



PRODUCT OVERVIEW
CITY BUSES AND COACHES





Introduction	2
Travel with confidence and in safety	4
IP protection category	6
Front lighting	10
Daytime running lights	11
DynaView® Evo2	15
Customer-specific headlights	16
90 mm modules - Product overview	18
Low-beam: comparison of LED, Halogen and Xenon	26
High beam: comparison of LED, Halogen and Xenon	27
90 mm Premium	28
90 mm Performance	29
90 mm: accessories for Premium and Performance	30
90 mm indicators, position lights, fog lights and daytime running lights	32
50 mm Premium	33
Indicator and position lights	34
Headlight cleaning systems	40
Ultrasound headlamp leveling system	41
Side lighting	42
Auxiliary indicators	43
Sidemarkers lights	45
Rear lighting	46
More design freedom from LEDs	47
Complete LED combination tail lamps "COLUNA"	48
Universal combination tail lamps	57
LED turn indicators and the patented failure check	63
Clearance lights	66
Reflex reflector	69
The new LED auxiliary brake light	70
Interior lighting	74
Ceiling lights	75
Orientation lights	80
Reading lights	83
Electronics	84
Product ranges, Special OE Electronics	85
Energy Management	86
Components	86
The new HELLA switch configurator	89
3100 switch series	90
4100 switch series	91
Electrical system	92
DEUTSCH "DT series" plug connectors	93
SUPERSEAL connectors	93
HELLA relays	94
Technical data for the relays - Overview	100
Connector diagrams	101
Circuit diagrams	101
Acoustic signal devices	102
Water reservoir	104
Accessories	106
Plugs	107
Sockets	108
HELLA worlds	111
HELLA mobile apps	111



TRAVEL WITH CONFIDENCE AND IN SAFETY

Anyone who catches a bus is relying on being transported from A to B safely and comfortably. Passengers do not think about whether the vehicle electronics and lighting are working correctly. They simply assume that they are. And this is often thanks to HELLA.

We offer wide range of products in the best quality: electrical and electronic, lighting and headlamps. We invest in cutting edge technology and submit each project to countless rigorous tests so that we can guarantee maximum reliability at any time. So, whether you are travelling in a bus or a coach, in the city or across country, HELLA products will always keep you safe and comfortable.

Depth of innovation. Modular concepts. Leaders in technology.

HELLA has acquired a leading position internationally thanks to diligence, creativity and precision quality – for more than hundred years. And, HELLA has been a reliable partner to manufacturers of buses and coaches for many years. We offer exceptional durability, safety and cost-effectiveness through innovations in light technology, such as Xenon and LED technology. Our integrated electrical and electronics components ensure reliable and customised intelligence. We offer our customers an abundance of equipment variants, for example through our extraordinarily wide product range and modular systems that you can use to set trends and emphasise a brand identity of your own. Benefit from the HELLA expertise with in-house mass production and the associated problem-free installation in your vehicles. Benefit from original equipment manufacturer quality, synergies from the developments for the international automotive industry and from zero-defects quality management.

On-site HELLA support.

We don't only see ourselves as a quality supplier, but also as a development partner. If required, our developers and engineers can work on the optimum solution for your application with your teams on your premises. This speeds up workflows and clears the way for new standards. More technological freedom and room to style.

This is HELLA.





WE ARE A PROVIDER OF 100% INDIVIDUAL AND INNOVATIVE SERVICES.

New dimensions in the lighting segment:

After decades when only standard solutions were available, HELLA has been entering new territories and has become number one in customer-specific solutions. The gap is growing. Because there are future-proof solutions that only HELLA offers. We are able to cover applications for all global brands thanks to the work done in our own lighting laboratory.

New dimensions in the field of modular concepts:

Engineers, designers and controllers are equally delighted with our modular system. It provides you with the whole spectrum of design possibilities – from futuristic through dynamic, sporty, business-like, elegant and classic to retro.

Our range provides solutions that no one else can offer. At HELLA, you can take your pick from our entire line of modern headlights and lights, ranging from: Halogen, Bi-Halogen®, Xenon and Bi-Xenon® to LED, light transmitters, Ellipsoid and FreeForm FF. You give us the installation opening and select the design, we will build your module. In small production runs too, of course.

New dimensions of modular speed:

We want to be faster than everyone else. An optimised time-to-market process from the first lines on a notebook through to series delivery allows us to create your custom design in no time.

New dimensions in the electronics industry:

We cover a large range of options where increasing energy efficiency, minimising CO₂ emissions and increasing safety and comfort is our mantra. In this context, HELLA offers a wide range of innovative solutions, such as the smart battery sensor that serves as the centrepiece for energy management in vehicles. HELLA provides you with the ideal combination of energy management, drivetrain and components – little helpers that make it possible for all electronic systems to work precisely.

Also new: the HELLA module switch configurator tool. Configure your switch to meet your own needs. Please see page 89 for more information.

So take us with you on your journey to the future...

IP PROTECTION CATEGORY

What does IP protection category mean?

IP stands for International Protection. The IP protection categories are determined according to DIN 40 050, Part 9. The purpose of the standard is the exact definition of electrical vehicle equipment against the penetration of solid materials including dust and against water penetration. The different degrees of protection important for signalling systems are explained below.

Protective category IP 5K4K






Dust may only penetrate to the extent that function and safety are not impaired. Water that is sprayed from every direction at increased pressure against the housing must not have any damaging effect: water pressure approx. 4 bar.

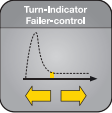

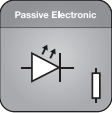



Protection class IP 9K

Water at high-pressure or steam-jet cleaning must not damage the housing: water pressure approx. 80-100 bar.

Protection class IP 6K7

Dust must not penetrate. No water may penetrate, even if the device is submersed for some time. HELLA products meet the highest requirements and are ideally protected against all kinds of weather conditions.

FEATURES	DESCRIPTION	COMMENTS
Power consumption of LED lights	Advantages of LED: Generally, LED lights consume less power than a light with an incandescent lamp. Savings of up to 90 % are possible, which also helps to reduce CO ₂ .	
Vehicle electrical system voltage 	Defines the voltage supply of the light. Whether 12 V, 24 V or for a multi-voltage range (8 – 33 V).	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 protection 9K = Water resistance during high-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.
  	Resistant to high-pressure jet cleaners	

FEATURES	DESCRIPTION	COMMENTS
<p>Turn indicator failure check according to ECE-R48</p> 	<p>Regulation according to ECE-R48: The driver must be informed if the indicator function fails. To remain legally compliant, this requirement must also be met for LED lights. This requirement is met by an integrated self-diagnostic unit on the PCB of the LED and an electrical pulse. Since the end of 2011, this HELLA failure check with a pulse has been ISO Standard: ISO 13207.</p>	<p>If the indicator failure check is not ensured, the general vehicle type approval becomes void. This means it is illegal to operate vehicles without indicator failure check in countries affiliated to ECE-R48.</p> <p>The indicator failure check is ensured in combination with ballasts HELLA part no. 5DS 009 552.</p>
<p>Electronic circuit</p> <div data-bbox="172 734 363 846">  <p>Active</p> </div> <div data-bbox="172 878 373 990">  <p>Passive</p> </div>	<p>Basically, two different circuits are possible for LED lamps:</p> <p>Active: LED current regulation through active electronics</p> <p>Passive: A specific voltage range is preset for the LED by a dropping resistor.</p>	<p>Active: Higher expenditure during development because of complex circuit and necessary EMC approval. Higher price because of electronic components, but optimal current regulation allows maximum LED design life.</p> <p>Passive: Cost-effective solution without complex protection measures. Shorter LED design life in case of failure. No EMC approval required.</p>
<p>Thermal Management</p> <div data-bbox="172 1214 363 1326">  <p>Active</p> </div> <div data-bbox="172 1357 373 1469">  <p>Passive</p> </div>	<p>Active: Electronic power control of LEDs in the event of impermissibly high ambient temperatures. This ensures the LEDs are protected against destruction caused by overheating.</p> <p>Passive: Optimum layout of the components for even temperature distribution and temperature spreading.</p>	<p>Active: More development overhead with active thermal management and higher parts prices ensure optimal conditions for maximum design life.</p> <p>Passive: The warmer the LED gets through exterior factors or heat generated by its own operation, the shorter the service life.</p>
<p>Overvoltage protection</p> 	<p>Supplement to the electronics for protecting the LED against high voltage / current in the vehicle's electric system as per ISO 7637-2.</p>	<p>Overloading of the LEDs can be caused by voltage peaks in the vehicle because of:</p> <ul style="list-style-type: none"> → Jump-starting → Defective control units → Load dump impulse (incorrect battery contact) <p>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.</p>

INTRODUCTION

FEATURES

DESCRIPTION

COMMENTS

Bi-polarity of the light



Even if the connecting cable is attached with reverse polarity, the LED functions fully.

The semiconductor in an LED must always be operated with the correct polarity. Inverse polarity damages the LED, so that LED lights are generally equipped with reverse polarity protection (diode). This function only works when "+" and "-" are correctly connected, though. 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 indentation clamping technology, for example.

Reverse polarity protection



Even if the connecting cable is connected the wrong way round, there is still no danger to the electronics.

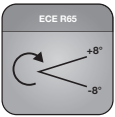
The semiconductor in an LED must always be operated with the correct polarity. Inverse polarity damages the LED, so that LED lights are generally equipped with reverse polarity protection (diode). This function only works when "+" and "-" are correctly connected, though. If a lamp has a bi-polar circuit, the functioning is independent of the contact connections. This ensures poka-yoke (avoiding faulty installations) in connection with indentation clamping technology, for example.

ECE









Product is licensed according to ECE guidelines.

ECE-R65



Defines the light values, light distribution and colour location of beacons that are to be achieved.

Only beacons that fulfil ECE-R65 can be used on public roads.

FEATURES	DESCRIPTION	COMMENTS
<p>Approval for transport of dangerous goods</p> 	<p>Lamp approved for transport of dangerous goods according to the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR; in German, GGVS).</p>	<p>Generally required for truck and trailer lighting. Prerequisite for receiving approval: damage to the light source must not cause explosive media to ignite.</p>
<p>Electromagnetic compatibility</p>   	<p>Electromagnetic compatibility (EMC) tested and EC type approval obtained.</p>	<p>If the light is not constructed according to EMC specifications, and thus is not certified, then interaction between it and other safety-relevant electronic systems may occur.</p> <p>Examples: Interference in a radio loudspeaker, impairment of ABS electronics, or failure of the lamp due to sensitivity to interference.</p>
<p>Automotive Electronic Council</p> 	<p>Components qualified according to automotive standard.</p>	<p>Electronic components (LEDs, diodes, ...) are more robust and safer than electronic components for industry thanks to automotive specifications.</p> <p>By using certified suppliers, a more robust design of the circuit is possible – even for longer periods of time with consistent quality. Thus slight additional costs for the components improve the service life of LED lighting functions.</p>
<p>Automotive Safety Integrity Level</p> 	<p>Product electronics are developed according to the most up-to-date methods and the ISO 26262 safety guidelines.</p>	<p>This has been considered the standard for technology since July 2011 and is taken into account during product development.</p>

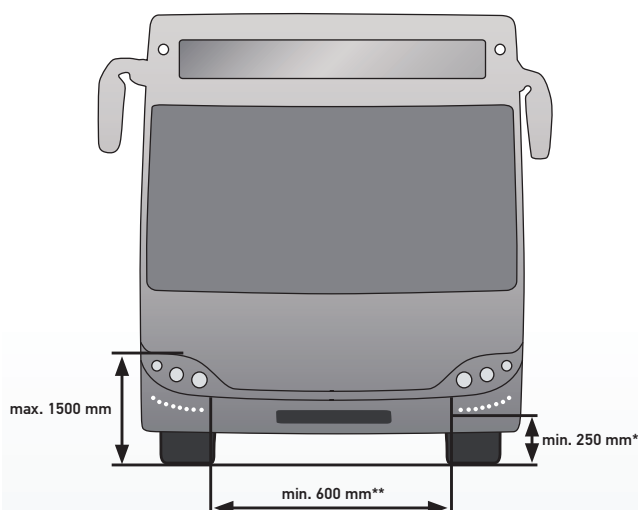
Functional safety, fitting accuracy and durability

HELLA original part quality ensures functional safety, fitting accuracy and durability in each of our products. Along with low beams, high beams, blinkers, parking lights, fog lamps, cornering lights and daytime running lights, our 90 mm modular headlamps, in particular, are also used in different areas of application with maximum requirements.

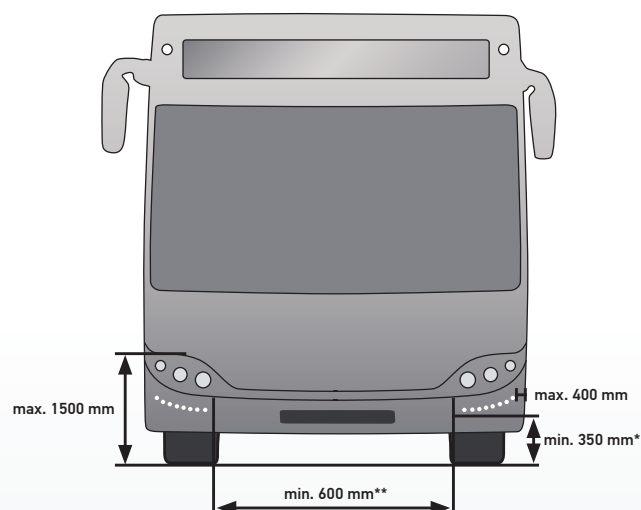
They are compact and powerful. They stand for quality, practicality, safety and cost-efficiency. Their modular design enables a customisable front design. Our total of 5 different series allows us to offer an extraordinarily wide range of products. Our L 4060 LED product group gives your vehicle the distinctive appearance you want. The new shape of the lens (40 x 60 mm) and coloured covers make this possible. These new headlamps have a very compact design but still allow three light functions to be implemented in one module.

Give your vehicle an individual appearance and combine to your own preference.

DAYTIME RUNNING LIGHTS



Daytime running lights only



Daytime running lights, incl. position light

- Daytime running lights offer you a major plus in road safety.
- It is much easier to see than normal low beam.
- A vehicle's own visibility is significantly increased.
- The vehicle can be seen earlier on, which provides a few more seconds of vital reaction time.
- Fuel consumption significantly reduced compared to driving with low beam

Required by law:

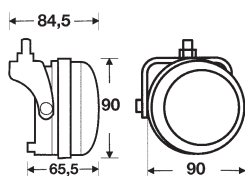
The law has recognised the advantages of daytime running lights: since 2012, daytime running lights have been obligatory for all new commercial vehicles licensed to use the roads in EU countries. Various installation options are allowed. However, distances and reflected beam angles are specified.

- * When used as a position light, the minimum permitted installation height is 350 mm and the lights must not be more than 400 mm from the outer edge of the vehicle.
- ** For vehicles with a width of < 1,300 mm, the spacing distance must be at least 400 mm.
- When a daytime running light is used as a position light, the standard position light must be permanently disabled in accordance with ECE-R 48.
- See the relevant assembly instructions for more detailed information.

min. = minimum distance
max. = maximum distance

This product features the following properties:

LED daytime running light Ø 90 mm



LED daytime running light Ø 90 mm

Daytime running lights, set	2PT 009 599-811
Daytime running light, left	2PT 009 599-111
Daytime running light, right	2PT 009 599-121
Daytime running light with position light, left	2PT 009 599-131
Daytime running light with position light, right	2PT 009 599-141

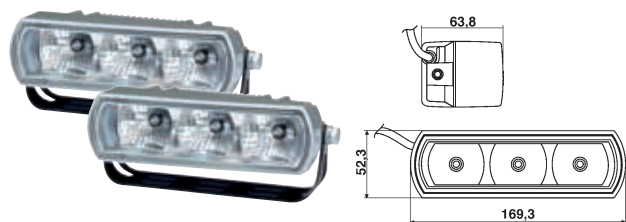
Type approval: ECE

Optional accessories

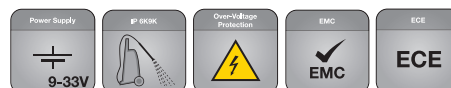
Universal carrier frame	9AH 165 968-001
Harness, pre-assembled	8KA 165 959-001

- Multivolt 9–33 V
- Three LEDs per light
- With a black aluminum housing
- With an integrated relay
- Harness with AMP SUPERSEAL plug
- For upright and suspended mounting in/on the front apron
- Set complete with hoop bracket and professional harness

FRONT LIGHTING



This product features the following properties:



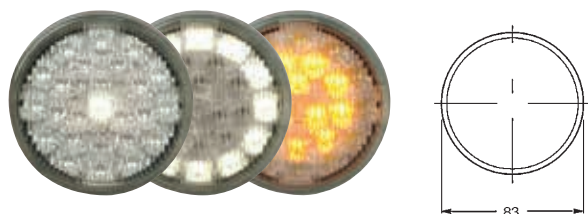
LED DAYTIME RUNNING LIGHT, RECTANGULAR

Daytime running lights, set

2PT 009 496-801

Type approval: ECE and SAE

- Multivolt 9 – 33 V
- Three LEDs per light
- With silver-grey aluminum housing
- Integrated relay
- Harness with AMP-SUPERSEAL plug, hoop bracket
- For upright and suspended mounting in/on the front apron



This product features the following properties:



LED MULTI-FUNCTION LIGHT

Individual lights

12 V, 83 mm-LED-3 functional luminaire

2BE 980 691-001

24 V, 83 mm-LED-3 functional luminaire

2BE 980 690-001

Optional accessories

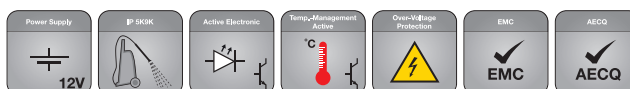
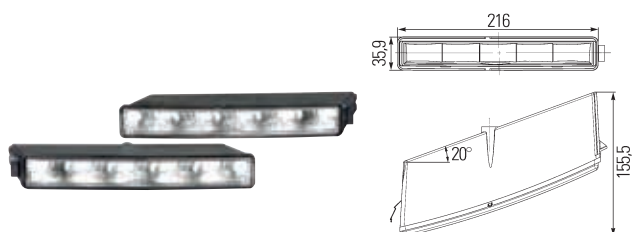
Adapter ring 90 mm

9GD 980 696-001

Type approval: ECE

- 83 mm LED 3-function lights: direction indicator, position light, daytime running lights
- The integrated electronics are configured so that the daytime running lights switch off during flashing, pre-cabled with a 2.5 m long wrapped four-wire cable.

This product features the following properties:



LED daytime running light set LEDayLine® with position light function

2 lights with five LED diodes per light and integrated relay for fully automatic switch-on, incl. professional harness and attachment material, multi-voltage 9-32 V, 12 V max. 5.5 W

Set for surface-mounting, 12 V

2PT 010 043-801

12 V, left

2PT 010 043-011

12 V, right

2PT 010 043-021

24 V, left

2PT 010 043-031

24 V, right

2PT 010 043-041

Optional accessories

Set of connector cables, incl. mating connector

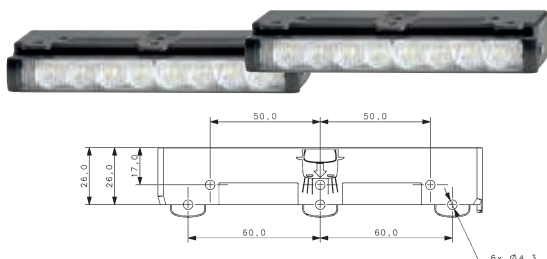
8KA 165 959-001

AMP mating connector 3-pin (1 set)

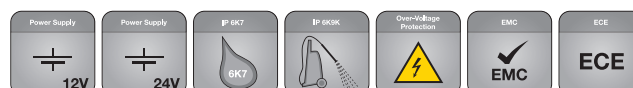
8KW 744 807-801

Type approval: E 2578

This product features the following properties:



- For horizontal installation
- 8 LEDs per daytime running light
- Suitable for vehicles with no angle at installation location
- Power consumption 2 W
- IP 6K7 / IP 6K9K
- High vibration resistance
- Reverse polarity protection



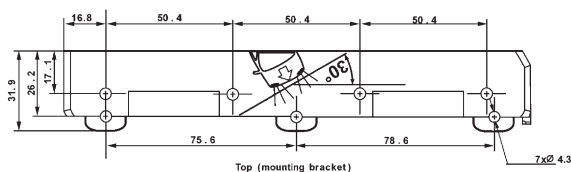
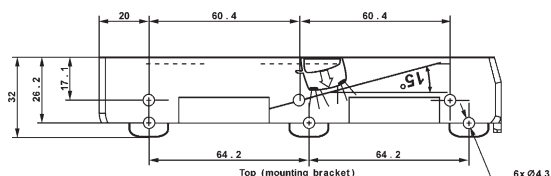
LEDayLine Zero

12 V, daytime running light set 2PT 980 970-821

24 V, daytime running light set 2PT 980 970-871

Type approval: ECE approved and SAE pending

This product features the following properties:



- For horizontal installation
- 8 LEDs per daytime running light
- Power consumption 2 W
- 2 versions for horizontal installation in different vehicle fronts:

LEDayLine 15:

suitable for vehicles with a 15° angle at the installation location

LEDayLine 30:

suitable for vehicles with a 30° angle at the installation location.



LEDayLine 15 and LEDayLine 30 with position light

LEDayLine 15

suitable for vehicles with a 15° angle at the installation location

12 V, light module daytime running light/position light 2PT 980 860-001

24 V, light module daytime running light/position light 2PT 980 860-501

Brackets (set right/left) 8HG 980 864-101

LEDayLine 30

suitable for vehicles with a 30° angle at the installation location

12 V, light module daytime running light/position light 2PT 980 850-001

24 V, light module daytime running light/position light 2PT 980 850-501

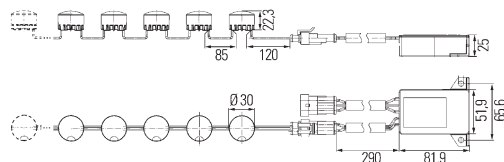
Brackets (set right/left) 8HG 980 854-101

Control units

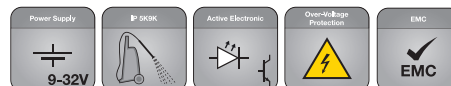
12 V, with connecting cables 8KA 959 186-801

24 V, with connecting cables 8KA 959 186-811

Type approval: ECE and SAE



This product features the following properties:



LEDayFlex LED daytime running light set

Set consisting of two pre-wired module chains with 5 – 8 round light modules and two electronics boxes for activating the daytime running lights, available with or without a position light. The system is connected to the vehicle electric system via a 3-pin AMP-SUPERSEAL plug. 12 / 24 V multi-voltage

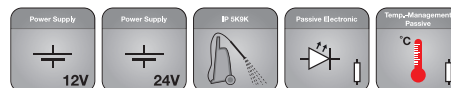
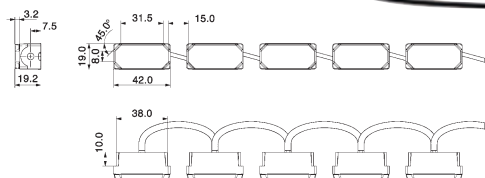
5 LED light modules for daytime running light	2PT 010 458-801
5 LED light modules for daytime running light with position light	2PT 010 458-811
6 LED light modules for daytime running light	2PT 010 458-821
6 LED light modules for daytime running light with position light	2PT 010 458-831
7 LED light modules for daytime running light	2PT 010 458-841
7 LED light modules for daytime running light with position light	2PT 010 458-851
8 LED light modules for daytime running light	2PT 010 458-861
8 LED light modules for daytime running light with position light	2PT 010 458-871

Type approval: 5852

Accessories

12 / 24 V, control unit	5DS 010 668-001
12 / 24 V, control unit for position light	5DS 010 668-011
Harness (not included)	8KA 165 959-001

This product features the following properties:



LEDayFlex II LED DAYTIME RUNNING LIGHT SET

LEDayFlex II has expanded the system of flexibly connected module chains since 2012. The two square LED daytime running light chains with five or six pre-wire light modules make new designs possible.

