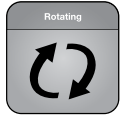
Whether it's in cold or warm climates, our products have to perform every time. Thermal management and a well designed housing allows full function of our products in all operating conditions. To ensure this performance we test our products from -40°C up to 100°C.

ICON EXPLANATION

Signal light beacons



Flashing signal light



Rotating signal light



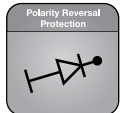
Steady On signal light

Electrical Compliance



Electrical Compliance

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 supersede the C-Tick and A-Tick marks.



Product is licensed according to SABS guidelines.



Product is licensed according to SAE guidelines.

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.

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.

PART NUMBER INDEX

009 254-841	49	182 653-202	30	910 082-021	30
009 256-801	50	182 653-302	30	910 082-031	30
009 257-831	49	182 653-402	30	910 082-041	30
011 557-001	29	182 653-502	30	910 084-001	45
011 557-011	29	182 653-602	30	910 084-011	45
011 557-021	29	182 653-702	30	910 084-021	45
011 557-031	29	182 653-802	30	910 084-031	45
011 557-041	29	196 289-101	33	910 084-041	45
011 557-051	29	196 291-001	33	910 084-051	45
011 585-001	29	196 292-011	33	910 084-061	45
011 722-501	35	196 293-001	33	910 084-071	45
011 722-511	35			910 084-081	45
011 722-521	35			910 084-091	45
011 722-531	35	332 584-021	19	910 087-001	30
011 872-011	19			910 087-031	30
011 872-021	19			910 087-041	30
011 872-031	19	905 683-101	49	910 087-051	30
011 872-061	19	905 683-111	49	910 087-061	30
011 872-071	19	905 683-131	49	910 087-071	30
011 872-081	19	905 684-101	49	910 087-081	30
011 872-131	19	905 684-111	49	910 087-091	30
011 872-141	19	905 684-131	49	910 087-101	30
011 872-151	19	910 057-001	39	910 087-111	30
011 872-211	19	910 057-011	39	910 087-201	29
011 959-001	48	910 073-001	32	910 087-211	29
012 074-001	33	910 075-001	32	910 095-001	47
012 074-101	33	910 075-011	32	910 097-001	30
012 416-001	45	910 075-021	32	910 109-001	46
		910 075-031	32	910 109-011	46
		910 075-041	32	910 109-101	47
177 305-001	46	910 075-051	32	910 109-111	47
177 305-011	46	910 075-061	32	910 109-201	47
177 305-021	46	910 075-071	32	910 109-301	47
177 305-031	46	910 075-081	32	910 109-311	47
177 305-101	46	910 078-021	32	910 118-011	47, 49
178 458-002	48	910 078-041	32	910 119-101	49
178 458-012	48	910 078-061	32	910 121-101	48
178 458-022	48	910 078-071	32	910 141-011	31
178 458-032	48	910 078-081	32	910 141-031	31
178 458-042	48	910 078-091	32	910 141-051	31
178 458-052	48	910 078-111	32	910 141-071	31
178 458-062	48	910 078-121	32	910 141-091	31
178 458-072	48	910 078-131	32	910 156-001	42
178 458-082	48	910 078-141	32	910 156-011	42
178 458-092	48	910 081-001	30	910 156-021	42
178 458-102	48	910 081-011	30	910 174-001	43
178 458-112	48	910 081-021	30	910 174-031	42
178 458-122	48	910 081-031	30	910 174-241	43
178 458-821	48	910 081-041	30	910 182-001	45
182 653-002	30	910 082-001	30	910 182-011	45
182 653-102	30	910 082-011	30	910 344-001	43

958 040-501	26	959 882-518	50	996 197-091	20
958 040-551	26	959 882-818	50	996 197-101	21
958 040-601	26	959 883-008	50	996 197-111	21
958 060-011	23	959 883-208	50	996 197-121	21
958 060-111	23	959 883-308	50	996 197-131	21
958 060-201	23	959 883-508	50	996 197-141	21
958 060-401	23	959 950-211	39	996 283-051	24
958 060-501	23	959 950-221	39	996 283-061	24
958 060-601	23	980 573-001	27	996 283-071	24
959 037-001	31	980 573-101	27	996 388-501	25
959 037-021	31	980 573-301	27	996 388-511	25
959 037-101	31	980 602-011	36	996 388-521	26
959 037-141	31	980 603-511	35	996 388-531	26
959 037-221	39	980 603-521	35		
959 037-321	39	980 604-021	39		
959 037-421	39	980 613-011	36		
959 037-601	31	980 615-021	35		
959 037-621	31	980 670-821	37		
959 037-801	31	980 710-071	36		
959 037-821	31	980 740-021	27		
959 037-901	31	980 740-221	27		
959 037-921	31	980 740-321	27		
959 050-061	37	980 837-001	47		
959 050-071	37	980 838-001	47		
959 050-301	37	980 911-021	31		
959 060-321	36	980 911-221	31		
959 060-621	36	980 911-421	31		
959 070-321	36	980 911-621	31		
959 070-621	36	980 911-721	31		
959 772-821	47	995 050-001	27		
959 772-851	47	995 050-011	27		
959 772-861	47	995 050-021	27		
959 773-847	47	995 050-091	35		
959 774-817	47	995 050-101	35		
959 774-821	47	995 606-501	22		
959 774-831	47	995 606-511	22		
959 774-841	47	995 606-521	22		
959 881-006	50	995 606-541	22		
959 881-016	50	995 606-601	22		
959 881-036	50	995 606-611	22		
959 881-046	50	995 606-621	22		
959 881-056	50	995 606-641	22		
959 881-066	50	996 197-001	20		
959 881-516	50	996 197-011	20		
959 881-526	50	996 197-021	20		
959 881-536	50	996 197-031	20		
959 881-546	50	996 197-041	20		
959 881-556	50	996 197-051	20		
959 881-566	50	996 197-061	20		
959 882-118	50	996 197-071	20		
959 882-418	50	996 197-081	20		

KHD Africa (Pty) Ltd

Unit 1, 11 Invubu Street,
Sebenza,
Edenvale,
Johannesburg
South Africa

Tel: +27 11 452 2928 | +27 11 452 5709
Fax: +27 11 452 1223

Contact

Mahesh Desai
mahesh@khdafrica.co.za
082 463 4557

Paul Devin
paul@khdafrica.co.za
083 659 0951

www.khdafrica.co.za

www.khdafrica.co.za

Follow us on:
www.facebook.com/khdafrica