Sets

12 V, 5 LED light module	2PT 980 789-851
12 V, 6 LED light module	2PT 980 789-861
24 V, 5 LED light module	2PT 980 789-901
24 V, 6 LED light module	2PT 980 789-911

Chains of individual lights as a service part

12 V, daylight running light with 5 modules	2PT 980 789-051
12 V, daylight running light with 6 modules	2PT 980 789-251
24 V, daylight running light with 5 modules	2PT 980 789-061
24 V, daylight running light with 6 modules	2PT 980 789-261

Type approval: ECE and SAE

Accessories

24 V, control unit with connecting cables	8KA 959 186-911
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Bracket for screw attachment, above Included

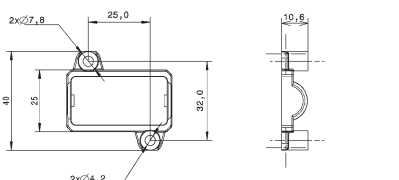
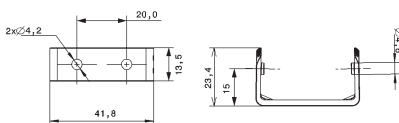
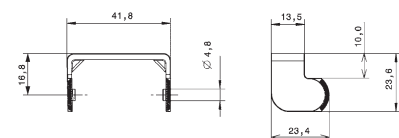
for 5-module chain (10 units)	8HG 980 797-801
for 6-module chain (12 units)	8HG 980 797-811

Bracket for screw attachment, rear Optional accessories

for 5-module chain (10 units)	8HG 980 793-801
for 6-module chain (12 units)	8HG 980 793-811

Bracket for screw attachment, front Optional accessories

for 5-module chain (10 units)	8HG 980 795-008
for 6-module chain (12 units)	8HG 980 795-007



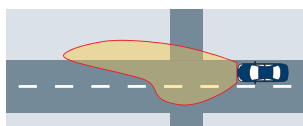
DynaView® Evo2

A new lighting era

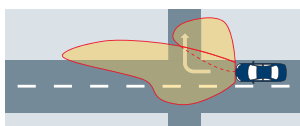
DynaView® Evo2 combines the cornering light and fog light safety functions in compact round auxiliary lights which can be universally installed in many different vehicles. When the low beam is switched on, the right or left cornering light is activated when the indicator is actuated or automatically when the vehicle drives round a bend at a speed of less than 40 km/h without decelerating.

A yaw rate sensor measures the vehicle's angular acceleration and triggers the turn-on signal when the car drives through a curve. At the end of the curve, a dimmer softly fades the extra light. If the reverse gear is engaged, both cornering lights are switched on and ensure broad and bright illumination of the areas along the left and right of the vehicle.

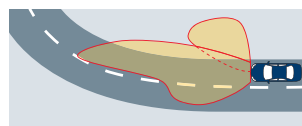
Driving situation



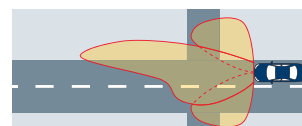
"The cornering light is switched off during a normal driving situation on a straight path."



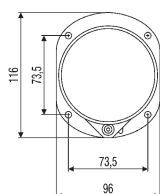
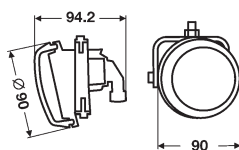
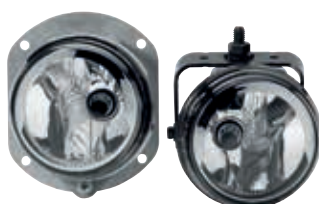
"When turning a corner or driving slowly through a curve (up to a speed of 40 km/h), the cornering light is turned on automatically."



"When driving round a bend at up to 40 km/h, the respective headlight is switched on automatically."



"In foggy conditions, the cornering light can be switched on manually (both sides) as a fog light."



DynaView® Evo2 INCL. H7 BULB

with handrail holder

12 V, set including control electronics and cable set	1N0 009 295-801
12 V, individual left	1N0 009 295-011
12 V, individual right	1N0 009 295-021
24 V, individual left	1N0 009 295-057
24 V, individual right	1N0 009 295-067

Type approval: E 1951,
ECE R119 cornering light,
ECE R19 fog light B series 02 / B series 03

CONNECTOR PLUG SET

DynaView® Evo2	
for 20 headlights	8JD 156 151-807
Harness	8KB 163 160-801
Control electronics	5DF 009 244-007



CUSTOMER-SPECIFIC HEADLIGHTS



Design proposal

We understand that individuality is important to you!

Customer-specific headlights – with a modular design – reduce development costs and make more design freedom an option – even for small numbers of units.

The solution: The building block or module.

Everything you need is included:

- The freedom of the design.
- The logic of the economical series.
- The latest advanced lighting technology.
- The security of real HELLA quality.

First, you define the lighting functions you require. Based on your requests, our designers develop proposals – or your designers prepare enquiries or specifications. Shape and colour can be realised according to your individual requirements, of course.



HELLA has deliberately packed its front light system with the finest technology. Compact and powerful.






On request, we can also support you in developing the design of exterior elements – including covers and lenses.

- ❶ Cover lens
- ❷ Decorative finisher
- ❸ Static cornering lighting module
- ❹ Bi-Xenon module
- ❺ Fog module
- ❻ High-beam module

This is what an impressive solution might look like, for example:

- ❶ Auxiliary high beam
- ❷ Fog light
- ❸ Bi-Xenon® (dipped and high beam)
- ❹ Static cornering light and position light

SELECTABLE FRONT MODULES FROM THE HELLA MODULE KIT:

	Bi-Xenon
	Bi-Halogen
	Halogen
	Static cornering light and position light
	High beam
	High beam with daytime running light
	Fog light with daytime running light
	Direction indicator module with LED PO light
	Fog light
	Daytime running lights with LED position light
	Indicator lamp LED
	LED DayFlex, the flexible daytime running light



The use of the latest lighting technology, such as LED or Xenon, guarantees pioneering and powerful light output. We can also implement customer-specific headlights in low numbers of units.

90 MM MODULES - PRODUCT OVERVIEW

	LED	Halogen (conventional lighting technology)	Xenon
Main light functions	<ul style="list-style-type: none"> → Low beam → High beam → Low beam and high beam → High beam, daytime running light and position light → Dipped beam and indicator 	<ul style="list-style-type: none"> → Low beam → High beam → Low beam and high beam → High beam and daytime running light 	<ul style="list-style-type: none"> → Low beam → High beam → Dipped beam and high beam
Auxiliary light functions	<ul style="list-style-type: none"> → Fog light → Fog light and cornering light → Fog light, daytime running light and position light → Daytime running lights 	<ul style="list-style-type: none"> → Fog light → Fog light and cornering light → Fog and daytime running light → Daytime running light and position light → Position light → Indicator and position light → Indicator → Indicator, daytime running light and position light 	

90 MM CONFIGURATION TOOL WWW.HELLA.COM / 90MM-MODULES

90 mm modules are used in almost all vehicles. They are compact and powerful. They stand for quality, practicality, safety and cost-efficiency. Their modular design allows individual front design. This tool is aimed at original equipment fitters, vehicle fleet operators and end customers in the municipal sector, agriculture, sports vehicles, electric cars, mobile homes, and bus companies.

It offers the following benefits:

→ Original Equipment

In our 90 mm configurator, you can design and put together your own front lighting. This process is aided by a simple menu guide. This results in a parts list, which you can then send to HELLA directly from the tool.

→ Illumination comparison

You can compare the lighting technologies for selected main light functions. See the difference between halogen and LED with realistic images from Europe's largest light testing facility! Compare light distribution to make the right decision for your application. You can access all the relevant technical data here.



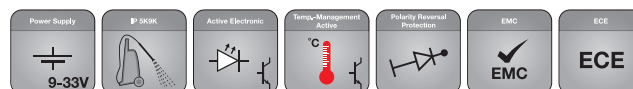
90 MM: L 4060 LED HIGH BEAM

High-end illumination. High beam, daytime running and position lights in one module or as a separate high beam module.

40 x 60 mm PC lens with new design. Pattern-free and hardened plastic cover lens. Spotlight with either pre-mounted carrier frame or as a 90 mm performance module mount for 1:1 conversion.

Integrated FEP plug and control electronics.

The products on this page have the following features:

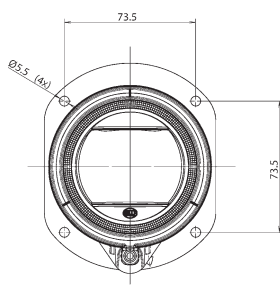


LED SPOTLIGHT L 4060

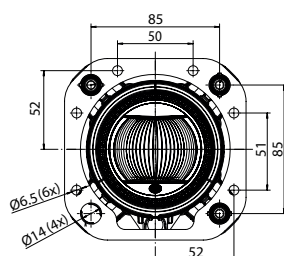
Modular headlight with 40 x 60 mm polycarbonate lens, sturdy die-cast aluminum housing, silver design cover (black design cover on request)
Multivolt 9 – 33 V

Pre-mounted carrier frame	1F0 011 988-021
Performance mount	1F0 011 988-121

With pre-mounted carrier frame



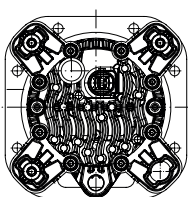
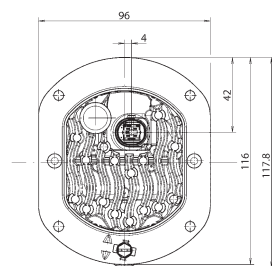
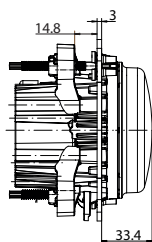
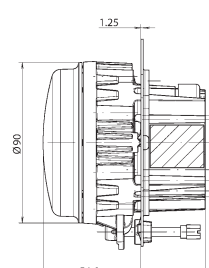
Performance module mount for 1:1 conversion of existing halogen versions



LED SPOTLIGHT L 4060 WITH DAYTIME RUNNING LIGHT / POSITION LIGHT

Modular headlight with 40 x 60 mm polycarbonate lens, sturdy die-cast aluminum housing, silver design cover (black design cover on request)
Multivolt 9 – 33 V

Pre-mounted carrier frame	1F0 011 988-031
Performance mount	1F0 011 988-131



LED SPOTLIGHT L 4060 WITH INDICATOR

Modular headlight with 40 x 60 mm polycarbonate lens, sturdy die-cast aluminum housing, silver design cover (black design cover on request)
Multivolt 9 – 33 V

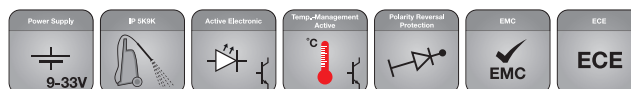
Pre-mounted carrier frame, with control unit	1F0 011 988-081
Performance mount, with control unit	1F0 011 988-181
Pre-mounted carrier frame, without control unit	1F0 011 988-071
Performance mount, without control unit	1F0 011 988-171

90 MM: L 4060 LED FOG LIGHT

Uniform illumination similar to daylight.

Fog light in various combinations as a separate module, with daytime running light, position light and cornering light. 40 x 60 mm PC lens, pattern-free hardened plastic cover lens, integrated FEP plug.

The products on this page have the following features:

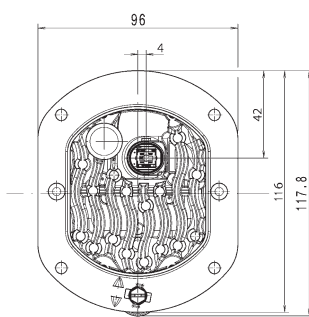
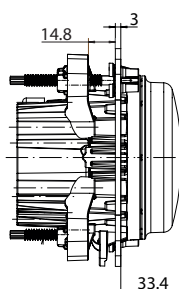
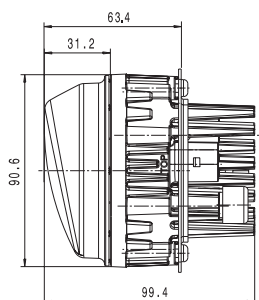
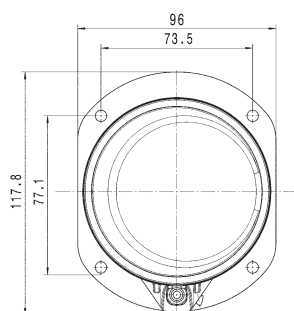


LED FOG LIGHT L 4060

Modular headlight with 40 x 60 mm polycarbonate lens, sturdy die-cast aluminum housing, silver design cover (black design cover on request)
Multivolt 9 – 33 V

1N0 011 988-001

With pre-mounted carrier frame



LED FOG LIGHT L 4060, WITH DAYTIME RUNNING LIGHT AND POSITION LIGHT

Modular headlight with 40 x 60 mm polycarbonate lens, sturdy die-cast aluminum housing, silver design cover (black design cover on request)
Multivolt 9 – 33 V

1N0 011 988-011



LED FOG LIGHT L 4060, WITH CORNERING LIGHT

Modular headlight with 40 x 60 mm polycarbonate lens, sturdy die-cast aluminum housing, silver design cover (black design cover on request)
Multivolt 9 – 33 V

On the right

1N0 011 988-061

On the left

1N0 011 988-051

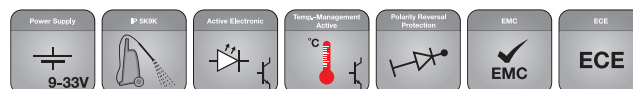
90 MM: L 70 LED LOW BEAMS AND HIGH BEAMS

The products on this page have the following features:

The light colour, which is similar to daylight, offers more safety and comfortable, fatigue-free driving. Three white high-power LEDs provide the light source for each light function. The light is homogeneously projected through the 70 mm DE lens on the street. The design life of the headlamp, normally more than 15,000* real operating hours, allows huge cost savings when it comes to maintenance and repair costs compared to other lighting systems**.

Exclusive automobiles distinguish themselves through their cutting-edge technology.

The HELLA LED low beam or low beam/high beam module is so high-tech that it shows its obvious technological advancement every time it is switched on, creating visible distance from the mass market.



90 MM PREMIUM LED MODULE

Maintenance-free module normally for more than 15,000 operating hours, very homogeneous light and rapid start time, 35 watt power consumption, no movable parts, passive cooling system, plastic cover lens, vehicle security system: 5 A, Multivolt

Mono LED, right-hand traffic	1BL 010 820-001
Mono LED, left-hand traffic	1ML 010 820-011
Bi-LED, right-hand traffic	1AL 010 820-021
Bi-LED, left-hand traffic	1LL 010 820-031

Type approval: Mono-LED Ⓔ ES 3159 and LES 3160, Bi-LED Ⓔ ES 3351 and LES 3352

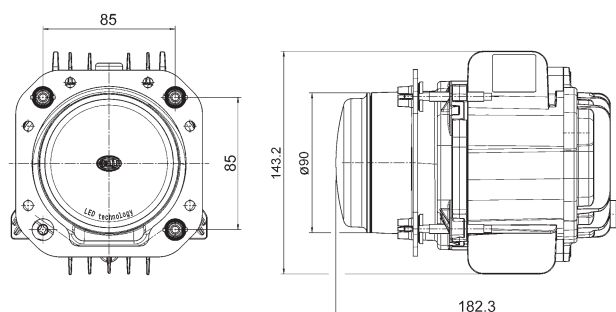
Set packaging

(One headlamp and one 12 V control unit for functional monitoring)

Mono LED, right-hand traffic	1BL 010 820-801
Mono LED, left-hand traffic	1ML 010 820-821
Bi-LED, right-hand traffic	1AL 010 820-841
Bi-LED, left-hand traffic	1LL 010 820-861

Accessories

12 V, for failure check - function monitoring device	5DS 011 630-001
Carrier frame	9AH 169 580-011



* At an ambient temperature of around 50° C.

** In the ECE R48 area of application, under current law, it is necessary to implement failure check for a LED headlamp in the vehicle's electrical system by taking suitable measures. Failure check is no longer necessary from 06 / 2014 onwards for vehicles in accordance with ECE-R48 Series 06 Supplement 3.



90 MM: LED ACCESSORIES

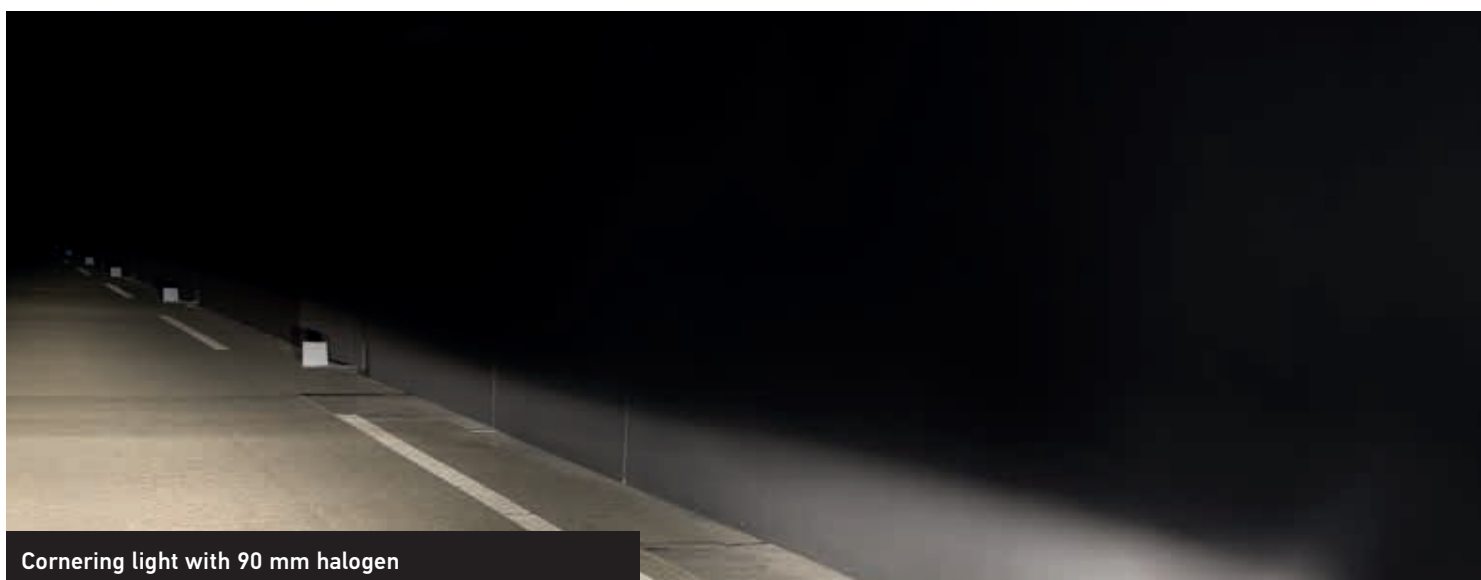
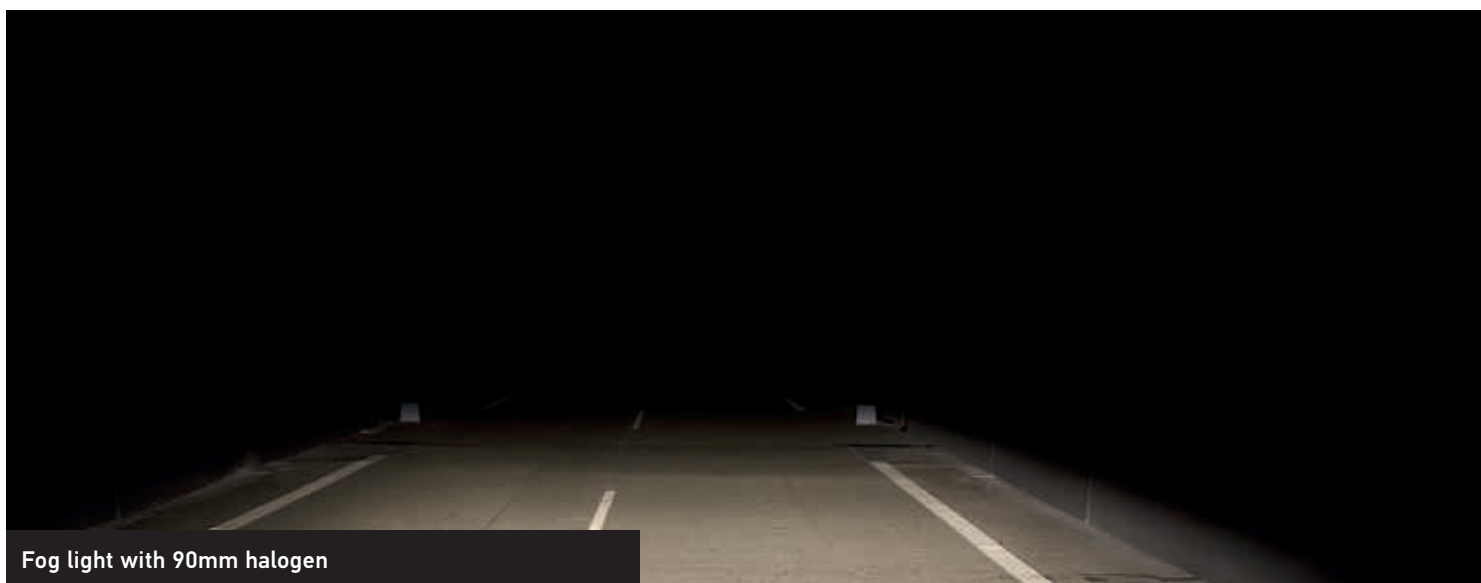
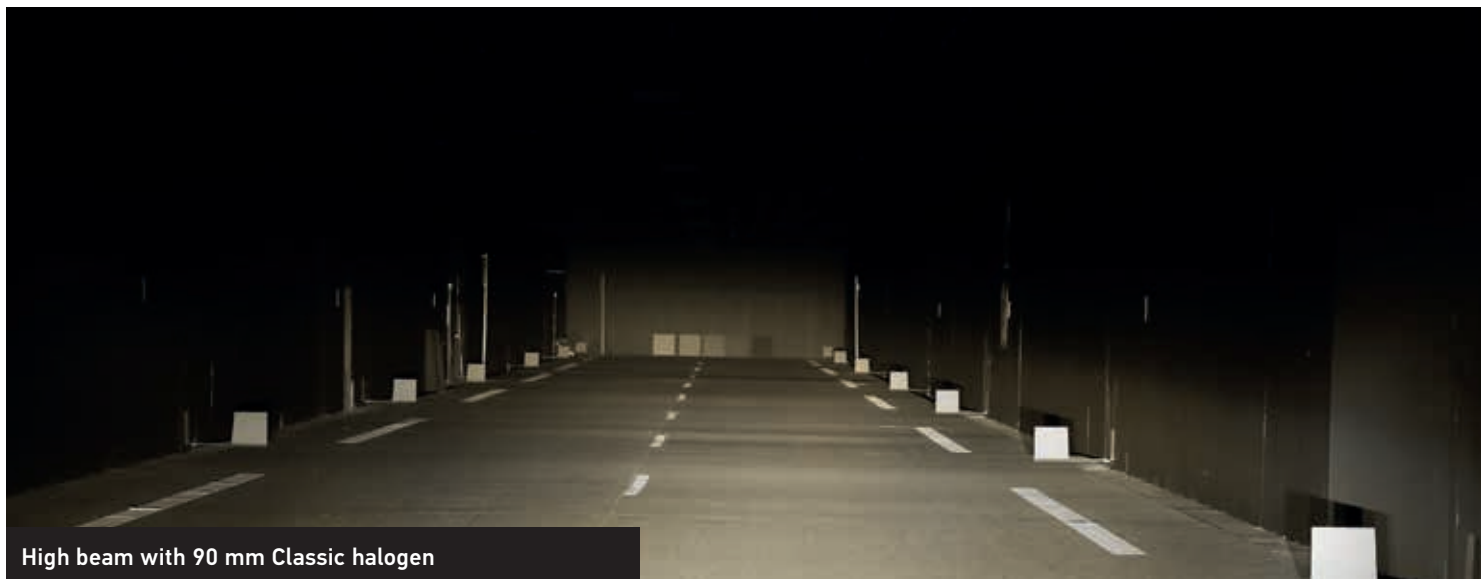
Legend

-) Accessories are needed for proper attachment
-) Optional accessories, tailor-made for the headlights.
- **) Required for xenon low-beam lights, permitted as an option for halogen and LED.
-) Required for xenon low-beam lights and in some countries according to local approval regulations. Permitted as an option for halogen and LED.

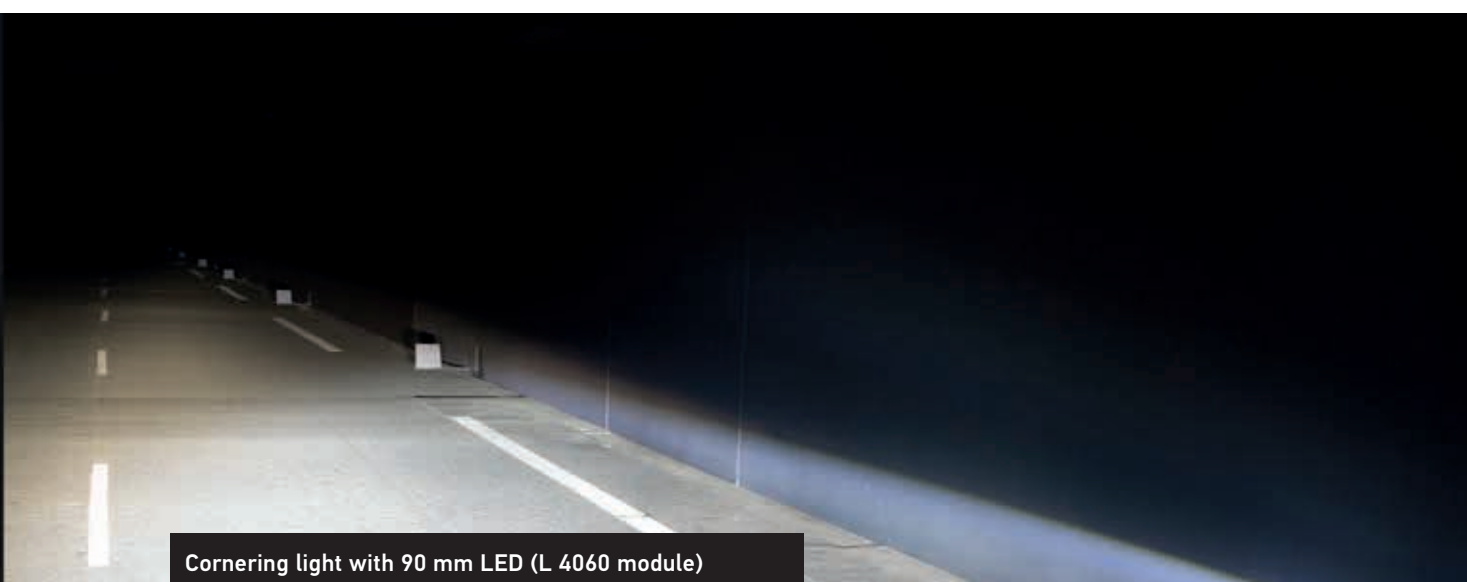
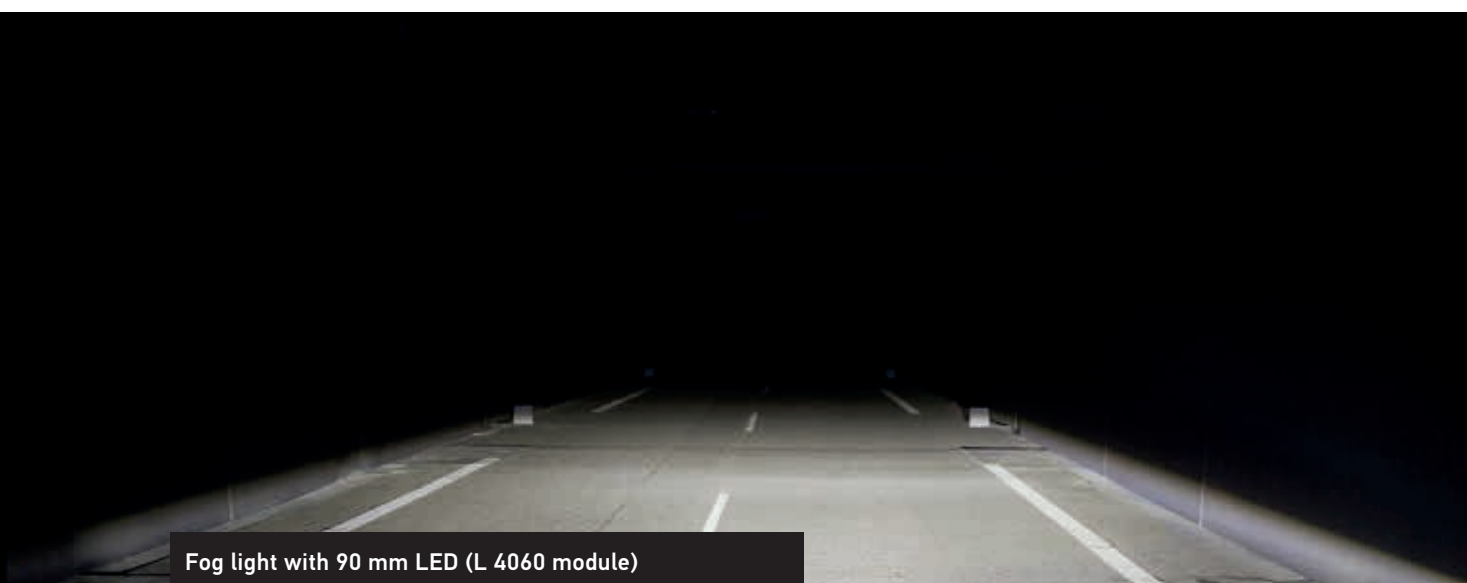
ACCESSORY COMPONENTS	PART NUMBER	FEATURES
CARRIER FRAME		
	9AH 169 580-011	black
SURPLUS SUPPLY, LED AMP SUPERSEALED, 3-PIN		
Housing	8JA 746 184-032	10 units
Female socket connector	8KW 744 837-002	50 units
Strand insulation	9GD 746 185-002	50 units
SURPLUS SUPPLY, LED FEP PLUG, 4-PIN		
Housing	8JA 202 231-002	
Flat contact	8KW 863 933-013	50 units
Strand sealing 0.35 – 0.5 mm ² or	9GD 863 952-022	50 units
Strand sealing 0.75 mm ²	9GD 863 952-012	50 units
Blind plug	9GD 863 952-002	50 units
SURPLUS SUPPLY, LED DEUTSCH PLUG, 4-PIN (ONLY TOGETHER WITH THE ADAPTER CABLE, SEE¹⁾)		
Male connector housing	8JA 201 022-042	10 units
Lock / wedgelock	9NB 201 024-042	10 units
Contact sleeve 0.5 - 1.5 mm ²	9NB 201 025-112	50 units
Blind plug	9NB 201 026-012	50 units
Dummy plug set packaging (consists of 1 male connector housing, 1 lock, 5 contact sleeves and 3 dummy plugs)	8JA 201 022-821	
HEADLIGHT BEAM THROW ADJUSTMENT SYSTEM		
Headlamp leveling system	6NM 007 282-221	
Bracket for right-side mounting of actuator	8HG 138 619-007	
Bracket for left-side mounting of actuator	8HG 138 620-007	
HEADLIGHT CLEANING SYSTEMS		
Headlamp cleaning set with fixed nozzles	8WS 008 549-001	4 nozzles
Headlight cleaning system set with telescoping single nozzles	8WT 008 549-101	Two single nozzles
Headlight cleaning system set with telescoping double nozzles	8WT 008 549-201	Two double nozzles
BEND LIGHTING ACCESSORIES		
LED module connection cable - cornering light control unit	8KB 163-160-011	1 unit
Bend lighting control unit	5DF 009 244-007	24 units
ADAPTER CABLE		
¹⁾ Adapter from FEP plug to DEUTSCH plug (4-pin)	8KA 202 117-001	1 unit
Adapter from FEP plug to Performance module (247 043) or DynaView (009 295)	8KA 202 117-011	1 unit

LED low beam 010 820	Bi-LED low beam and high beam 010 820	LED fog light 011 988-001	Fog, daytime driving and position light 011 988-011	LED high beam 011 988-021	LED high beam 011 988-121	High beam, daytime driving and position light 011 988-031	High beam, daytime driving and position light 011 988-131	LED fog and bend light 011 988-051/061	High beam and blinker (with pulse) 011 988-081	High beam and blinker (with pulse) 011 988-181	High beam and blinker (without pulse) 011 988-071	High beam and blinker (without pulse) 011 988-171
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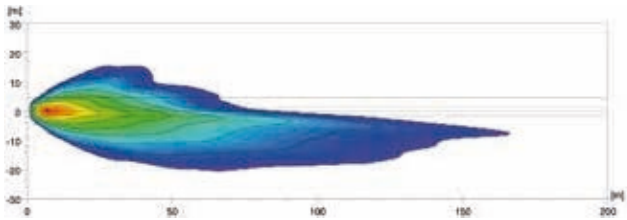

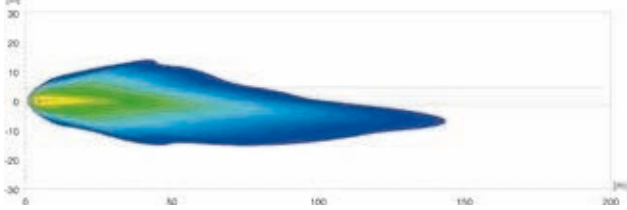

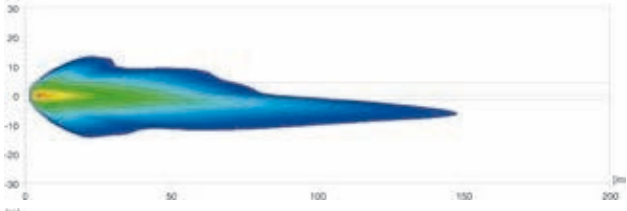

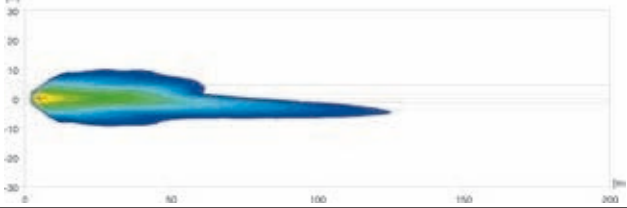

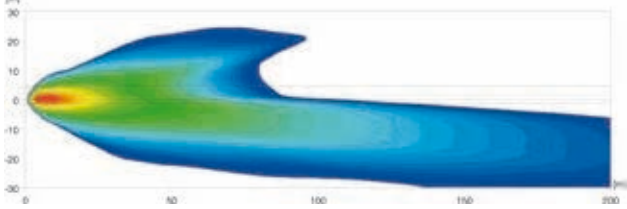

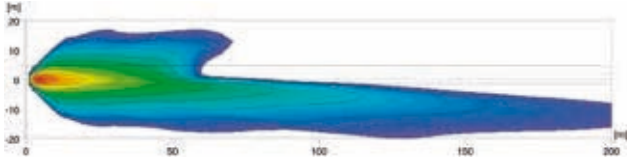

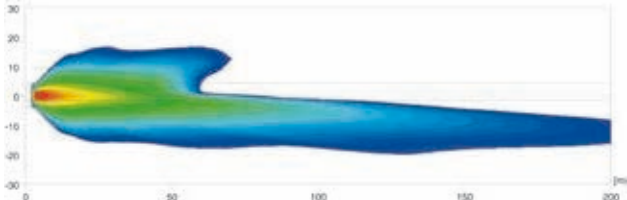
90 MM: ILLUMINATION COMPARISONS AT THE HELLA LIGHT TESTING FACILITY




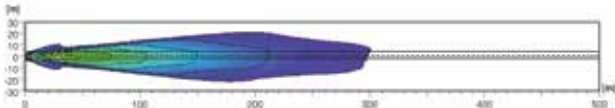

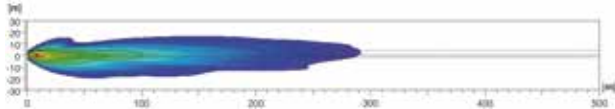

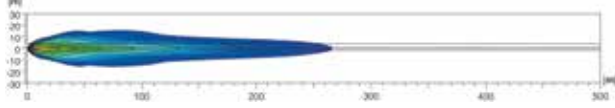





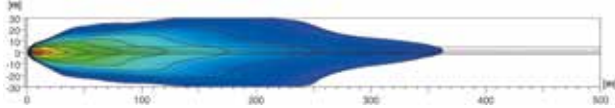




TY



LOW-BEAM: COMPARISON OF LED, HALOGEN AND XENON

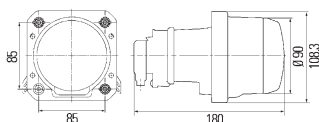
	PRODUCT IMAGE	DESCRIPTION	LIGHT DISTRIBUTION
LED		L 70 LED low beam page 21	
		Premium Halogen and Bi-Halogen® low beam page 28	
HALOGEN		Performance Halogen low beam page 29	
		Classic Halogen low beam on request	
XENON		Premium Bi-Xenon® low beam page 28	
		Classic Xenon low beam on request	
		Classic Bi-Xenon® low beam on request	

HIGH BEAM: COMPARISON OF LED, HALOGEN AND XENON

	PRODUCT IMAGE	DESCRIPTION	LIGHT DISTRIBUTION
LED		L 4060 LED high beam Page 19	
		L 70 Bi-LED high beam page 21	
HALOGEN		Premium Bi-Halogen® high beam page 28	
		Performance Halogen high beam page 29	
		Classic Halogen high beam on request	
XENON		Premium Bi-Xenon® high beam page 28	
		Classic Xenon high beam on request	
		Classic Bi-Xenon® high beam on request	

90 MM PREMIUM

High-end illumination. Low beam and high beam from a single headlight module, choice of Xenon or Halogen technology. Pattern-free glass cover lens. High-quality aluminium reflector. With Xenon, waterproof ballast. Connection using 0.5 m shielded supply cable with detachable plug-type connection.



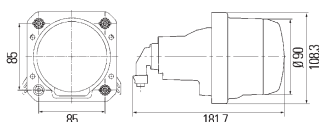
BI-XENON® MAIN HEADLIGHT LOW BEAM AND SPOTLIGHT

Xenon low beam and high beam in one lamp unit, Xenon low beam only permitted with headlight range adjustment and lens cleaning system.

12 V, right-hand traffic, D2S, ECE	1AL 009 997-001
12 V, left-hand traffic, D2S, ECE	1LL 009 997-011
12 V, right-hand traffic, D2S, SAE	1AL 009 997-021
24 V, right-hand traffic, D2S, ECE	1AL 009 997-041
24 V, left-hand traffic, D2S, ECE	1LL 009 997-051

Type approval: E 2484 and E 2485

* Only allowed for replacement purposes in M1 and N1 vehicles.

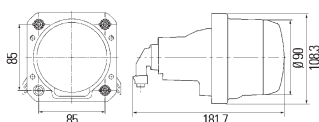


BI-HALOGEN® HEADLAMP LOW BEAM AND SPOTLIGHT

Halogen, low beam and high beam in one headlamp, metal reflectors with a clear DE lens. Ideal in combination with the matching spotlights and fog lights. Inc. light source.

12 V, right-hand traffic, H7, ECE	1AL 009 998-001
12 V, left-hand traffic, H7, ECE	1LL 009 998-011
12 V, right-hand traffic, H9, SAE	1AL 009 998-021
24 V, right-hand traffic, H7, ECE	1AL 009 998-041
24 V, left-hand traffic, H7, ECE	1LL 009 998-051

Type approval: E 2484 and E 2485



HALOGEN LOW BEAM HEADLAMP

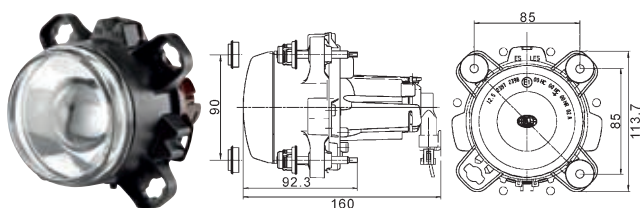
Metal reflectors with clear DE lens. Ideal in combination with the matching spotlights and fog lights, including light source.

12 V, right-hand traffic, H7, ECE	1BL 009 999-001
12 V, left-hand traffic, H7, ECE	1ML 009 999-011
12 V, right-hand traffic, H7, SAE	1BL 009 999-021
24 V, right-hand traffic, H7, ECE	1BL 009 999-041
24 V, left-hand traffic, H7, ECE	1ML 009 999-051

Type approval: E 2486 and E 2487

90 MM PERFORMANCE

Optimal illumination Modules in high quality for use during long trips.
With splashwater-proof plug-type connector.



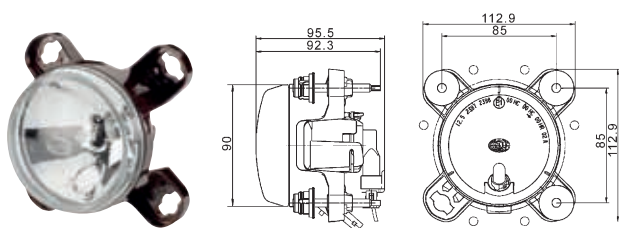
HALOGEN LOW BEAM HEADLAMP

Module headlamp with an aluminum reflector and clear DE lens behind a non-patterned glass cover lens, incl. light source.

12 V, right-hand traffic, H1	1BL 247 042-007 1BL 247 042-001
12 V, left-hand traffic, H1	1ML 247 042-027
24 V, right-hand traffic, H1	1BL 247 042-017
24 V, left-hand traffic, H1	1ML 247 042-037

Type approval: E 2397 and E 2398

* With a technical solution for tourists for temporary use in left-hand traffic countries or, for the left-hand traffic versions, in right-hand traffic countries.



HALOGEN SPOTLIGHT

Module headlamp with an aluminum free-form reflector and a non-patterned glass cover lens, incl. light source.

12 V, with position light, H1	1KO 247 043-007 1KO 247 043-001
12 V, without position light	1KO 247 043-017 1KO 247 043-011
24 V, with position light, H1 heavy duty long life	1KO 247 043-027
24 V, without position light	1KO 247 043-037

Type approval: E 2397

Information

If you have been using Classic modules so far (except Bi-Xenon®), you can easily upgrade these to Performance modules.

The following Performance modules have the same module attachment as the Classic module and are therefore compatible and easy to replace – without having to modify the existing Classic carrier frame structure first.

Would you like to combine modules from the Premium and Performance series without having to commit yourself right at the start of the vehicle design process?

Then use the tried-and-trusted Premium carrier frame structure as a basis.

Alongside the complete Premium range, the following modules from the Performance series that are compatible with a Premium carrier frame can also be used.

CLASSIC MOUNTINGS FOR PERFORMANCE HEADLAMPS

90 mm high beam with P0, 24 V light bulb	1KO 247 043-097
90 mm high beam with 24 V light bulb	1KO 247 043-107
90 mm low beam with 24 V bulb, Right-hand traffic	1BL 247 042-157
Left-hand traffic	1ML 247 042-167

PREMIUM MOUNTINGS FOR PERFORMANCE HEADLAMPS

90 mm high beam with P0, 24 V light bulb	1KO 247 043-137
90 mm high beam with 24 V light bulb	1KO 247 043-147
90 mm low beam 24 V bulb, Right-hand traffic	1BL 247 042-197
Left-hand traffic	1ML 247 042-207

90 MM: ACCESSORIES FOR PREMIUM AND PERFORMANCE

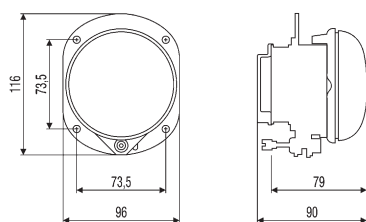
Legend

-) Accessories are needed for proper attachment
-) Optional accessories, tailor-made for the headlights.
- **) Required for xenon low-beam lights, permitted as an option for halogen and LED.
-) Required for xenon low beam lights and in some countries according to local approval regulations. Permitted as an option for halogen and LED.

ACCESSORY COMPONENTS	PART NUMBER	FEATURES
CARRIER FRAME		
	9AH 169 580-011	Black
	9AH 157 659-007	Silver
PLUG (VEHICLE SIDE)		
Surplus supply H1 / H7 / Xenon	8JD 156 151-807	20 systems
Surplus supply H9	8JD 158 175-807	20 systems
Parking lights	8JD 156 150-807	20 systems
Toggle high beam, AMP-SUPERSEALED 2-pin		
Housing	8JA 746 184-022	10 units
Female socket connector	8KW 744 837-002	50 units
Strand insulation	9GD 746 185-002	50 units
Version with fording capability		
Venting hose	9GS 190 794-002	50 m
10 T units for venting hose	9XL 190 733-002	10 units
HEADLIGHT RANGE ADJUSTMENT SYSTEMS		
12 V, for halogen	6NM 007 282-221	
12 V, for Xenon versions	6NM 007 282-231	
24 V, for halogen	6NM 008 299-501	
Mounting set for actuator	8HG 183 586-001	1 set
Bracket for right-side mounting of actuator	8HG 138 619-007	
Bracket for left-side mounting of actuator	8HG 138 620-007	
Automatic headlamp leveling system, 12 V •**)	8XX 010 315-001	1 sensor
Automatic headlamp leveling system, 24 V	8XX 010 315-011	2 sensors
LENS CLEANING SYSTEMS ■)		
12 V, headlamp cleaning set with fixed nozzles	8WS 008 549-001	4 nozzles
24 V, headlamp cleaning set with fixed nozzles	8WS 008 549-501	4 nozzles
12 V, headlamp cleaning set with telescoping single nozzles	8WT 008 549-101	Two single nozzles
24 V, headlamp cleaning set with telescoping single nozzles	8WT 008 549-601	Two single nozzles
12 V, headlamp cleaning set with telescoping double nozzles	8WT 008 549-201	Two double nozzles
24 V, headlamp cleaning set with telescoping double nozzles	8WT 008 549-701	Two double nozzles

PREMIUM				PERFORMANCE			
Low beam, high beam Bi-Xenon 009 997	Low beam, high beam Bi-Halogen H7 009 998	Version with fording capability, 24 V Bi-Halogen H 7	Low beam, high beam, 12 V Bi-Halogen H 9 009 998-02	Low beam Halogen H7 009 999	Low beam Halogen 247 042	High beam Halogen 247 043	High beam with position light Halogen H1 247 043
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■	■	■		■	■		

90 MM INDICATORS, POSITION LIGHTS, FOG LIGHTS AND DAYTIME RUNNING LIGHTS



FOG LIGHT 90 MM

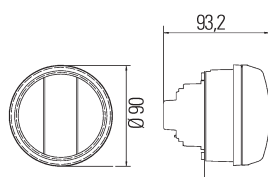
Minimum installation dimensions for a discreetly convincing lighting design. Aluminium reflectors with clear lens. Ideal in combination with the matching 90 mm spotlights and low beam headlights.

12 V, halogen	1N0 008 582-007
24 V, halogen	1N0 008 582-037

Type approval: Ⓔ 1342, ECE-R19 B series 02, B series 03

Accessories

Rubber cap	9GH 158 051-007
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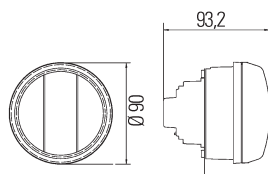


90 MM INDICATOR / POSITION LIGHT COMBINATION

Module with Kartoval® LED position light and non-patterned glass cover lens.

12 V, indicator/position light	2BE 010 102-001
24 V, indicator/position light, with a silver-coloured PY21W light bulb	2BE 010 102-011

Type approval: Ⓔ 2586, ECE-R6, ECE-R7

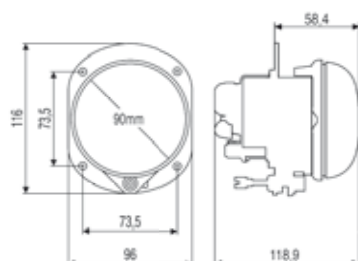


90 MM DAYTIME DRIVING / POSITION LIGHT COMBINATION

Module with Kartoval® LED position light and non-patterned glass cover lens with a P21W longlife light bulb.

12 V, with daytime driving/position light	2BE 010 102-101
24 V, with daytime driving/position light	2PT 010 102-111

Type approval: Ⓔ 2586, ECE-R87, ECE-R7

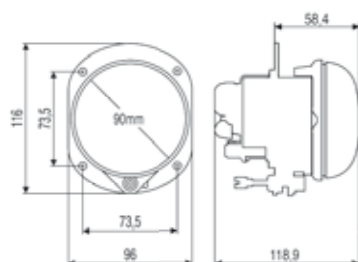


90 MM DAYTIME RUNNING LIGHT / SPOTLIGHT COMBINATION

Module headlamp with non-patterned glass cover lens and an H15 light bulb, with carrier frame

12 V (55 W / 15 W), with daytime driving/high beam light	1F0 010 293-001
24 V (70 W / 20 W), with daytime driving/high beam light	1F0 010 293-011

Type approval: Ⓔ 2680, ECE-R87, ECE-R112



90 MM DAYTIME RUNNING LIGHT / FOG LIGHT COMBINATION

Module headlamp with non-patterned glass cover lens and an H15 light bulb, with carrier frame

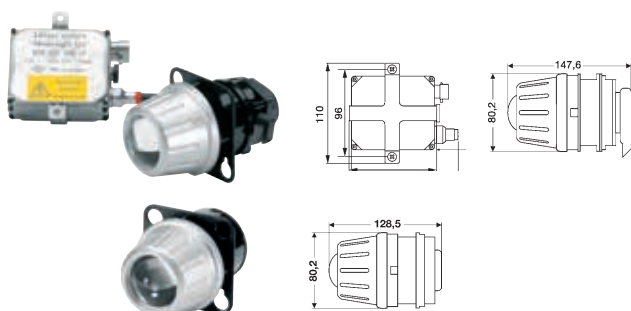
12 V (55 W / 15 W), with daytime driving/fog light	1N0 010 294-001
24 V (70 W / 20 W), with daytime driving/fog light	1N0 010 294-011

Type approval: Ⓔ 2681, ECE-R19 B series 02, B series 03, ECE-R87

ACCESSORIES FOR COMBINATIONS

Connector plug set 3-pin (20 systems)	8JD 162 581-802
Male connector housing 3-pin (250 units)	8JA 179 631-002

50 MM PREMIUM



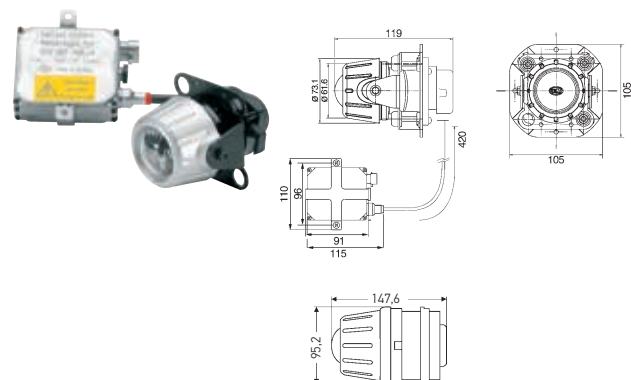
LOW-BEAM HEADLAMP

Installation frame for 3-point attachment, adjustable from the front and rear

12 V, right-hand traffic, ECE 1903	1BL 009 071-067
24 V, right-hand traffic, SAE	1BL 009 071-091

Halogen	
12 V, right-hand traffic, H7	1BL 009 071-007
12 V, left-hand traffic, H7	1ML 009 071-017
24 V, right-hand traffic, H7	1BL 009 071-027
24 V, left-hand traffic, H7	1ML 009 071-037
24 V, right-hand traffic, SAE	1BL 009 071-081

Type approval: 1903 and 1904



HIGH-BEAM HEADLAMP

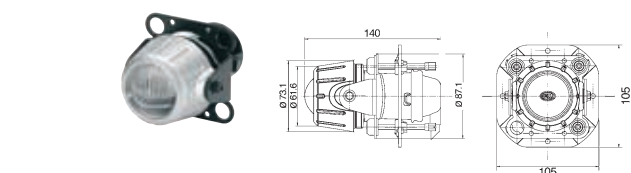
3-point holder, adjustable using setting screw

Xenon	
back carrier frame not included in delivery (see Accessories), D2S	
12 V, including D2S-Xenon bulb and separate Xenon electronic ballast	1FO 008 390-317
24 V, including a D2S-Xenon bulb and separate Xenon electronic ballast	1FO 008 390-327

Type approval: 1120

Halogen	
12 V, H9	1KL 009 486-001

Type approval: 2198



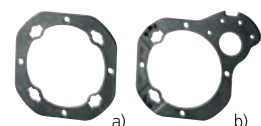
FOG LIGHT

3-point holder, adjustable with adjustment screw, back carrier frame not included in delivery (see Accessories)

12 V, H7	1NL 008 090-317
24 V, H7	1NL 008 090-327

Type approval: 877, ECE-R19 B series 02, B series 03

ACCESSORIES



CARRIER FRAME (not for H9 halogen spotlights)

a) without headlamp range adjustment holder	9AH 161 786-017
b) with headlamp range adjustment holder	9AH 161 784-017



CAPS FOR THE DETECTION RANGE

Plastic cap with waterproof external plug connector (not illustrated)	9HD 149 253-007
a) Rubber cap for halogen low-beam headlamps	9GH 152 654-007
b) Rubber cap for halogen fog headlamps	9GH 147 009-007



CONNECTOR PLUG SET

2-pin for plastic cap (for 20 headlamps)	8JD 156 150-807
H9 plug for 20 headlights (not shown)	8JD 158 175-807

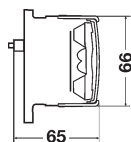


ACTUATOR MOTORS FOR HEADLIGHT RANGE ADJUSTMENT

for 12 V Halogen	6NM 007 282-221
24 V actuator	6NM 008 299-501
Actuator assembly set	8HG 183 586-001

INDICATOR AND POSITION LIGHTS

This product features the following properties:



PREMIUM LED LIGHT, 60 MM DIAMETER

24 V/1.5 W, current consumption = approx. 0.06 A

ECE

SAE
(USA)

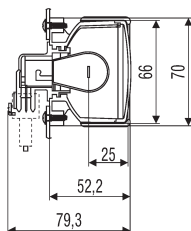
Position light, for flush-mounting,
with 12 LEDs

2PF 009 001-521

X

■

Type approval: E 12390



PREMIUM LIGHT, 60 MM DIAMETER

24 V / 21 W, with clear lens

ECE

SAE
(USA)

Indicator light with 2.8 mm blade
terminal

2BA 009 001-167

X, 1,
1a, 1b

Type approval: E 6546

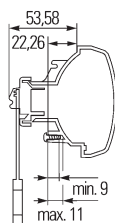
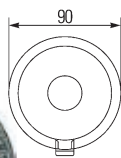
Accessories for Ø 60 mm

2-pin connector plug set

8JD 156 150-807

Male connector housing (250 units)

8JA 179 631-002



INDICATOR AND POSITION LIGHT 90 MM DIAMETER

24 V

ECE

SAE
(USA)

With 6.3 mm blade terminal

2BA 965 039-147

X, 1,
1a, 1b

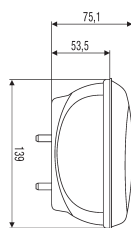
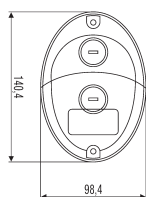
■ ●

Position light

2PF 965 039-151

X

Type approval: E 10215



OVAL LIGHT SERIES

12 / 24 V, for horizontal or vertical surface-mounting, with
grommet.

ECE

SAE
(USA)

Attention:
Depending on the installation position, the water drain
opening must be broken out.

Indicator,
without bulb

2BA 343 130-057

X, 1

●¹⁾

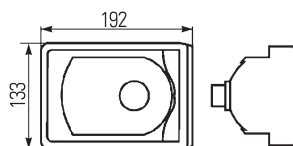
Indicator/position light,
without bulb

2BE 343 130-007

X, 1a

Type approval: E 6550 and E 10202

INDICATOR AND POSITION LIGHTS



INDICATOR

for rear and front flush-mounting, left and right with clear lens

12 / 24 V

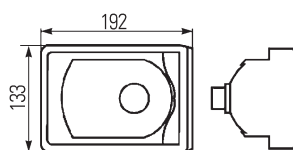
2BA 008 805-051

ECE

X, 1

SAE
(USA)

Type approval: E 10151



INDICATOR

for rear and front flush-mounting, left and right with amber lens

12 V / 24 V, without bulb

2BA 008 805-187

ECE

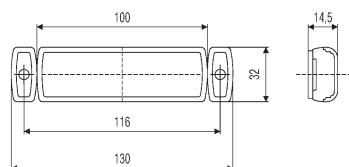
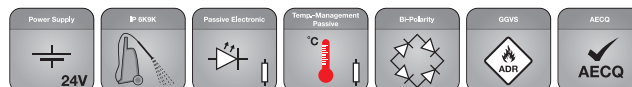
X, 1

SAE
(USA)

●¹⁾

Type approval: E 10151

This product features the following properties:



LED POSITION LIGHT

for horizontal or vertical surface-mounting

500 mm cable

2PG 008 645-971

ECE

X

SAE
(USA)

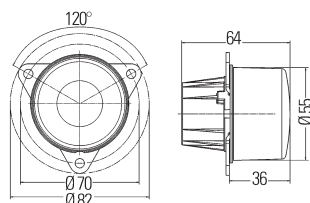
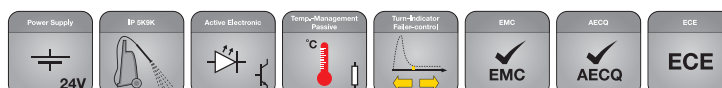
5,000 mm cable

2PG 008 645-961

X

Type approval: E 1395 and E 1398

This product features the following properties:



MODULAR LED LIGHT, 55 MM DIAMETER

and a clear lens with optics and a 500 mm connecting cable (Category 1 and 1a) for front flush-mounting
24 V / 4.8 W, current consumption = approx. 0.2 A

Indicator

2BA 011 172-401 / -407

Indicator with pulse for indicator failure check

2BA 011 172-411 / -417

Position lamp with heat sink

in progress

Type approval: BL E 3284, E 10R-03 6317 and CCC

ECE note: Turn indicator approval by category

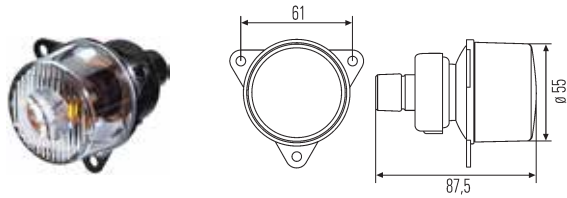
- 1 Distance > 40 mm to low beam headlamp/fog lamp
- 1a Distance < 40 mm to low beam headlamp/fog lamp
- 1b Distance > 20 mm to low beam headlamp/fog lamp

SAE type approval for vehicles

- < 2032 mm wide
- ¹⁾ < 2032 mm wide, distance to low beam headlamp > 75 – 100 mm
- > 2031 mm wide
- ¹⁾ > 2,031 mm wide, distance to low beam headlamp > 100 mm

Note: Please see pages 63–65 regarding LED direction indicators and LED direction indicator failure check.

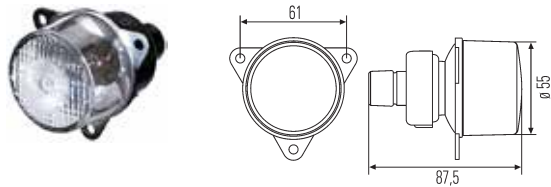
INDICATOR AND POSITION LIGHTS



INDICATOR

		ECE	SAE (USA)
with a mounted, amber 12 V / 21 W light bulb	2BA 008 221-001	X 1a	

Type approval: E 878



POSITION LIGHT

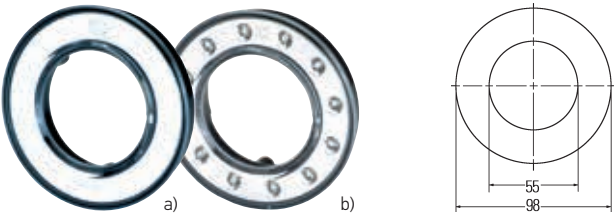
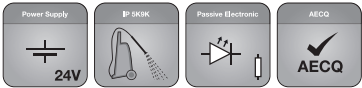
		ECE	SAE (USA)
12 / 24 V, for front flush-mounting, left and right, with 2.8 mm blade terminal	2BA 008 221-011	X	

Type approval: E 879

ACCESSORIES FOR LIGHT SERIES 008 221-...

Harness with grommet	8KA 152 134-007
Grommet separate	9GT 137 236-007

This product features the following properties:



A) CHROME-PLATED CIRCULAR FINISHER

suitable for light series 008 221-... and 011 172-...	
for surface-mounting	8XU 008 405-031

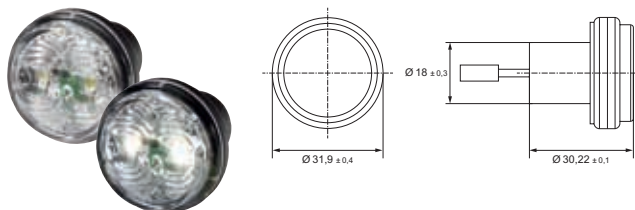
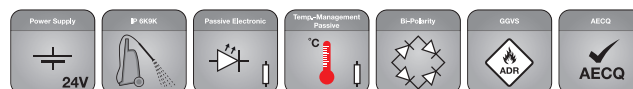
LED position light

for surface-mounting, suitable for light series 008 221-... and 011 172-...	
24 V/1.8 W, current consumption = approx. 0.08 A	
with 12 LEDs	2PF 008 405-051

Type approval: E 1696 and E 2295

POSITION LIGHTS

This product features the following properties:



LED POSITION LIGHT WITHOUT REFLECTOR

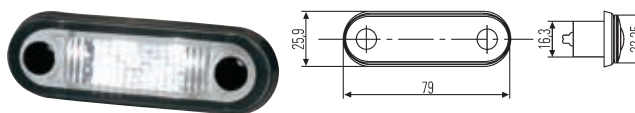
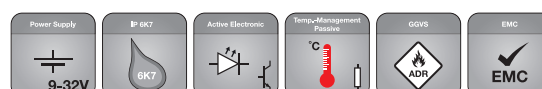
for flush-mounting, clear lens, black plastic housing with adhesive film for sticking to the body. 2-pin cable, 150 mm long, open cable ends, with 2 white LEDs

24 V/0.9 W, current consumption = approx. 0.05 A

2PF 340 825-057

Type approval: E 11371

This product features the following properties:



LED POSITION LIGHT

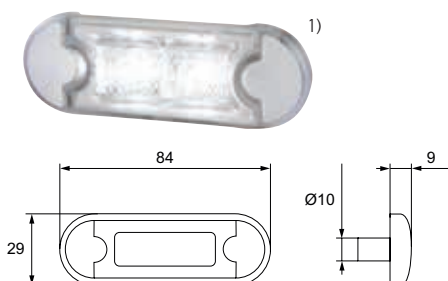
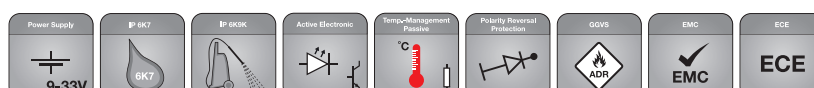
for horizontal or vertical flush-mounting, 24 V/0.5 W, current consumption = approx. 0.02 A

with 0.5 m cable, 10–33 V

2PF 959 590-401

Type approval: E 7597 and E 031721

This product features the following properties:



LED POSITION LIGHT

Multivolt, with 2 white LEDs for horizontal and vertical installation, crystal clear lens, with a black cap for screw closure 24 V/0.5 W, current consumption = approx. 0.02 A

with 500 mm cable

2PF 959 855-207

with 2500 mm cable

2PF 959 855-247

Type approval: ECE

Accessories

Stainless steel housing, polished

9AB 959 685-201

¹⁾ Cap for screw closure, white

9HD 980 858-018

ECE note: Turn indicator approval by category

1 Distance > 40 mm to low beam headlamp/fog lamp

1a Distance < 40 mm to low beam headlamp/fog lamp

1b Distance > 20 mm to low beam headlamp/fog lamp

SAE type approval for vehicles

■ < 2032 mm wide

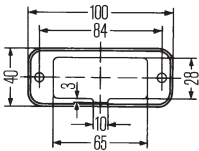
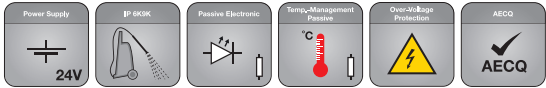
■¹⁾ < 2032 mm wide, distance to low beam headlamp > 75–100 mm

● > 2031 mm wide

●¹⁾ > 2,031 mm wide, distance to low beam headlamp > 100 mm

POSITION LIGHTS

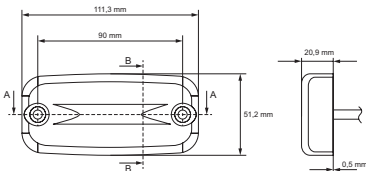
This product features the following properties:



LED POSITION LIGHT	
For horizontal surface mounting, with white LEDs, connection via blade terminal, 24 V	
Position/degree 10-20°	2PF 009 514-001
Position/degree 20-30°	2PF 009 514-011

Type approval: 2300 and ECE

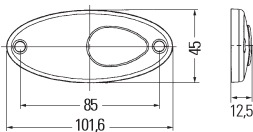
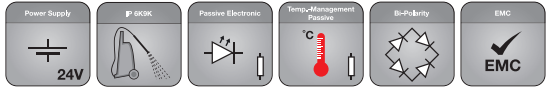
This product features the following properties:



LED POSITION LIGHT	
For horizontal surface mounting, with 2 white LEDs, installation with screws (5.8 mm hole diameter), 24 V, current consumption = approx. 0.02 A	
500 mm cable, stripped end	2PG 345 600-401
5,000 mm cable, stripped end	2PG 345 600-411

Type approval: 10R-04 0072 and 5881

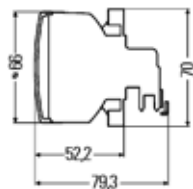
This product features the following properties:



LED POSITION LIGHT WITH REFLECTOR	
for horizontal surface-mounting, with 2 LEDs	
24 V / 0,3 W	2PG 964 295-111

Type approval: 0301

POSITION LIGHTS



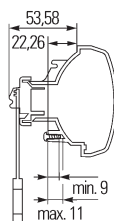
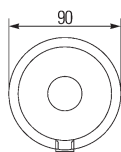
POSITION LIGHT

For flush-mounting, clear lens, connection via 2.8 mm blade terminal, bulb type PY21W

24 V

2PF 009 001-177

Type Approval: ECE 7613 and SAE



POSITION LIGHT

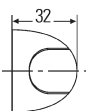
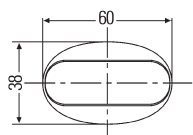
For flush-mounting, clear lens, connection via 6.3 mm blade terminal

24 V

2PF 965 039-151

Type Approval: ECE 10215 and SAE

This product features the following properties:



LED POSITION LIGHT WITH REFLECTOR

for horizontal surface-mounting, with amber LEDs, with cable 5,000 mm long

Multivolt

2PS 959 660-207

Type approval: SAE



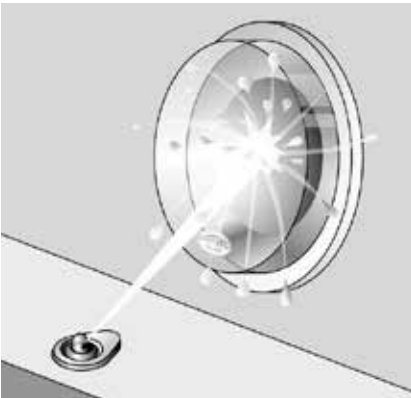
HEADLIGHT CLEANING SYSTEMS

Legislation prescribes the use of a lens wiper system when Xenon low beam headlights are used.
(This can also be used on halogen headlamps, high beams and LED headlamps.)

HELLA cleaning systems work according to the water jet principle, which manages without wipers and brushes by using the kinetic energy from thick water drops to loosen and rinse away dirt particles from the lens.

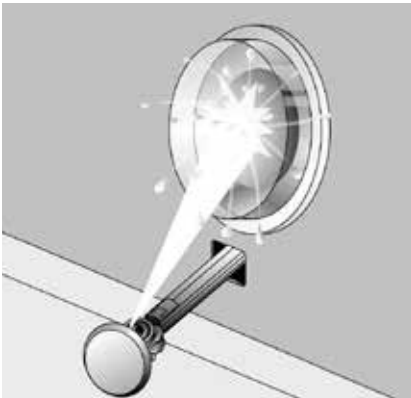
Ø 50 mm	Ø 90 mm	Ø 90 mm
1BL 009 071-...	1KO 008 191-...	1LL 009 997-...
1ML 009 071-...	1KO 008 192-...	1BL 010 820-...
1FO 008 390-...	1BL 008 193-...	1ML 010 820-...
	1BL 008 194-...	1BL 247 042-...
	1AL 009 997-...	1ML 247 042-...
	1LL 009 997-...	1KO 247 043-...

These headlight cleaning systems are ECE type-approved for the following HELLA headlight series when installed in accordance with the enclosed assembly instructions.



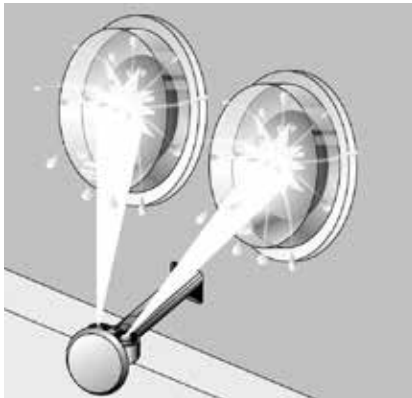
WITH FIXED NOZZLES

12 V	8WS 008 549-001
24 V	8WS 008 549-501



WITH TELESCOPIC INDIVIDUAL NOZZLES

12 V	8WT 008 549-101
24 V	8WT 008 549-601



WITH TELESCOPIC DOUBLE NOZZLES

12 V	8WT 008 549-201
24 V	8WT 008 549-701

ULTRASOUND HEADLAMP LEVELING SYSTEM

The ultrasonic system is a headlight range adjustment system for 50 mm and 90 mm headlight modules for original equipment and upgrades for vehicles with Xenon headlights.

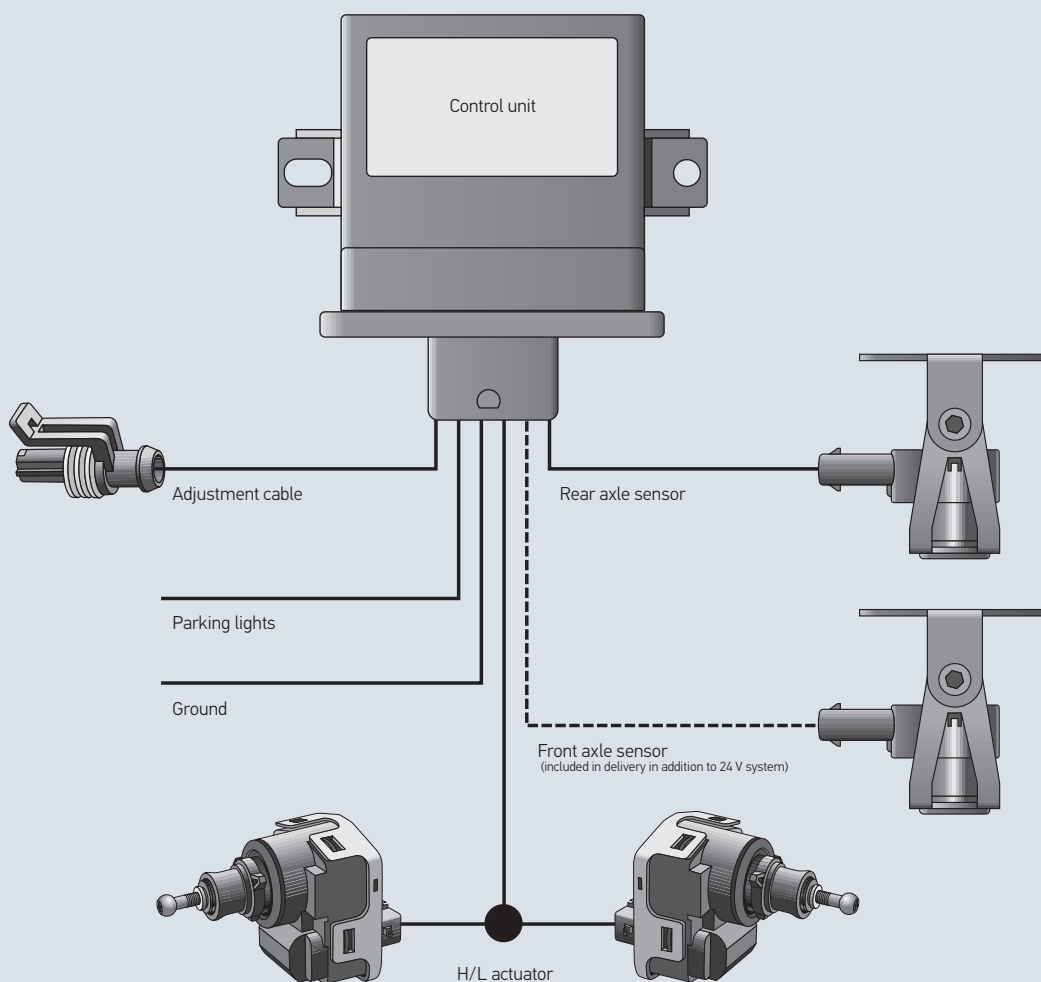
The sensor in this system measures the distance from the vehicle undercarriage to the road, and forwards the signal to the central control unit, which then optimally adjusts the headlights via the actuator motors on the Xenon headlights.

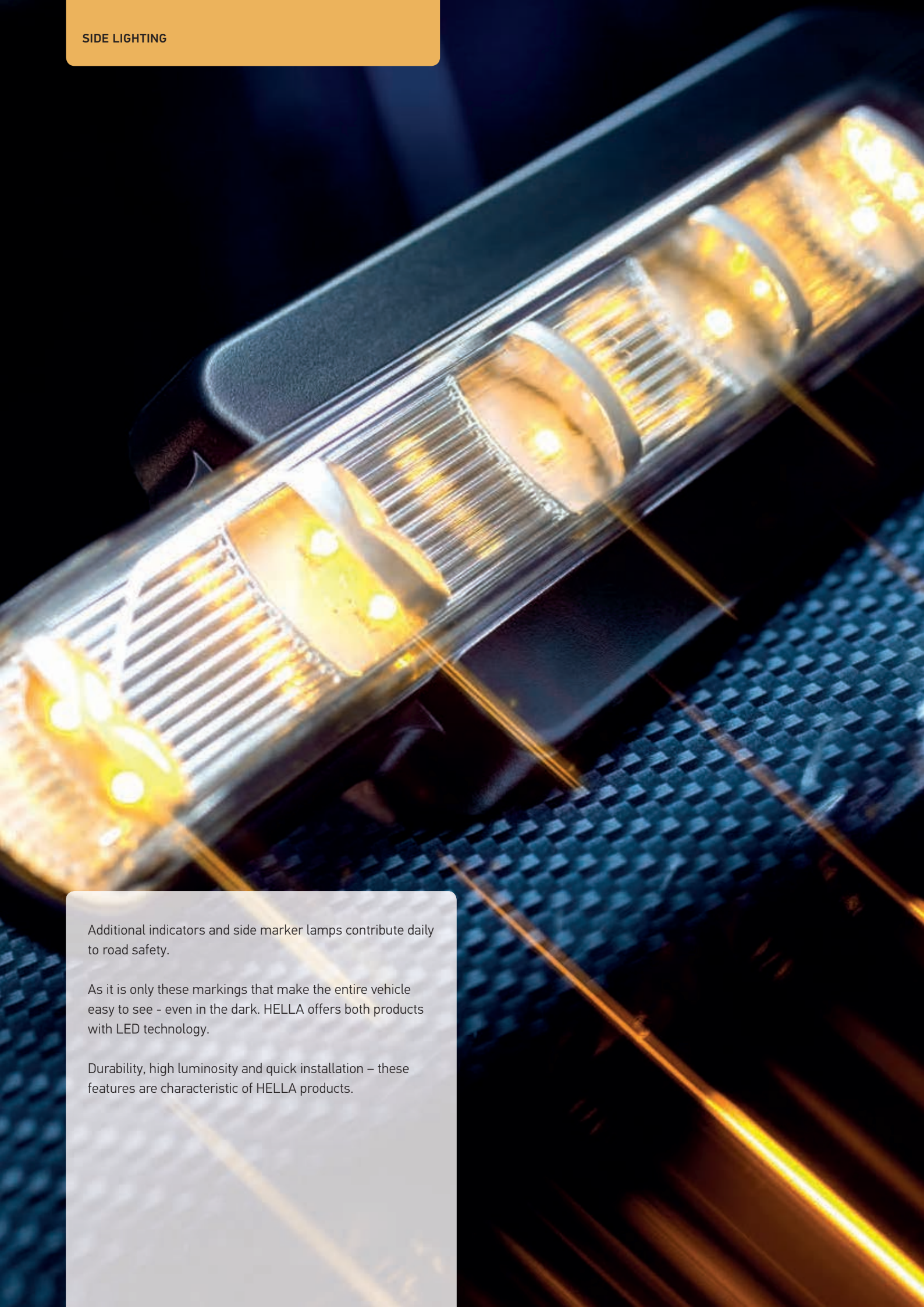
For more detailed information, see assembly instructions.

Headlight range adjustment

12 V, a sensor (passenger car), 4 m cable length to the sensor	8XX 010 315-001
12 V, a sensor (3.5 t), 10 m cable length to the sensor	8XX 010 315-101
24 V, two sensors, 2 m and 10 m cable lengths to the sensors (incl. 24 V to 12 V voltage reduction unit with 2 A)	8XX 010 315-011

ULTRASONIC SYSTEM FOR HEADLIGHT RANGE ADJUSTMENT – OVERVIEW



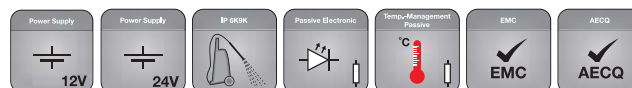


Additional indicators and side marker lamps contribute daily to road safety.

As it is only these markings that make the entire vehicle easy to see - even in the dark. HELLA offers both products with LED technology.

Durability, high luminosity and quick installation – these features are characteristic of HELLA products.

This product features the following properties:



ADDITIONAL LED INDICATORS CATEGORY 6, WITH FRAME

12 V/3.5 W, current consumption = approx. 0.29 A
24 V/3.5 W, current consumption = approx. 0.15 A

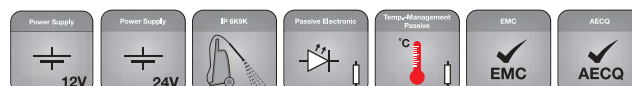
12 V, thread rolling screw AMP SUPERSEAL with black frame	2BM 011 788-011
12 V, thread rolling screw 500 mm cable, with open cable end and black frame	2BM 011 788-031
24 V, thread rolling screw AMP SUPERSEAL with black frame	2BM 011 788-001
24 V, thread rolling screw 500 mm cable, with open cable end and black frame	2BM 011 788-021

Type approval: ECE 7506

Spare parts / Accessories

Black frame	9AB 194 559-007
AMP-SUPERSEAL mating connector (AMP No. 282080-1)	8JA 746 184-022

This product features the following properties:



ADDITIONAL LED INDICATORS CATEGORY 6, SELF-ADHESIVE

12 V/3.5 W, current consumption = approx. 0.29 A
24 V/3.5 W, current consumption = approx. 0.15 A

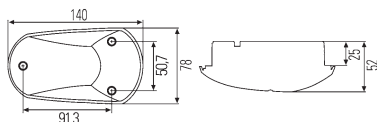
12 V, self-adhesive AMP-SUPERSEAL	2BM 011 788-051
12 V, self-adhesive 500 mm cable, exposed cable end	2BM 011 788-071
24 V, self-adhesive AMP-SUPERSEAL	2BM 011 788-041
24 V, self-adhesive 500 mm cable, exposed cable end	2BM 011 788-061

Type approval: ECE 7506

Spare parts / Accessories

AMP-SUPERSEAL mating connector (AMP No. 282080-1)	8JA 746 184-022
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SIDE LIGHTING



AUXILIARY INDICATOR

for side installation, category 6 for 24 V/21 W, without light bulb, very flat construction

Amber Lens **2BM 008 355-001**

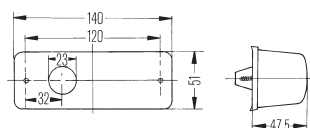
Type approval: 1059, SAE

Crystal-clear lens **2BM 008 355-017**

Type approval: 1848, SAE

Accessories

Harness for non splashwater-proof area **8KA 157 425-007**



AUXILIARY INDICATOR

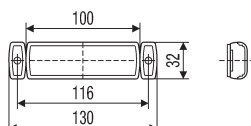
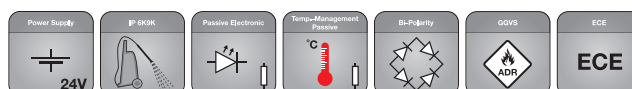
for surface-mounting on the side, category 5 and 6 for 12 V and 24 V / 21 W, with bulb
Suitable for GGVS/ADR

On the left **2BM 006 692-017**

On the right **2BM 006 692-027**

Type approval: 0152621

This product features the following properties:



LED SIDE MARKER LIGHT

1,500 mm cable, stripped end
24 V/1.2 W, current consumption = approx. 0.05 A

Horizontal fixing, amber **2PS 008 645-007**

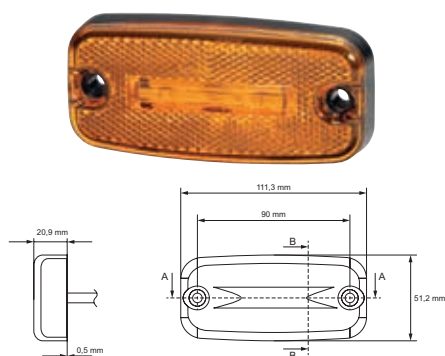
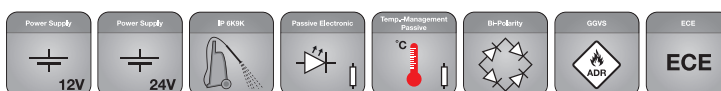
Horizontal fixing, red **2TM 008 645-951**

Type approval: 1395 and 1396

Vertical fixing, amber **2PS 008 645-991**

Type approval: amber ECE / SAE, red SAE

This product features the following properties:



LED SIDE MARKER LIGHT

500 mm cable, stripped end
12 V/0.6 W, current consumption = approx. 0.05 A
24 V/1.2 W, current consumption = approx. 0.05 A

12 V **2PS 345 600-001**

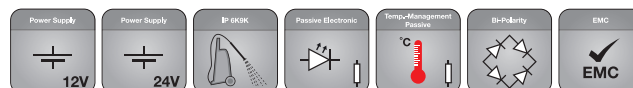
24 V **2PS 345 600-011**

Type approval: 5881

Information

Category 5 auxiliary indicators are required for vehicles < 6 m long and/or < 3.5 t;
category 6 auxiliary indicators are required for vehicles > 6 m long and/or > 3.5 t.

This product features the following properties:



INNOVATIVE SIDE MARKER, POSITION AND CLEARANCE LIGHT

with 500 mm cable for horizontal mounting

12 V, white housing	2PG 344 690-307
12 V, red housing	2TM 344 690-357

with 6.3 mm contacts for horizontal and vertical installation

12 V, white housing	2PS 344 690-007
12 V, grey housing	2PS 344 690-027
12 V, black housing	2PS 344 690-067
24 V, black housing	2PS 344 690-037

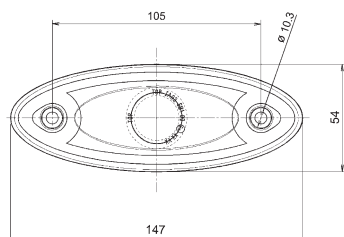
with AMP-SUPERSEAL for horizontal and vertical installation

12 V, white housing	2PS 344 690-607
12 V, black housing	2PS 344 690-617
24 V, orange housing	2PS 344 690-687
24 V, black housing	2PS 344 690-627

Accessories

Rubber seal	9GD 343 697-007
Grommet	9GT 343 367-002

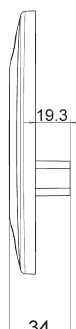
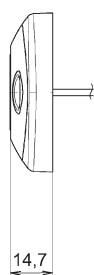
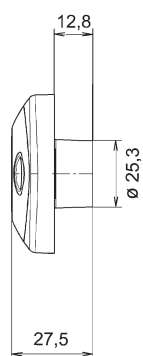
Type approval: E 5853 and E17 03 0227



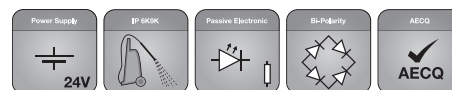
with 6.3 mm contact

with cable

AMP-SUPERSEAL



This product features the following properties:

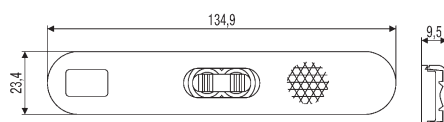
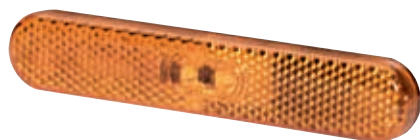


LED SIDE MARKER LIGHT

for horizontal/vertical surface-mounting, with 250 mm cable, stripped end, self-adhesive

24 V, horizontal	2PS 009 226-037
24 V, vertical	2PS 009 226-087

Type approval: E 10236



More than a combination of 5 functions

LEDs are not only taking the automotive industry by storm thanks to their energy-saving potential, they also offer a design versatility that plays a decisive role in developing the typical appearance of a car. With respect to the combination rear lights in particular, the many possibilities offered by combining the LEDs with optical systems are being utilised to underscore the specific vehicle design by means of an attractive styling.

The HELLA patented system for monitoring the turn indicator gives HELLA lights the ability to be used in conjunction with the HELLA ballast in accordance with ECE-R48. The lights are currently designed so that no error message is displayed in the vehicle's electrical system. Inverse-polarity protection ensures that the light is not damaged due to accidental contact of the poles. In order to lengthen the service life, all HELLA light components have been matched optimally in terms of temperature to prevent overloading the LEDs in high environmental temperatures. The lights are designed for the service life of a vehicle and are therefore an outstanding, economical and environmentally friendly solution.

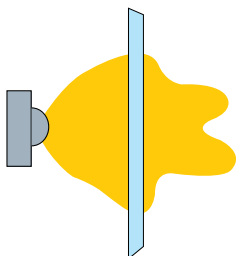
MORE DESIGN FREEDOM FROM LEDS

The use of LEDs gives design engineers much greater design freedom. Ergonomic aspects can be implemented more easily.

Diverse technical options from LEDs.

Depending on the product or customer requirements, HELLA installs LEDs in different optical lighting systems. Here are some examples of combination rear lights:

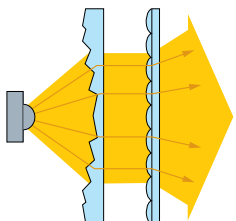
Direct light



- Spot-like appearance
- No optical system necessary
- Max. distance of 2 LEDs = 15 mm



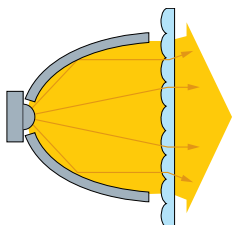
Fresnel Systems



- Suitable for all functions
- Homogeneous appearance



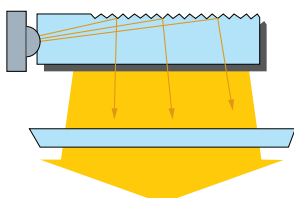
Reflector with optics/ lens without optics



- High efficiency
- Brilliant appearance



Light transmitter systems

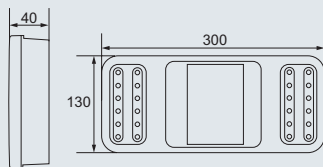


- Elongated appearance
- Homogeneous illumination
- Adapted to curved exterior shape



COMPLETE LED COMBINATION TAIL LAMPS "COLUNA" WITH 5 LIGHT FUNCTIONS FOR 12 V AND 24 V

- Innovative and patent-registered large-surface LED light transmitter for tail lamp function, combined with reflex reflector
- Versions with rectangular reflex reflector = horizontal and vertical use
- Long design life, low life cycle costs as well as extremely robust
- Maintenance-free, fully sealed LED light
- Impact-resistant lens
- Mounted from the front (2 screws) or from the back with 2 x M8 fastening bolts



Product features of "Coluna"

All light functions of the full LED combination rear lamp (tail lamp, stop light, direction indicator, rear fog lamp and back-up lamp) exclusively feature LED technology. The tail lamp is produced by a ground-breaking patent-registered wide-area LED light guide in combination with the reflex reflector. This light transmitter features especially homogeneous illumination. As a result, the tail light function, with its large surface area of around 145 cm², is exceptionally visible in the dark and thus enhances road safety.

12 V and 24 V versions of this extremely flat surface-mounted full LED light are available for towing vehicles and trailers. A range of different applications on the vehicle are possible using EasyConn or AMP connectors and the front or rear mounting options.

Current consumption	with 12 V	with 24 V
Tail lamp	2,6 W-0,2 A	2,8 W-0,12 A
Brake light	1,8 W-0,15 A	2 W-0,08 A
Indicator	3,3 W-0,28 A	3,8 W-0,16 A
Rear fog light	2,2 W-0,18 A	2,4 W-0,1 A
Back-up light	3,8 W-0,32 A	5,6 W-0,23 A

Type approval: ECE / ADR / EMC, 5879 and 5880, 10R 04 0071

LEDs for optimum signal pattern

This light combines high-grade LEDs with precision optics to maximise light yield. The tail lamp is implemented as a light curtain with 12 LEDs, and the stop, direction indicator, rear fog and back-up light respectively are implemented with 6 further LEDs. Tested to IP 6K9K, this light is protected from dust and water ingress under constant immersion. This means they are also able to withstand high-pressure cleaning.

This product features the following properties:

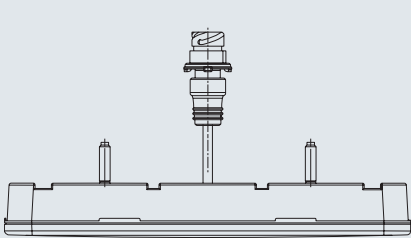


Part number 2VP 345 900-...	Triangular reflex reflector	Rectangular reflex reflector	Horizontal mounting position	Vertical mounting position	Fixing screws inserted from the front	Fixing bolts inserted from the rear	Cable, 500 mm with open ends	Cable, 3,000 mm with 6.3 mm flat receptacles	Cable, 1,000 mm with 7-pin Easy-Conn plug	Cable, 1,000 mm with 7-pin DIN-AMP bayonet connector	Left-hand version	Right-hand version	With pulse	Without pulse	Trade packaging, 1 piece
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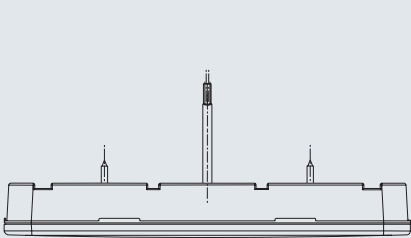
24 V bus															
-201 ^{1), 3)}	-	X	X	X	X	-	X	-	-	-	X	X	X	-	X
-211 ¹⁾	-	X	X	X	X	-	X	-	-	-	X	X	-	X	X
-221 ^{1), 3)}	-	X	X	X	-	X	X	-	-	-	X	X	X	-	X
-231 ¹⁾	-	X	X	X	-	X	X	-	-	-	X	X	-	X	X
-241 ^{1), 3)}	-	X	X	X	X	-	-	X	-	-	X	X	X	-	X
-251 ¹⁾	-	X	X	X	X	-	-	X	-	-	X	X	-	X	X
-261 ^{1), 3)}	-	X	X	X	-	X	-	X	-	-	X	X	X	-	X
-271 ¹⁾	-	X	X	X	-	X	-	X	-	-	X	X	-	X	X



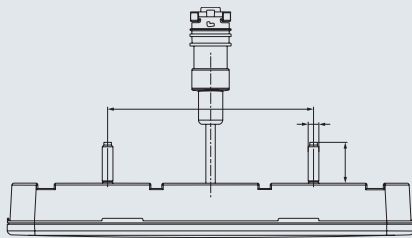
Housing available in silver-grey or red on request.



Fixing to vehicle with 7-pin DIN connector

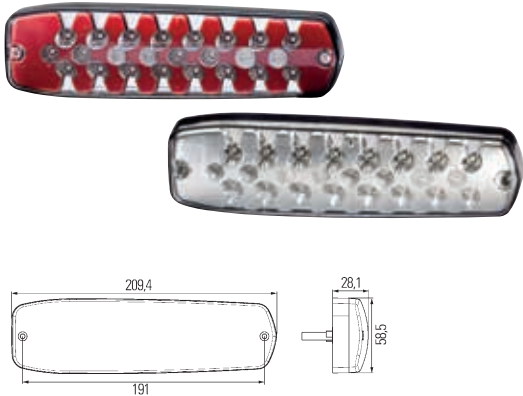


Mounting on vehicle with fixing screws from the front, cable with open ends



Mounting on vehicle with fixing screws from the rear, cable with EC connector

This product features the following properties:



LeanLED combination taillight

Tail light/stop light/indicator for horizontal and vertical mounting, with 24 LEDs, clear lens, with pulse for indicator failure check, Multivolt 9 – 32 V, part-metallised, other frame colours available upon request.
Tail lamp: 24 V/0.5 W, current consumption = approx. 0.02 A
Stop light: 24 V / 1 W, current consumption = approx. 0.04 A
Direction indicator: 24 V / 1.5 W, current consumption = approx. 0.06 A

silver, with 500 mm cable and exposed ends	2SD 343 910-001
with 200 mm cable and 4-pin 282 106-1 AMP plug to appropriate AMP 282 088-1 AMP plug	2SD 343 910-017
silver, with integrated 4-pin AMP plug	2SD 343 910-027
red, with 100 mm cable and 4-pin DEUTSCH plug	2SD 343 910-057

Type approval: ECE E12393 and E035109

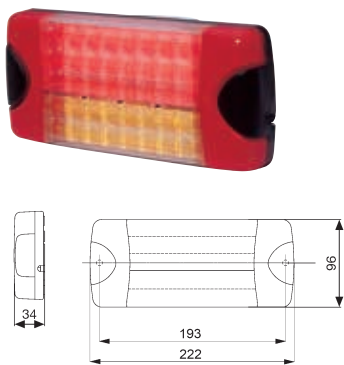
Without type approval and without pulse for indicator failure check

with 500 mm cable and exposed ends	2SD 343 910-037
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Accessories

Flasher unit (not supplied)	4JZ 178 846-007
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This product features the following properties:



DuraLED

Multivolt 8 – 28 V, rear brake light indicator can also be installed vertically, 2500 mm cable with stripped ends, 40 LEDs
24 V/9.5 W, current consumption = approx. 0.4 A

Type approval: ECE E10176 and E031586

This product features the following properties:



DuraLED Combi

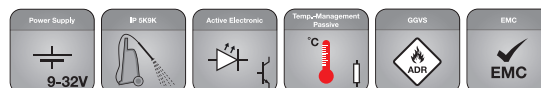
12 / 24 V, rear, back-up brake lamp indicator, painted grey, 30 LEDs
24 V/13 W, current consumption = approx. 0.54 A

DEUTSCH plug	2SK 980 615-001
2,500 mm cable	2SK 980 603-503

Type approval: ECE E5870, ECE E10R-04 0958

- Rectangular LED light for horizontal mounting
- Multivolt for 8 – 28 V and 12 / 24 V
- Long design life with low current consumption
- Crystal-clear lens

This product features the following properties:



EuroLED

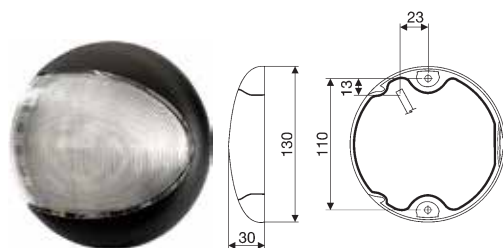
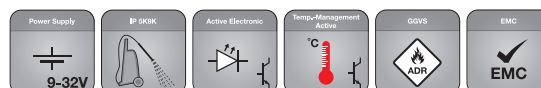
1 Power LED for mounting, sealed shut with black base plate, electrical connection through a 2,500 mm long cable

24 V/2.5 W, current consumption = approx. 0.10 A
(SAE versions on request)

			ECE	SAE (USA)
red lens	2SB 959 821-601	① ②	X	
24 V/4 W, current consumption = approx. 0.17 A				
Clear lens	2NE 959 821-201	④	X	

Type approval: E 10208 and E 031135

This product features the following properties:



EuroLED

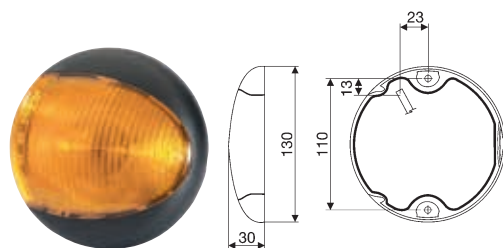
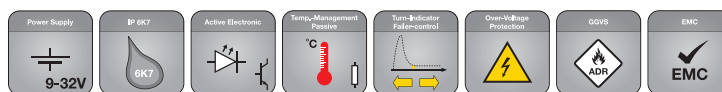
1 Power LED for mounting, sealed shut with black base plate, electrical connection through a 2,500 mm long cable

24 V/2.5 W, current consumption = approx. 0.10 A

			ECE	SAE (USA)
Clear lens	2ZR 959 820-601	⑤	X	

Type approval: E 10208 and E 031135

This product features the following properties:



EuroLED

1 Power LED for mounting, sealed shut with black base plate, electrical connection through a 2,500 mm long cable with a pulse for indicator failure check

24 V/2.5 W, current consumption = approx. 0.10 A
(SAE versions on request)

			ECE	SAE (USA)
	2BA 959 822-601	③	X	

Type approval: E 10208 and E 031728

ECE note:

D ECE approval as twin indicators

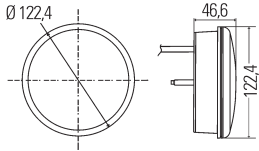
SAE type approval for vehicles

- < 2032 mm wide
- > 2031 mm wide

- | | | | | |
|--------------------|---|-----------------------|------------------|-----------------|
| ① Tail lamp | ② Brake light | ③ Indicator | ④ Rear fog light | ⑤ Back-up light |
| ⑥ Reflex reflector | ⑦ Side marker light with reflex reflector | ⑧ Licence plate light | ⑨ Position light | |

Note: Please see pages 63-65 regarding LED direction indicators and LED direction indicator failure check.

This product features the following properties:

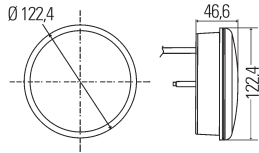


LED TAIL LIGHT STOP LIGHT DIRECTION INDICATOR

			ECE	SAE (USA)
For surface-mounting, with 500 mm cable 24 V/5 W, current consumption = approx. 0.21 A				
with pulse and active thermal management				
Multivolt, clear	2SD 344 200-071 / -077	① ② ③	X	
24 V, clear	2SD 344 200-001	① ② ③	X	
without pulse and passive thermal management				
24 V, red/clear	2SD 344 200-311 / -317	① ② ③	X	

Type approval: Ⓔ 12371, Ⓔ 12658, Ⓔ 034895

This product features the following properties:

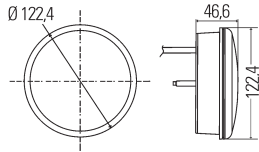


LED TAIL STOP LIGHT

			ECE	SAE (USA)
For surface-mounting, with 500 mm cable 24 V/4 W, current consumption = approx. 0.17 A				
with active thermal management				
Multivolt, clear	2SB 344 200-027	① ②	X	
Multi-voltage, red	2SB 344 200-081	① ②	X	
with passive thermal management				
24 V, clear	2SB 344 200-321 / -327	① ②	X	
24 V, red	2SB 344 200-331 / -337	① ②	X	

Type approval: Ⓔ 12658, Ⓔ 034895

This product features the following properties:

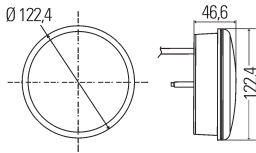


LED INDICATOR

			ECE	SAE (USA)
For surface-mounting, with 500 mm cable 24 V/3 W, current consumption = approx. 0.13 A				
with pulse and active thermal management				
Multivolt, clear	2BA 344 200-037	③	X	
with passive thermal management				
24 V, clear	2BA 344 200-341 / -347	③	X	

Type approval: Ⓔ 12658, Ⓔ 034895

This product features the following properties:



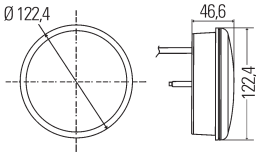
LED REAR FOG LIGHT

For surface-mounting, with 500 mm cable
24 V/2 W, current consumption = approx. 0.08 A

			ECE	SAE (USA)
Multivolt, clear	2NE 344 200-061	④	X	
Multi-voltage, red	2NE 344 200-091 / -097	④	X	

Type approval: Ⓔ 12658, Ⓔ 034895

This product features the following properties:



LED BACK-UP LIGHT

For surface-mounting, with 500 mm cable
24 V/2 W, current consumption = approx. 0.08 A

			ECE	SAE (USA)
Multivolt	2ZR 344 200-051 / -057	⑤	X	

Type approval: Ⓔ 14198, Ⓔ 034895

ECE note:

D ECE approval as twin indicators

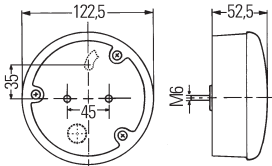
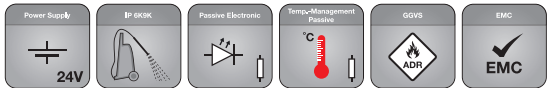
SAE type approval for vehicles

- < 2032 mm wide
- > 2031 mm wide

- ① Tail lamp
- ② Brake light
- ③ Indicator
- ④ Rear fog light
- ⑤ Back-up light
- ⑥ Reflex reflector
- ⑦ Side marker light with reflex reflector
- ⑧ Licence plate light
- ⑨ Position light

Note: Please see pages 63-65 regarding LED direction indicators and LED direction indicator failure check.

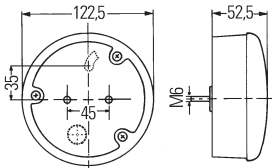
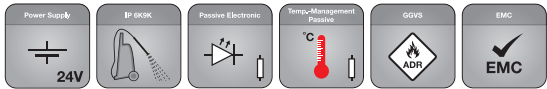
This product features the following properties:



LED TAIL STOP LIGHT

For surface-mounting, with 500 mm cable 24 V/6.8 W, current consumption = approx. 0.28 A			ECE	SAE (USA)
24 V, red	2SB 964 169-301 / -307	① ②	X, D	
Type approval: 814, 020047				

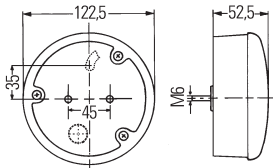
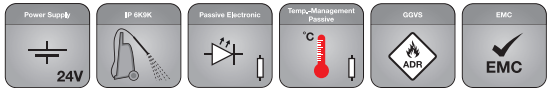
This product features the following properties:



LED TAIL LIGHT/STOP LIGHT/INDICATOR

For surface mounting with 500 mm cable, without impulse for indicator failure check 24 V/10 W, current consumption = approx. 0.42 A			ECE	SAE (USA)
24 V, left	2SD 964 169-331 / -337	① ② ③	X	
24 V, right	2SD 964 169-421	① ② ③	X	
Type approval: 9823, 020050				

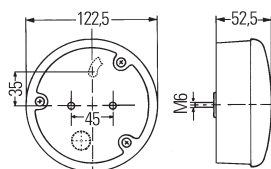
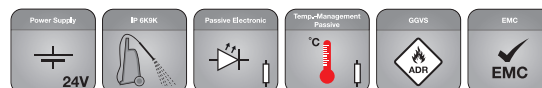
This product features the following properties:



LED REAR FOG LIGHT

For surface-mounting, with 500 mm cable 24 V/3.7 W, current consumption = approx. 0.15 A			ECE	SAE (USA)
24 V, red	2NE 964 169-341	④	X	
Type approval: 3810, 020050				

This product features the following properties:



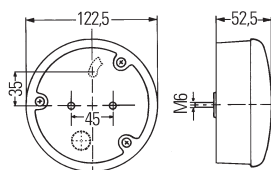
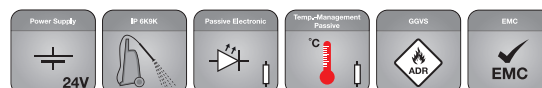
LED REVERSE LIGHT

For surface mounting with 500 mm cable, without impulse for indicator failure check
24 V/5.7 W, current consumption = approx. 0.24 A

			ECE	SAE (USA)
24 V, left	2ZR 964 169-351	⑤	X	
24 V, right	2ZR 964 169-361	⑤	X	

Type approval: Ⓔ 23254, Ⓔ 020050

This product features the following properties:



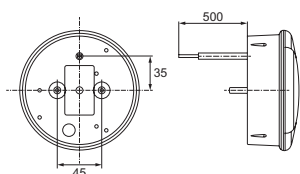
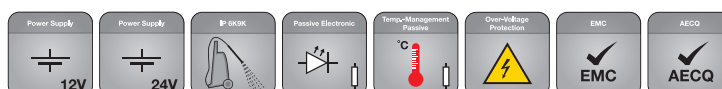
LED INDICATOR

For surface mounting with 500 mm cable, without impulse for indicator failure check
24 V/3.7 W, current consumption = approx. 0.15 A

			ECE	SAE (USA)
24 V, amber	2NE 964 169-341	③	X	

Type approval: Ⓔ 652, Ⓔ 020050

This product features the following properties:



LED REAR FOG AND BACK-UP LAMP

12 V/6.5 W, current consumption = approx. 0.54 A
24 V/7.8 W, current consumption = approx. 0.33 A

			ECE	SAE (USA)
12 V	2NR 344 169-441	④ ⑤	X	
24 V	2NR 344 169-461	④ ⑤	X	

Type approval: Ⓔ 5876, Ⓔ 10R-04 0069

ECE note:

D ECE approval as twin indicators

SAE type approval for vehicles

- < 2032 mm wide
- > 2031 mm wide

① Tail lamp

② Brake light

③ Indicator

④ Rear fog light

⑤ Back-up light

⑥ Reflex reflector

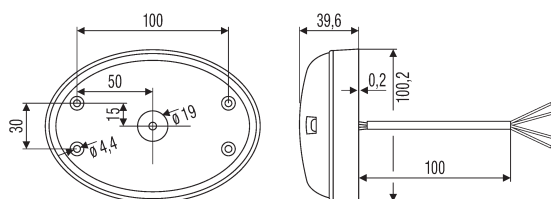
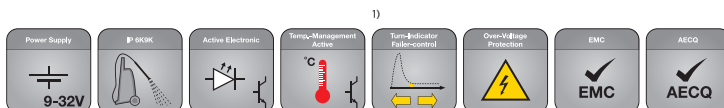
⑦ Side marker light with reflex reflector

⑧ Licence plate light

⑨ Position light

Note: Please see pages 63-65 regarding LED direction indicators and LED direction indicator failure check.

This product features the following properties:



"OVAL" LED COMBINATION REAR LIGHT

for horizontal and vertical surface-mounting, clear lens, 24 LEDs, can be used on the right and left, can be turned through 180°, 2 bodywork fastening screws (diagonal arrangement) with 100 mm harness, multi-voltage 9–32 V

2SD 343 390-011 ① ② ③ X

12 red LEDs for brake light:
24 V/1.2 W, current consumption = approx. 0.05 A

12 red LEDs for tail lamp (reduced output):
24 V/0.3 W, current consumption = approx. 0.01 A

12 amber LEDs for indicator light:
24 V/2.1 W, current consumption = approx. 0.09 A

2BA 343 390-071 ③ X

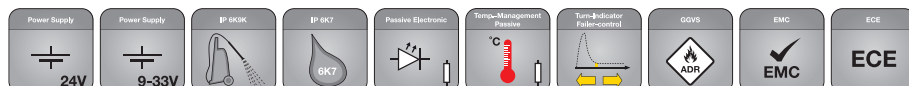
24 amber LEDs for indicator light: 24 V/2.9 W, current consumption = approx. 0.12 A

2SB 343 390-091 ① ② X

Stop light: 24 V / 2.5 W, current consumption = approx. 0.10 A
Taillight: 24 V/0.6 W, current consumption = approx. 0.03 A (reduced power)

Type approval: E 11785, E 12381 and E 034631

This product features the following properties:



a)



b)



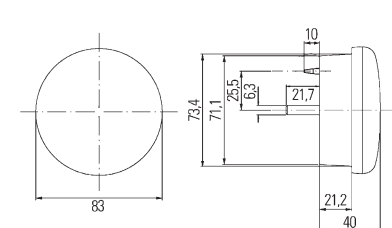
c)



d)



e)



LED MULTI-FUNCTION LIGHT

for installation, with 2,500 cable and pulse for indicator failure check, protection class IP 6K6, IP 6K7.

a) LED tail lamp/brake lamp/indicator, 24 V
24 V/5 W, current consumption = approx. 0.21 A

with clear cover lens, 16 LEDs. **2SD 959 010-401/-407**

Type approval: E 1538

b) LED tail lamp/brake lamp, 24 V
24 V/4 W, current consumption = approx. 0.17 A

with red lens, 12 LEDs **2SB 959 010-301/-307**

Type approval: E 12373

c) LED back-up lamp, Multivolt
12 V/4 W current consumption = approx. 0.33 A
24 V/4 W, current consumption = approx. 0.17 A

with clear lens, 24 LEDs **2ZR 959 010-501/-507**

Type approval: E 11391, E 031671

d) LED rear fog lamp, Multivolt
12 V/3 W, current consumption = approx. 0.25 A
24 V/3 W, current consumption = approx. 0.13 A

with clear lens, 24 LEDs **2NE 959 011-501/-507**

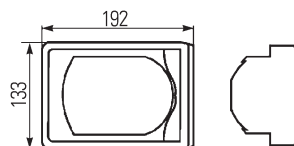
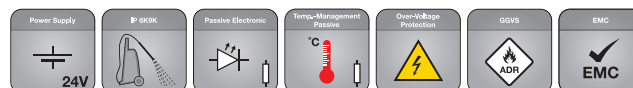
Type approval: E 11391, E 031671

a) LED indicator, 24 V
24 V/3 W, current consumption = approx. 0.13 A

with amber lens, 12 LEDs **2BA 959 011-301/-307**

Type approval: E 12373, E 031671

This product features the following properties:



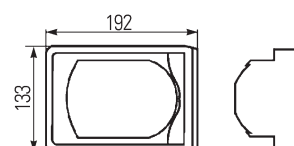
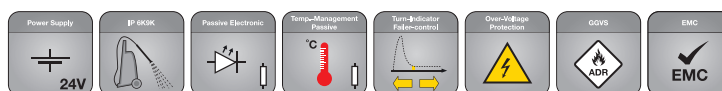
LED TAIL STOP LIGHT

for horizontal flush-mounting, with red lens, with open ends.
24 V / 3 W, current consumption = approx. 0.13 A

		ECE	SAE (USA)
24 V	2SB 008 982-001/-007 ①②	X	X ■ ●

Type approval: E 10880

This product features the following properties:

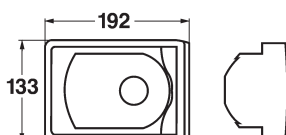


LED INDICATOR

for horizontal flush-mounting, with clear lens
cable with stripped ends
24 V/2 W, current consumption = approx. 0.08 A

		ECE	SAE (USA)
24 V	2BA 008 982-041/-047 ③	X	

Type approval: E 10880, E1 034046

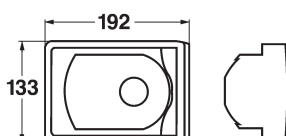


REAR LIGHT

12 and 24 V, for horizontal flush-mounting, brilliant finish

		ECE	SAE (USA)
	2SA 008 805-007 ①	X	X ●
	2DA 008 805-017 ②	X, D	X ●
	2SB 008 805-027 ①②	X, D	X ●
	2NE 008 805-037 ④	X	
	2BA 008 805-057 ③	X, D	

Type approval: E 10151



BACK-UP LAMP

12 and 24 V, for horizontal flush-mounting, brilliant finish

		ECE	SAE (USA)
with clear lens	2ZR 008 805-047 ⑤	X	X ■ ●

Type approval: E 10151

ECE note:

D ECE approval as twin indicators

SAE type approval for vehicles

- < 2032 mm wide
- > 2031 mm wide

① Tail lamp

② Brake light

③ Indicator

④ Rear fog light

⑤ Back-up light

⑥ Reflex reflector

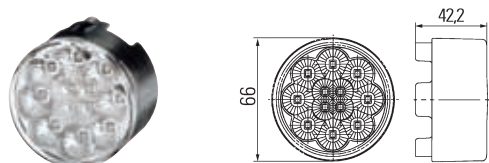
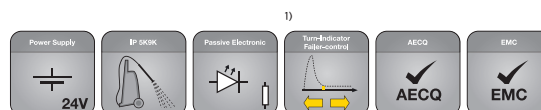
⑦ Side marker light with reflex reflector

⑧ Licence plate light

⑨ Position light

Note: Please see pages 63-65 regarding LED direction indicators and LED direction indicator failure check.

This product features the following properties:



PREMIUM LED LIGHT, 60 MM DIAMETER

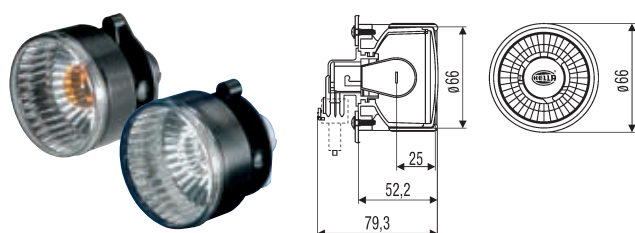
with transparent lens, 12 LEDs and an AMP plug

			ECE	SAE (USA)
24 V/3 W, current consumption = approx. 0.13 A	2SB 009 001-501	① ②	X	●
24 V/1.5 W, current consumption = approx. 0.06 A	2BA 009 001-511	③	X	
24 V/1.5 W, current consumption = approx. 0.06 A	2BA 009 001-531¹⁾	③	X	

Type approval: 12390

60 mm: accessories

2-pin mating connector	2JD 156 150-807			
3-pin mating connector	2JD 162 581-802			



60 MM PREMIUM LIGHTS

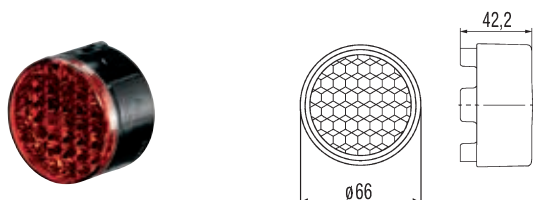
with pre-fitted bulbs 24 V, incl. design ring

			ECE	SAE (USA)
Crystal-clear lens	2SA 009 001-137	①	X, D	
Crystal-clear lens	2DA 009 001-147	②	X, D	
Crystal-clear lens	2SB 009 001-157	① ②	X, D	
Red lens	2BA 009 001-127	③	X, D	
Crystal-clear lens	2BA 009 001-107	③	X, D	
Crystal-clear lens	2ZR 009 001-117	⑤	X, D	X ■ ●

Type approval: 3917, 6546, 7613 and 23255

Macro reflector, 12 V, red	8RA 009 001-037	⑥	X	X ■ ●
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Type approval: 3189



DESIGN RING

suitable for 60 mm light modules with Ø 71.6 mm (Part number ... 009 001-... except LED versions), perfect high-sheen finish with one "click"

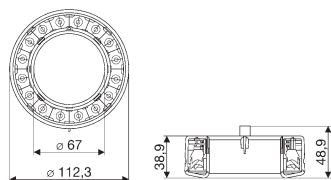
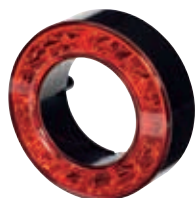
High-sheen chrome-plated	9HB 161 122-012
Silver	9HB 161 122-007
Premium silver	9HB 164 168-002



Combination example

for a combination rearlight	... 009 001-...
with design ring Ø 71.6 mm high-sheen chrome-plated	9HB 161 122-012

This product features the following properties:



LED CIRCULAR MODULES

with 250 mm cable and 3-pin AMP plug
24 V/4.8 W, current consumption = approx. 0.2 A

ECE SAE
(USA)

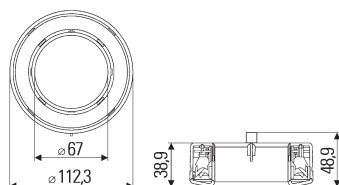
Red lens **2SB 009 362-011** ① ②

X, D

Type approval: E 7748

3-pin mating connector

Female connector housing	8JA 746 184-032			
Female socket connector	8KW 744 837-002			
Strand insulation 1.8–2.4 mm diameter	9GD 746 185-002			
Strand insulation 1.4–1.7 mm diameter	9GD 746 186-002			
Blind plug	9GD 746 187-002			



REFLEX REFLECTOR

available with a red cover lens

ECE SAE
(USA)

Red lens **8RA 009 362-001** ③

X

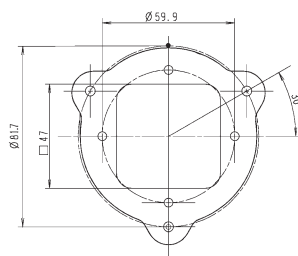
Type approval: E 3302



DESIGN RING Ø 118 MM

suitable for ring modulator ... 009 362 ...
perfect high-sheen finish with one "click"

High-sheen chrome-plated	9HB 163 085-012
Silver	9HB 163 085-001



ACCESSORIES FOR 60 MM COMBINATION REAR LIGHTS

Adapter ring for

frontal screw attachment for combination rear lights
Ø 60 mm, direct assembly and assembly in circular
module, black

9XD 161 119-007

Adapter ring

to attach LED lights or the reflector in the circular module
series 009 362-..., black (not shown)

9XD 161 119-017

ECE note:

D ECE approval as twin indicators

SAE type approval for vehicles

- < 2032 mm wide
- > 2031 mm wide

① Tail lamp

② Brake light

③ Indicator

④ Rear fog light

⑤ Back-up light

⑥ Reflex reflector

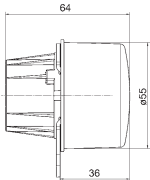
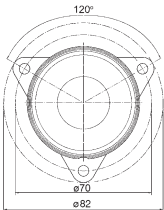
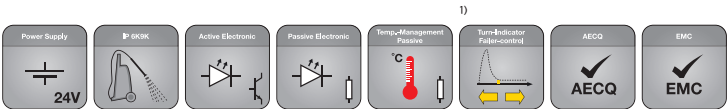
⑦ Side marker light with reflex reflector

⑧ Licence plate light

⑨ Position light

Note: Please see pages 63–65 regarding LED direction indicators and LED direction indicator failure check.

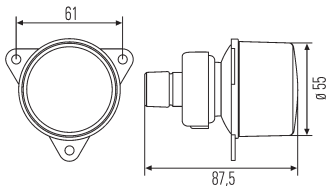
This product features the following properties:



MODULAR LED LIGHT

For flush and surface mounting, 500 mm cable with stripped ends, 1:1 replacement with bulb version 008 221			ECE	SAE (USA)
24 V/0.8 W, current consumption = approx. 0.03 A	2BA 011 172-421/-427	③	X	
	2BA 011 172-431/-437 1)	③	X	
24 V/0.2 W, current consumption = approx. 0.01 A	2SA 011 172-441/-447	①	X	
24 V/0.7 W, current consumption = approx. 0.03 A	2DA 011 172-461/-467	②	X	
24 V/1.9 W, current consumption = approx. 0.08 A	2NE 011 172-481/-487	④	X	
	2ZR 011 172-501/-507	⑤	X	

Type approval: 3283, 3286, 3285, 10R-36 317, CCC

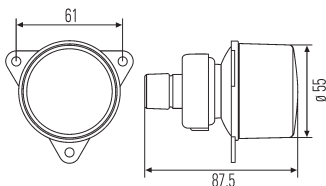


COMBINED TAIL/STOP LIGHT

for flush and surface mounting, connection via 2.8 mm blade terminal			ECE	SAE (USA)
12 / 24 V	2XA 008 221-021/-027	① ②	X	

Type approval: 1048 = taillight
1049 = stop light

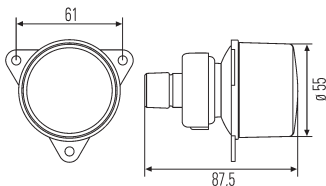
Can also be used as a taillight or as a stop light only



REAR FOG LIGHT

for flush and surface mounting, connection via 2.8 mm blade terminal			ECE	SAE (USA)
12 / 24 V	2NE 008 221-037	④	X	

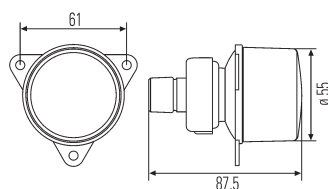
Type approval: 1050



INDICATOR

for flush and surface mounting, connection via 2.8mm blade terminal, bulb type PY21W			ECE	SAE (USA)
12 / 24 V	2BA 008 221-041/-047	③	X	

Type approval: 1051



BACK-UP LAMP

for flush and surface mounting, connection via 2.8 mm blade terminal

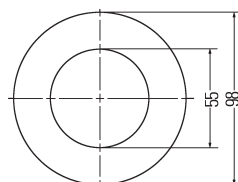
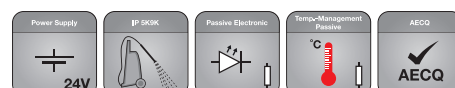
12 / 24 V	2ZR 008 221-057	⑤	ECE	SAE (USA)
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Type approval: ⑤ 1052 and SAE only for double attachment

Accessories for 008 221 series

Grommet	9GT 137 236-007			
Harness assembly 500 mm	8KA 152 134-007			

This product features the following properties:

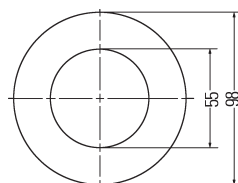


LED TAILLIGHT

for flush and surface mounting, connection via 160 mm cable with stripped ends
24 V / 1.8 W, current consumption = approx. 0.08 A

24 V	2SA 008 405-017	①	ECE	SAE (USA)
24 V	2SB 008 405-091	①②	X	

Type approval: ⑤ 1696, ⑤ 2295, ⑤ 1892



REFLEX REFLECTOR

			ECE	SAE (USA)
	8RA 008 405-001 / -007	⑥	X	

Type approval: ⑤ 1196

ECE note:

D ECE approval as twin indicators

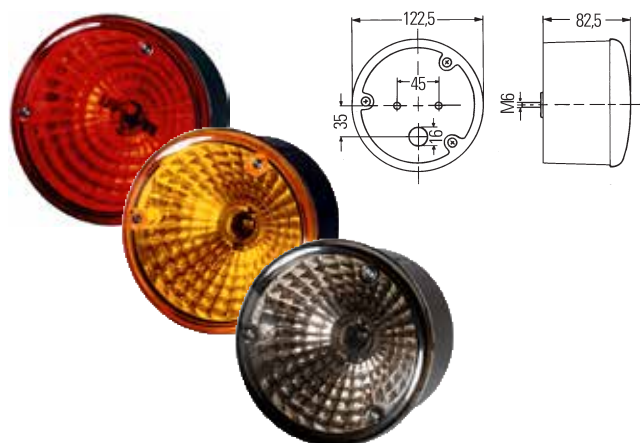
SAE type approval for vehicles

- < 2032 mm wide
- > 2031 mm wide

- | | | | | |
|--------------------|---|-----------------------|------------------|-----------------|
| ① Tail lamp | ② Brake light | ③ Indicator | ④ Rear fog light | ⑤ Back-up light |
| ⑥ Reflex reflector | ⑦ Side marker light with reflex reflector | ⑧ Licence plate light | ⑨ Position light | |

Note: Please see pages 63-65 regarding LED direction indicators and LED direction indicator failure check.

REAR LIGHTING



REAR LIGHT

For surface mounting, right or left, can be used for 12 V and 24 V operation

			ECE	SAE (USA)
2SB 964 169-537	€ 816	① ②	X	■ ●
2NE 964 169-527	€ 3809	④	X	■ ●
2ZR 964 169-517	€ 2312	⑤	X	■ ●
2BA 964 169-507 ¹⁾	€ 653	③	X	■ ●

1) also for front surface-mounting.

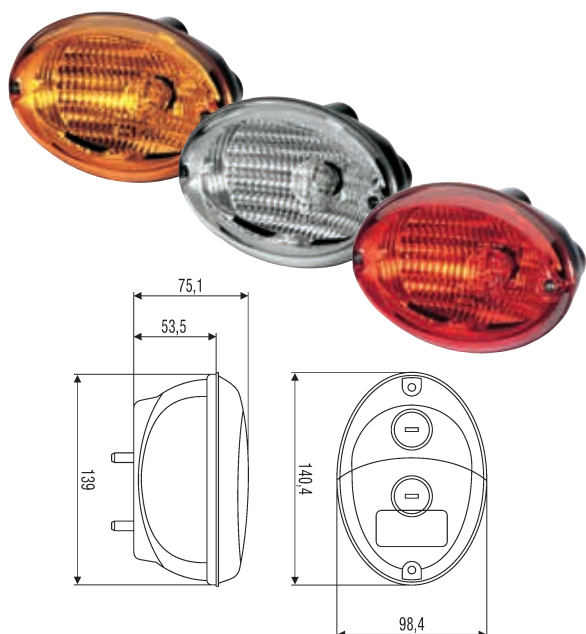


REAR LIGHT

For flush-mounting, right or left, connection via 6.3 mm blade terminal, bulb type PY21W (indicator gray), 24 V

		ECE	SAE (USA)
2SB 965 039-137	① ②	X	■ ●
2NE 965 039-117	④	X	■ ●
2ZR 965 039-127		X	■ ●
2SA 965 039-087			■ ●
2BA 965 039-107	⑤	X	■ ●
2DA 965 039-091	③	X	■ ●

Type approval: 10215



"OVAL" COMBINATION REAR LIGHT

with its brilliant appearance, ideal for horizontal and vertical installation and mounting, on the right or left (rotate light 180°), can be used for 12 V and 24 V operation, punch out the water drain hole before installation and put on the seal, black housing colour, clear cover lens

			ECE	SAE (USA)
2SB 343 130-021 / -027	€ 7698	① ②	X	■ ●
2BA 343 130-051 / -057	€ 6550	③	X	■ ●
2NE 343 130-031 / -037	€ 3919	④	X	
2ZR 343 130-041 / -047	€ 23257	⑤	X	■ ●

ECE note:

D ECE approval as twin indicators

SAE type approval for vehicles

- < 2032 mm wide
- > 2031 mm wide

① Tail lamp

② Brake light

③ Indicator

④ Rear fog light

⑤ Back-up light

⑥ Reflex reflector

⑦ Side marker light with reflex reflector

⑧ Licence plate light

⑨ Position light

Note: Please see pages 63-65 regarding LED direction indicators and LED direction indicator failure check.

LED TURN INDICATORS AND THE PATENTED FAILURE CHECK

Legal requirement in all ECE states

In the case of vehicles approved for use on public roads, the indicators must be monitored: the failure of an indicator must be shown optically or acoustically in the vehicle. This applies in all ECE states.

This means possible indicator failure must be monitored by the vehicle. Manufacturers use different procedures for this. The failure controls currently in use cannot detect simple LED lights and indicate a fault. All HELLA LED indicators have integrated electronics for failure control.

The indicators are self-monitoring. They generate an impulse that is evaluated by the electronic ballast. This ballast simulates a 21 W bulb, which makes operation with conventional flasher units possible.

If just a single LED fails, the light is faulty and the pulse is no longer generated. In this case, the ballast switches off bulb simulation and the indicator reports the fault to the driver.

Safe conversion to LED indicators is now possible using patented HELLA electronics

HELLA supplies electronic ballasts for all HELLA LED indicators which make it possible to retrofit the indicator failure display on various vehicles. This is necessary if the vehicle manufacturer does not guarantee an indicator bulb failure check via the vehicle's electrical system.

The method is patented by HELLA. There are currently three different ballasts and several different LED indicators available.

LED-light failure check and correct electrical connection

Operation of the LED light with AC voltage or synchronised DC voltage is not permitted. The individual light functions may only be operated with a vehicle fuse of max. 3 A.

Due to the low watt output of LED lights, which are distinctly different from a bulb version, problems can arise in bulb failure control when operating traction vehicles.

Since checking the indicator lights is required by law, we recommend only using the light in conjunction with an indicator light control unit.

Some traction vehicles also detect other light functions. This is a vehicle convenience function that is not required by law and does not exempt the driver from his or her obligation to visually inspect the lighting equipment. Even in this case, low outputs can lead to misdiagnosis (instrument panel in the cab shows a light failure even though it is working fine).

In case of diagnostic error during operation of your towing vehicle type, as described above, please contact the towing vehicle manufacturer.

The right solution for your vehicle electronics

VEHICLE

Start

Is a flasher relay installed in the vehicle?

Yes

No

Turn on the vehicle ignition and remove the bulb of a direction indicator without pressing the signal switch.

Any failure of the flasher unit is displayed.

Yes

No

Press the signal switch

Any failure of the flasher unit is displayed.

Yes

No

Vehicle not ECE-compliant

UNIVERSAL TRAILER SOLUTION

independent of vehicle

ISO 13207-1 TRAILER SOLUTION



**Solution 1:
LED flasher unit**

	12 V	24 V
Operating voltage	10 – 15 V	18 – 32 V
Functional voltage	11 – 14 V	20 – 28 V
Operating temperature	- 40 to + 85°C	- 40 to + 85°C
Protection category	IP 53 (contacts underneath)	IP 53 (contacts underneath)
LED flasher unit 3 + 1		
3 Indicators on the vehicle / tractor vehicle 1 Indicator on optional trailer	4DW 009 492-111	4DW 009 492-011
LED flasher unit 2 + 1 2 + 1 + 1+1		
2 indicators on the vehicle / tractor vehicle 1 flasher light on max. two optional trailers	4DM 009 492-101 (2 + 1 + 1)	4DM 009 492-001 (2 + 1)



**Solution 2:
Simulation device for cold checking**

	12 V	24 V
Operating voltage	9 – 16 V	18 – 32 V
Rated current	1,5 A	1,5 A
Operating temperature	- 40 to + 85°C	- 40 to + 85°C
Protection category	IP 54 (contacts underneath)	IP 54 (contacts underneath)
Simulation device		
for cold checking	5DS 009 602-101	5DS 009 602-001

Solution 1:

Replace the existing indicator unit with an LED indicator unit from HELLA with an ISO pin basis



One flasher unit per vehicle required. Any possible combination of bulbs and HELLA LED direction indicators is permitted: from a full package with bulbs through mixed versions to a full package with LED lights. Bulbs or HELLA LED direction indicators are also permitted on trailers.

Solution 2:

Through simulation unit for cold check



One simulation device is required per LED light.

Solution 3:

By LED indicator control unit



Two LED indicators can be monitored per vehicle using one simulation device.
(Only one simulation device per vehicle can be used.)

Solution 3:

By LED indicator control unit

**Solution 4:**

By monitoring in compliance with ISO 13207-1 in the vehicle manufacturer's vehicle electric system.

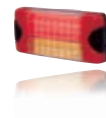


Failure pulse in accordance with ISO 13207-1

2BA 959 070-631



2BA 959 050-401



2BA 959 822-601



2BA 344.200-...



2BA 343 390-...



2SD 343 910-...

**Solution 3:****Indicator control unit**

Universal trailer solution, independent from the truck

**Solution 4:**

Light control unit with integrated check of the failure pulse in accordance with ISO 13207-1

	24 V
Operating voltage	18 – 32 V
Reverse-polarity protection voltage	– 28 V
On-board voltage input Flasher unit left / right	24 V
Operating temperature	– 40 to + 50 °C
Extended operating temperature*	– 40 to + 80 °C
Storage temperature	– 40 to + 90 °C
With female blade connectors	5DS 009 552-011
For EasyConn connectors	5DS 009 552-001

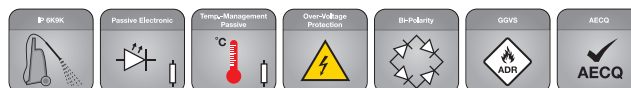
* At temperatures of 50 °C or higher, the light bulb simulation is deactivated due to thermal factors.

In future, vehicle manufacturers' light control units will be able to check the failure pulse in a standardised and unified manner in accordance with ISO 13207-1.

Interim solutions 1 to 3 are therefore unnecessary, as communication takes place directly with the indicators. HELLA recommends this solution.

As trailers do not currently have their own vehicle electric system, this solution must be integrated in the tractor vehicle.

This product features the following properties:



LED CLEARANCE LIGHT

Red/ clear lens, with direct screw coupling and black AMP SUPERSEAL, black frame for direct connection

12 V	2XS 205 020-001
24 V	2XS 205 020-011

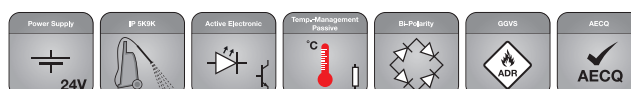
Type approval: ECE 3011

Red/ clear lens, with direct screw coupling and 500 mm cable, welded, without male connector housing, black frame for direction connection

12 V	2XS 205 020-041
24 V	2XS 205 020-051

Type approval: ECE 3011

This product features the following properties:



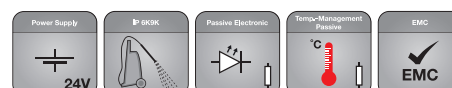
LED CLEARANCE LIGHT

for horizontal or vertical surface-mounting, with 2 LEDs and light guide strip in red, 2 screw holes \varnothing 5.4 mm for fastening screws
24 V/0.7 W, current consumption = approx. 0.03 A

24 V	2XS 008 078-001
------	-----------------

Type approval: 0515

This product features the following properties:



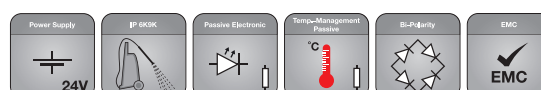
LED CLEARANCE LIGHT

for surface-mounting, modern night-time design and high level of safety thanks to maximum illuminated area

24 V, 500 mm cable, horizontal	2TM 344 690-357
--------------------------------	-----------------

Type approval: 7597 and 031721

This product features the following properties:



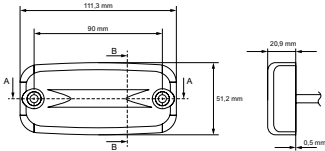
LED CLEARANCE LIGHT

for horizontal surface-mounting, 2 LEDs, 24 V with seal and cable 5,000 mm long
24 V/0.5 W, current consumption = approx. 0.02 A

oval	2TM 964 295-097
------	-----------------

Type approval: 0302

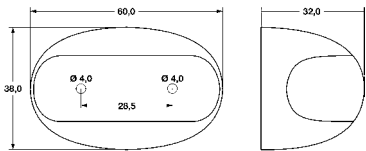
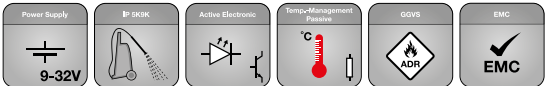
This product features the following properties:



LED CLEARANCE LIGHT

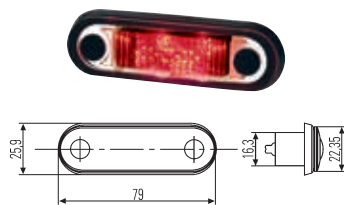
For horizontal surface mounting, 2 LEDs, fixed with screws through the light, (5.8 mm hole diameter), 24 V/1 W, current consumption = approx. 0.04 A
5,000 mm cable, stripped end
2TM 345 600-317
Type approval: 10R-04 0072, 5881

This product features the following properties:

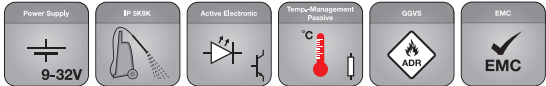


LED CLEARANCE LIGHT

for horizontal surface mounting, 2 LEDs, 8-28 V
12 V/0.5 W, current consumption = approx. 0.04 A
24 V/0.5 W, current consumption = approx. 0.02 A
500 mm cable **2XA 959 560-401**
5,000 mm cable **2XA 959 560-411**
Type approval: 7574 and 031721



This product features the following properties:

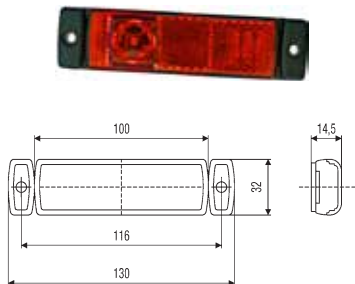


LED CLEARANCE LIGHT

for horizontal or vertical flush-mounting, clear lens with 2 red LEDs can be used as tail light or clearance light, 8–28 V
12 V/0.5 W, current consumption = approx. 0.04 A
24 V/0.5 W, current consumption = approx. 0.02 A

500 mm cable with caps	2XA 959 790-401
5,000 mm cable with caps	2XA 959 790-411

Type approval: 7597 and 031721



This product features the following properties:



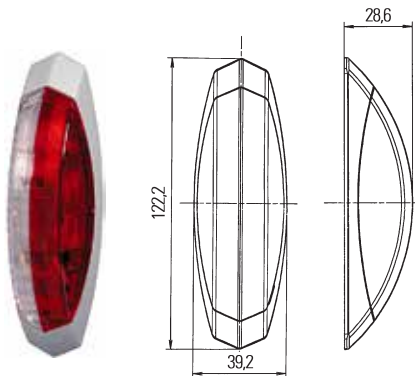
LED CLEARANCE LIGHT

for horizontal or vertical surface-mounting, with reflector, 24 V,
2 holes for fastening screws B 4.2
12 V/0.6 W, current consumption = approx. 0.05 A
24 V/0.6 W, current consumption = approx. 0.025 A

500 mm cable	2TM 008 645-951
5,000 mm cable	2TM 008 645-941

For horizontal surface-mounting, the LED field must point to the outer vehicle edge.
For vertical surface-mounting, the LED field may point upwards or downwards.
(Clearance light can also be used as a tail light with reflector.)

Type approval: 1395 and 1398

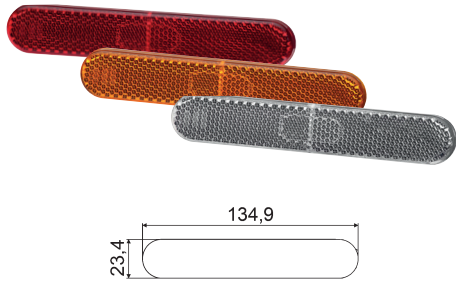


C5W CLEARANCE LIGHT

for vertical surface-mounting, red/white with grey base plate

left, with 24 V bulb	2XS 008 479-041
right, with 24 V bulb	2XS 008 479-051
left, without bulb	2XS 008 479-061
right, without bulb	2XS 008 479-071

Type approval: 1201



REFLEX REFLECTOR

for horizontal or vertical surface-mounting

red, self-adhesive	8RA 009 226-137
amber, self-adhesive	8RA 009 226-127
white, self-adhesive	8RA 009 226-117



REFLEX REFLECTOR

red, self-adhesive	8RA 002 014-281
amber, self-adhesive	8RA 002 014-301
white, self-adhesive	8RA 002 014-291

Type approval: ECE E 3535

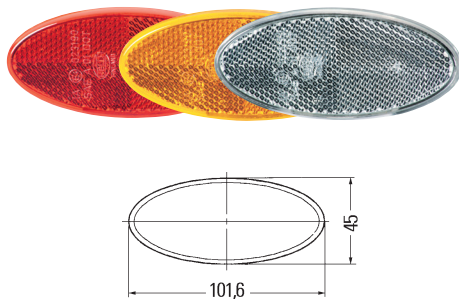


REFLEX REFLECTOR

for horizontal or vertical surface-mounting

red, self-adhesive	8RA 003 326-031
amber, self-adhesive	8RA 003 326-041
white, self-adhesive	8RA 003 326-051

Type approval: E 0292031



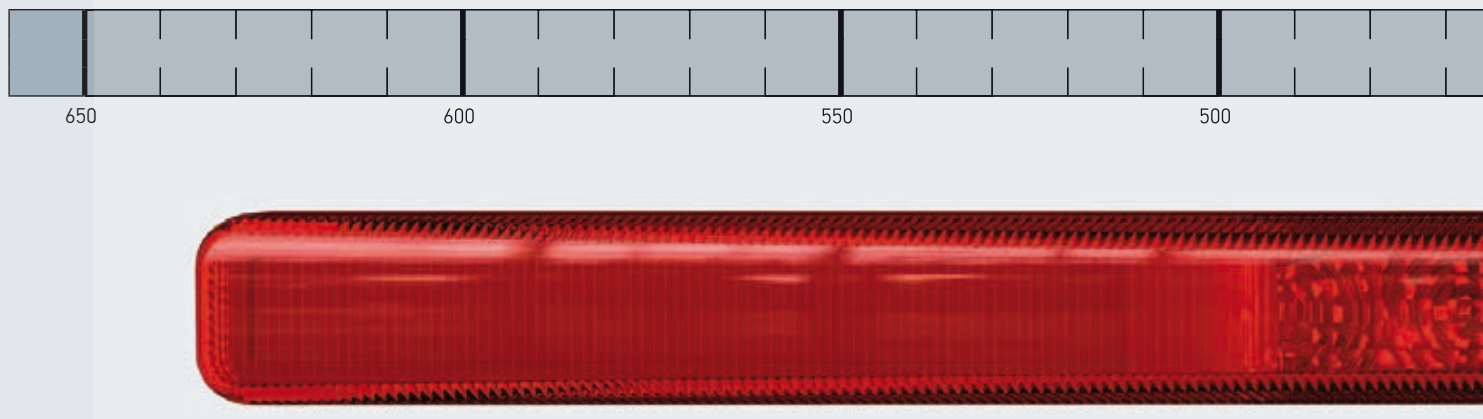
REFLEX REFLECTOR

for horizontal or vertical surface-mounting, suitable for light series 9642

red, self-adhesive	8RA 343 160-007
amber, self-adhesive	8RA 343 160-027
white, self-adhesive	8RA 343 160-017

Type approval: E 3190

THE NEW LED AUXILIARY BRAKE LIGHT



An attribute for individual design requirements

Exciting design and greater road safety – no problem with HELLA. Travellers on buses or coaches want to be independent and maintain their individuality. With HELLA on board, not only does light technology open all avenues to you in terms of innovation – we also provide you with the very latest design trends. With our wide range of products, you can develop your own brand features and use them to set your own personal trends – all of this comes with the top quality you expect from HELLA.

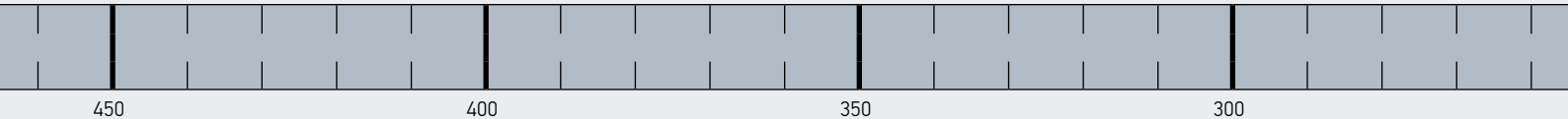
The slim design and clear optics of the new LED auxiliary brake lamp give it impressive appeal. The innovative HELLA LED light line, a style-defining design element, gives your vehicle a distinctive presence. It features exceptionally homogenous illumination, which provides exceptionally clear visibility as a brake light. The innovative, state-of-the-art fibre optic technology conveys the brake signal from the LED-equipped central section to the volume endpoints and produces a distinctive appearance in the rear design.

Thanks to its long life cycle of 15,000 hours, the integrated automotive LEDs provide you with travel that is simultaneously safe and maintenance free.

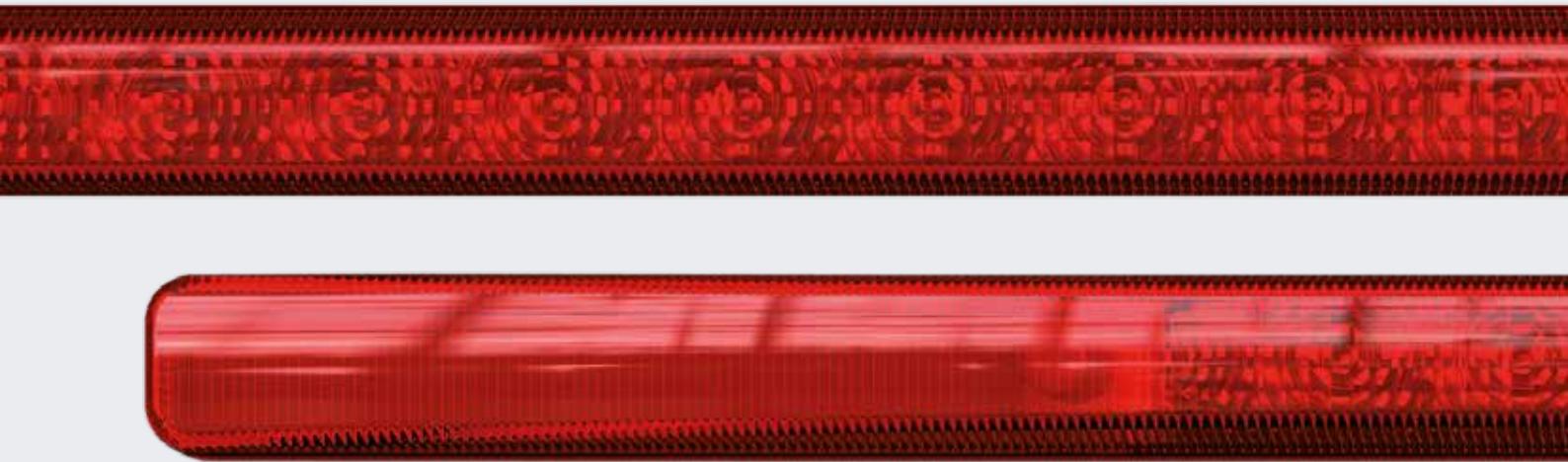
Two different sizes to choose from, 445 mm version and the super-long, 637 mm version, offer you different design concepts.

Assembly with adhesive rather than screws enhances the harmonious appearance and produces a uniform vehicle design.

With the new LED auxiliary brake light, HELLA has created an ideal solution for new, innovative illumination systems used in buses and coaches. They are energy-efficient, economical and visually appealing. HELLA provides an advantage in both safety and individuality.



Information in mm, 1:1 scale, full size of diagram not shown



This product features the following properties:

Power Supply
12V

Power Supply
24V

P 67
67

Passive Electronic

Temp.-Management
Passive

Polarity Reversal
Protection

EMC
EMC

ECE

Approval
SAE

LED AUXILIARY STOP LIGHT

for horizontal mounting

Short version (445 mm):
12 V/1.5 W, current consumption = approx. 0.12 A
24 V/1 W, current consumption = approx. 0.04 A

Long version (637 mm):
12 V/2.8 W, current consumption = approx. 0.22 A
24 V/1.5 W, current consumption = approx. 0.06 A

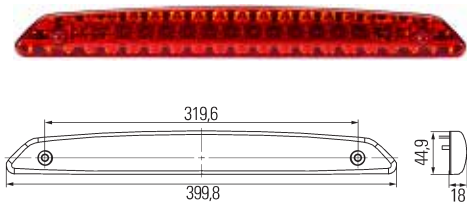
12 V, length 445 mm	2DA 012 596-007
24 V, length 445 mm	2DA 012 596-017
12 V, length 637 mm	2DA 012 596-027
24 V, length 637 mm	2DA 012 596-037

Type approval: ECE, SAE, CCC



REAR LIGHTING

This product features the following properties:



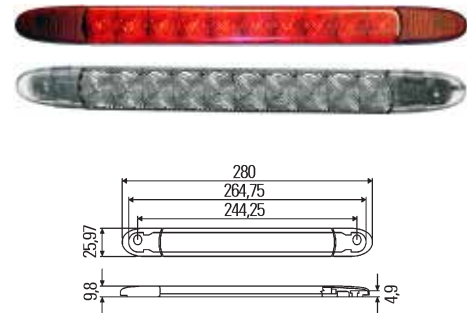
LED AUXILIARY STOP LIGHT

For horizontal surface-mounting, with 500 mm cable, 24 V

2DA 343 800-047

Type approval: E 7714, ECE

This product features the following properties:



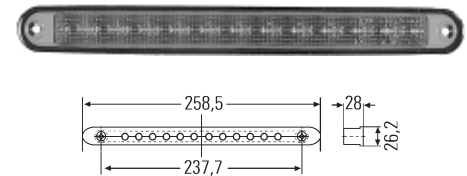
LED AUXILIARY STOP LIGHT

For horizontal and vertical surface mounting, with 3000m cable, 24 V

Red	2DA 343 106-011
Smokey grey	2DA 343 106-031
Red, self-adhesive	2DA 343 106-211
Smokey grey, self-adhesive	2DA 343 106-231

Type approval: E 7696

This product features the following properties:



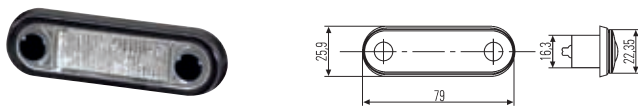
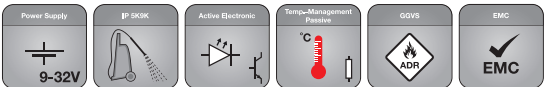
LED AUXILIARY STOP LIGHT

For horizontal and vertical mounting, with 500 mm cable, 24 V

Clear	2DA 959 071-237
Red	2DA 959 071-737

Type approval: E 7547

This product features the following properties:



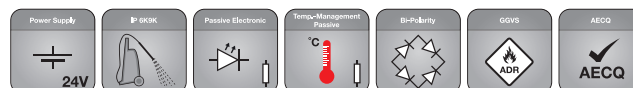
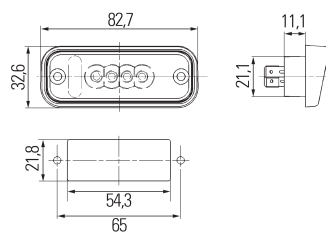
LED LICENCE PLATE LIGHT

For flush mounting above, with 2,500 mm cable, 2 LEDs, multivolt 10-33 V

Red	2KA 959 640-102
-----	-----------------

Type approval: E 4068

This product features the following properties:



LED LICENCE PLATE LIGHT

For flush mounting above, 6.3 mm blade terminal, 4 LEDs, 24 V

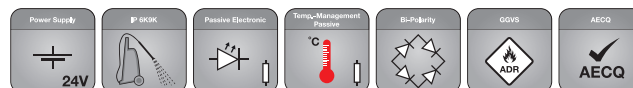
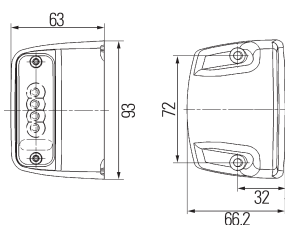
2KA 010 278-011 / -017

cast with 1,000 mm cabling

2KA 010 278-607

Type approval: E 2609, ECE and ADR/GGVS

This product features the following properties:



LED LICENCE PLATE LIGHT

For surface mounting on side, (screw, left or right), 6.3 mm blade terminal, 4 LEDs, 24 V

Blade terminals

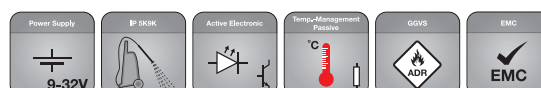
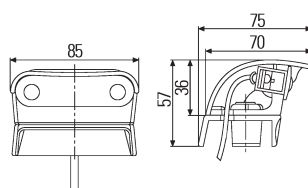
2KA 010 278-021

Blade terminal and 2,000 mm cable

2KA 010 278-031

Type approval: E 2609, ECE and ADR/GGVS

This product features the following properties:

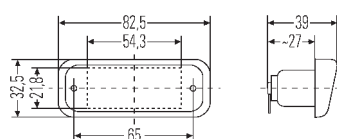


LED LICENCE PLATE LIGHT

for surface-mounting on the licence plate / left and right 520 mm), 2,500 mm cable, 2 LEDs, Multivolt 9–32 V

2KA 959 640-607

Type approval: E 4068



C5W LICENCE PLATE LIGHTING

for flush mounting above, 6.3 mm blade terminal, with light bulb, 24 V

2KA 005 049-017

Type approval: E 22871

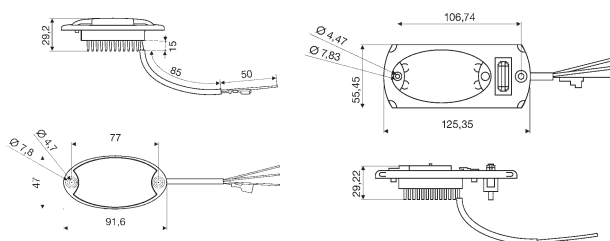
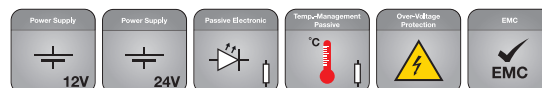


HELLA offers a comprehensive range of interior lighting for various vehicle applications and vehicle types.

Our product range includes, among other things, ambient lighting in the form of light transmitters and LED modules, integrated lighting systems/modules for roof systems, service sets (operating units) and step lighting.

If you have any questions, please contact our field staff or our Customer Service Centre.

This product features the following properties:



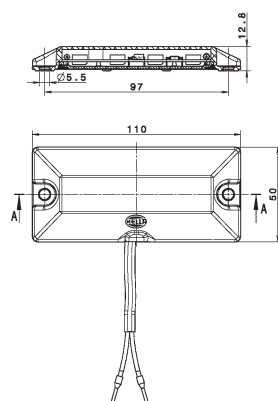
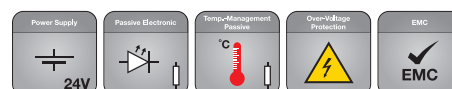
MINI OVAL LED

Number of LEDs	4 white LEDs, 1 ambient LED
Illumination angle	50°
Illumination	side driver or instrument range
Illuminance at 1 m	Standard = 14.5 lux, Power = 54 lux
Function	Ambient illumination can be activated
IP Class (Protection)	6K9K (without frame/switch), 40 (with frame/switch)
Current consumption	Standard = 1.7 W (0.14 A at 12 V) Standard = 1.7 Watt (0.07 A at 24 V) Power = 3.6 Watt (0.30 A at 12 V) Power = 3.6 W (0.15 A at 24 V)
Lens	Brilliant and clear
Installation	Flush-mounting
Current consumption	3.6 W = approx. 0.30 A (12 V) 3.6 W = approx. 0.15 A (24 V)
Voltage	12 V or 24 V
Temperature range	-40° to +60°C

LED equipment	without frame and switch	with frame and switch
4 white power LEDs, 12 V, blue	2JA 343 570-117	2JA 343 570-157
4 white power LEDs, 24 V, blue	2JA 343 570-101	2JA 343 570-141
4 white Power LEDs, 12 V, red	2JA 343 570-011	2JA 343 570-051
4 white power LEDs, 24 V, red	2JA 343 570-001	2JA 343 570-041
4 white standard LEDs, 24 V, red	—	2JA 343 570-061

Other versions are available on request

This product features the following properties:

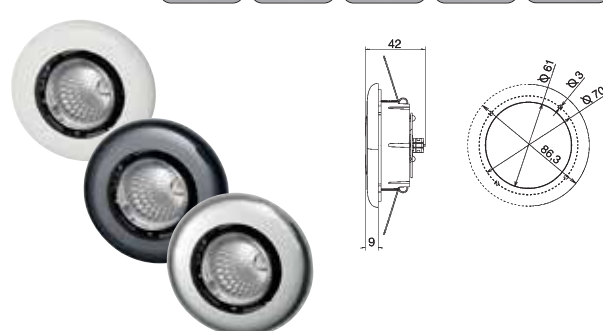
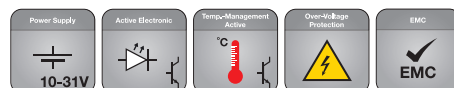


LED LIGHT

Number of LEDs	4 white LEDs
LED angle of radiation	40°
Illuminance at 2.5 m	8 lux (average value/ measuring points: floor)
IP Class (Protection)	6K9K
Current consumption	1.5 W (0.06 A at 24 V)
Voltage	24 V

2JA 010 838-017

These products have the following features:



STANDARD LED SPOTLIGHTS, FIXED

Number of Power LEDs	1 white
Illumination angle	40° or 20°
Illuminance at 1 m	156 lux (20°), 65 lux (40°)
IP Class (Protection)	3 x
Current consumption	2 W (0.16 A at 12 V) 2 W (0.08 A at 24 V)
Lens	Clear
Installation	Choice between screw or spring-assisted mounting
Spot power consumption	at 12 V / 2.5 W = approx. 0.20 A at 24 V / 2.5 W = approx. 0.10 A

Flush-mounting, fixed, wide illumination (40°)

Finisher colour*:	
White	2JA 344 040-701
Black	2JA 344 040-711
Silver	2JA 344 040-721

Flush-mounting, fixed, spot-type illumination (20°)

Finisher colour*:	
Silver	2JA 344 040-761

Accessories

Round finisher with angled edges

Chrome	9AB 344 057-061
Gold	9AB 344 057-071

Round finisher with rounded edges

Chrome	9AB 344 045-061
Gold	9AB 344 045-071
Stainless metal frame, polished	9AB 959 505-501
Stainless metal frame, satined	9AB 959 505-561

Square finisher with angled edges

Chrome	9AB 344 058-061
Gold	9AB 344 058-071

* Further finisher colours (e.g. real wood optics) or ambient Celis® lighting ring (e.g. blue, red) on request

STANDARD LED SPOTLIGHTS, ADJUSTABLE

Number of Power LEDs	1 white
Illumination angle	40° or 20°
Illuminance at 1 m	156 lux (20°), 65 lux (40°)
IP Class (Protection)	3 x
Current consumption	2 W (0.16 A at 12 V) 2 W (0.08 A at 24 V)
Lens	Clear
Installation	Choice between screw or spring-assisted mounting
Spot power consumption	at 12 V / 2.5 W = approx. 0.20 A at 24 V / 2.5 W = approx. 0.10 A

Flush-mounting, adjustable, wide illumination (40°)

Finisher colour*:	
White	2JA 343 790-301
Black	2JA 343 790-311
Silver	2JA 343 790-341

Flush-mounting, adjustable, spot-type illumination (20°)

Finisher colour*:	
Silver	2JA 343 790-441

additional with white, ambient Celis® light guide ring, current consumption of the Celis® light guide ring at 12 V / 0.5 W = approx. 0.04 A

Flush-mounting, adjustable, wide illumination (40°)

Finisher colour*:	
White	2JA 343 790-701
Black	2JA 343 790-711
Silver	2JA 343 790-741

Flush-mounting, adjustable, spot-type illumination (20°)

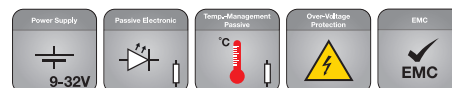
Finisher colour*:	
Black	2JA 343 790-611

* Further finisher colours (e.g. real wood optics) or ambient Celis® lighting ring (e.g. blue, red) on request

Accessories

Finisher chrome	9AB 343 792-061
Finisher gold	9AB 343 792-071

This product features the following properties:



LED SPOTLIGHTS ROUND, FLAT FLUSH-MOUNTING/SURFACE-MOUNTING

Illumination angle	35°
Illuminance at 1 m:	45 lux (Standard), 105 lux (high power)
IP Class (Protection)	20
Current consumption	Standard 1.5 W (0.12 A at 12 V) Standard 1.5 W (0.06 A at 24 V) High power 2.6 W (0.21 A at 12 V) High power 2.6 W (0.11 A at 24 V)
Dimensions:	Flush-mounting variant only 14 mm Surface-mounting variant only 22 mm
Voltage	5 VDC (connection possible only with control unit)
Individual packaging	consisting of 1 spotlight LED, 1 colour light frame, 1 coloured installation frame, 1 seal ring for flush-mounting

Flush-mounting, fixed Finisher colour**	Standard LED Spotlight, 1.5 W	High-Power LED spotlight 2.6 W (double light power with cooling element)
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without Celis®

White	2JA 344 199-001	2JA 344 599-001
Black	—	2JA 344 599-011
Silver	—	2JA 344 599-021

with Celis® warm-white ambient

White	—	2JA 344 599-101
Black	—	2JA 344 599-111
Silver	2JA 344 199-121	2JA 344 599-121

with Celis® blue ambient

White	2JA 344 199-201	2JA 344 599-201
Black	2JA 344 199-211	2JA 344 599-211
Silver	2JA 344 199-221	2JA 344 599-221

with Celis® red ambient

White	—	2JA 344 599-301
Black	2JA 344 199-311	2JA 344 599-311
Silver	—	2JA 344 599-321

with Celis® orange ambient

White	2JA 344 199-351	2JA 344 599-351
Black	—	2JA 344 599-361
Silver	2JA 344 199-371	2JA 344 599-371

Accessories

Installation frame, the overall height with frame is 22 mm

Chrome	9AB 344 192-061
Gold	9AB 344 192-071

A control unit is required for the use of more than one spotlight

Number of circuits:	max. 8 spotlight LEDs in 1 or 2 dimming circuits
IP Class (Protection)	30
Current consumption	1 – 16 W
Voltage	Multivolt (9 – 32 VDC)

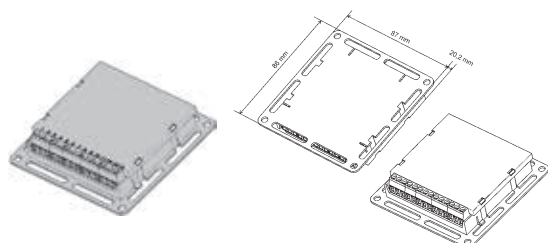
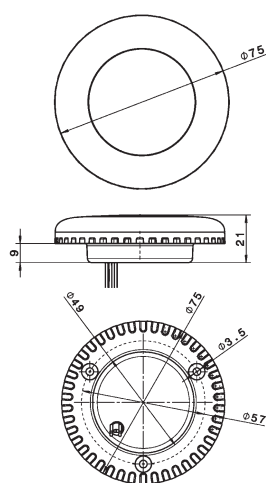
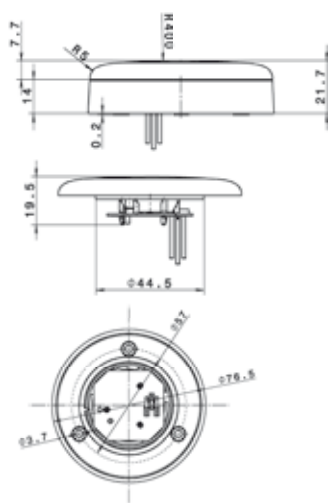
for 4 Standard or High-Power spotlights please use ...	5XA 344 150-001
for 8 Standard or 5 high power spotlights please use ...	5XA 344 150-011

* Connection possible only with control unit (5XA 344 150-001/011)

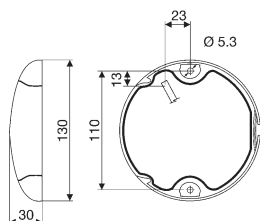
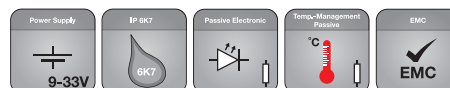
** More finisher colours (such as real-wood look) available on request

Standard LED spotlight

High-power LED spotlight



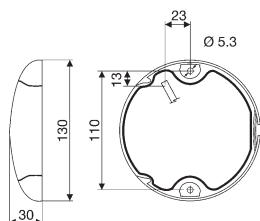
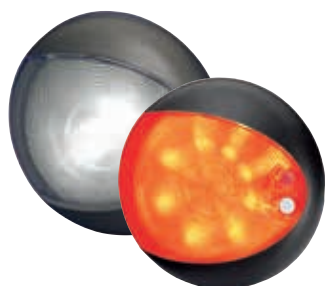
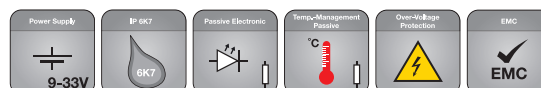
This product features the following properties:



EuroLED

Number of LEDs	1 white Power LED
Electrical connection	electrical connection through a cable 2,500 mm long
Lens	White
Current consumption	4 W (0.33 A at 12 V), white 4 W (0.17 A at 24 V), white <2.5 W (0.20 A at 12 V), red <2.5 W (0.10 A at 24 V), red
Installation	Surface-mounting, permanently bonded with base plate
	2JA 959 820-501

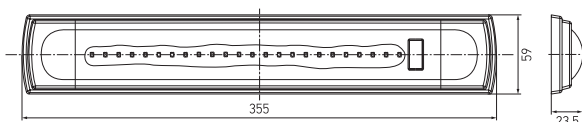
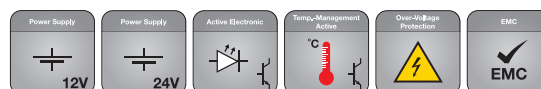
This product features the following properties:



EUROLED TOUCH

Number of LEDs	1 white and 8 red
Electrical connection	electrical connection through a 2,500 mm long cable
Function	with sensitive switch, for ON/OFF and dimming as well as switching between red and white light
Lens	White
Current consumption	4 W (0.33 A at 12 V), white 4 W (0.17 A at 24 V), white <2.5 W (0.20 A at 12 V), red <2.5 W (0.10 A at 24 V), red
Installation	Surface-mounting, permanently bonded with base plate
black finisher	2JA 959 950-031

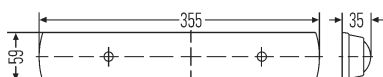
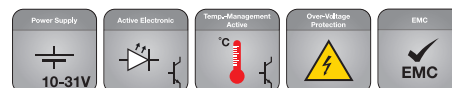
This product features the following properties:



LED SURFACE-MOUNTED LAMP

Number of LEDs	24 LEDs
Illuminance at 1 m	approx. 200 lux (24 LEDs)
Length	355 mm
Light colour	4,000 K (neutral white)
Nominal output	4,8 W
Current consumption	approx. 0.4 A at 12 V approx. 0.2 A at 24 V
12 V with switch	2JA 007 373-301
12 V without switch	2JA 007 373-321
24 V with switch	2JA 007 373-311
24 V without switch	2JA 007 373-331

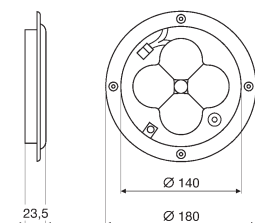
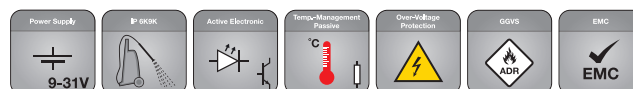
This product features the following properties:



LED LIGHTS WITH SWITCH

Number of LEDs	12 or 24 LEDs
Illuminance at 1 m	approx. 100 lux (12 LEDs) approx. 200 lux (24 LEDs)
Length	355 mm
Light colour	4,000 K (neutral white)
Material description	Lens and frame made of impact-resistant material
Installation	Surface-mounting
Nominal output	3.5 W (12 LEDs) 7 W (24 LEDs)
Current consumption	12 LEDs: approx. 0.30 A (12 V), approx. 0.15 A (24 V) 24 LEDs: approx. 0.58 A (12 V), approx. 0.29 A (24 V)
12 LEDs	2JA 007 373-151
24 LEDs	2JA 007 373-161

This product features the following properties:



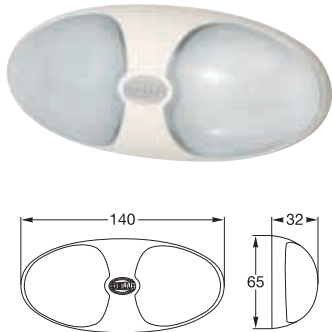
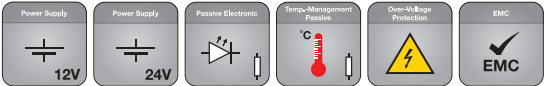
CARGOLED

Number of LEDs	4 white Power LEDs
Electrical connection	electrical, using a 310 mm cable
Illumination angle	44° (wide illumination at close range)
Illuminance at 1 m	180 lux
Current consumption	6 W (0.5 A at 12 V) 6 W (0.25 A at 24 V)
Lens	Clear
Installation	Flush-mounting (aluminium installation frame)
Temperature range	-40 °C to +60 °C
cold white	2JB 343 227-001
warm white	2JB 343 227-041

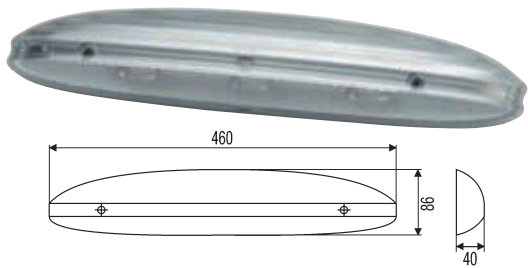
Accessories

Installation frame, grey	9XD 344 118-101
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This product features the following properties:

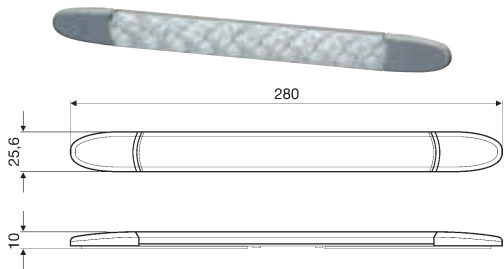


DuraLED oval	
Number of LEDs	4 white LEDs
LED angle of radiation	120°
Illuminance at 1 m	60 lux
IP Class (Protection)	6K6 6K7
Current consumption	3 W (0.25 A at 12 V) 3 W (0.125 A at 24 V)
Voltage	Dualvolt 12 and 24 V
2JA 959 700-102	



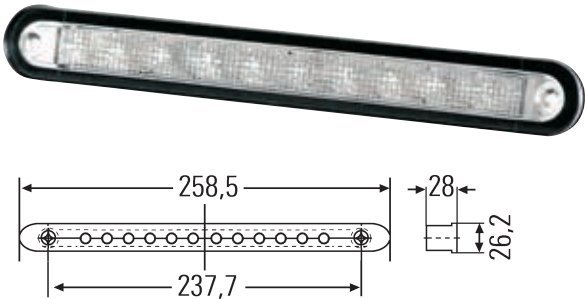
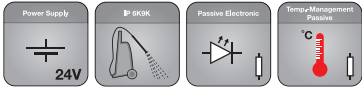
ENTRY LIGHT	
Number of light sources	3 tubular bulbs at 5 W
Illumination	optimal in and in front of the step area
Illuminance at 1 m	23 lux
Colouring	Housing painted in silver
Installation	Surface-mounting
Voltage	24 V
24 V	2XT 008 929-011
Spare parts	
12 V bulb C5W	8GM 002 092-121

This product features the following properties:



FLAT LED SURFACE-MOUNTED LIGHT	
Number of LEDs	10 white LEDs
Electrical connection	electrical connection through a cable 500 mm long
Illumination angle	38°
Illuminance at 1 m	32 lux
Current consumption	1.8 W (0.15 A at 12 V) 1.8 W (0.08 A at 24 V)
Lens	Clear
Installation	Surface-mounting, permanently bonded with base plate
Temperature range	-40 °C to +60 °C
12 V, white LEDs, 1	2JA 343 606-011 / -017
24 V, blue LEDs, 30	2JA 343 606-217

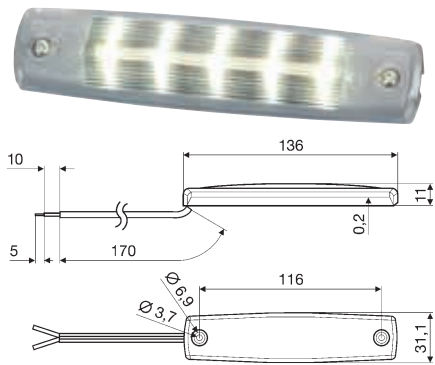
This product features the following properties:



LED STEP LIGHT

Number of LEDs	10 white LEDs
Electrical connection	2,500 mm cable
Illumination angle	24°
Illuminance at 1 m	130 lux
Feature	Cast in one piece
Current consumption	2 W (0.08 A at 24 V)
Lens	Clear
Scope of supply	With screws, screw caps, seal, and cable connector
Installation	Flush-mounting
2JA 959 073-201	

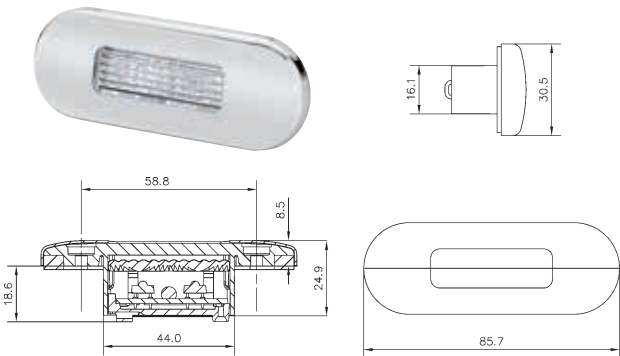
This product features the following properties:



MINI THINLED

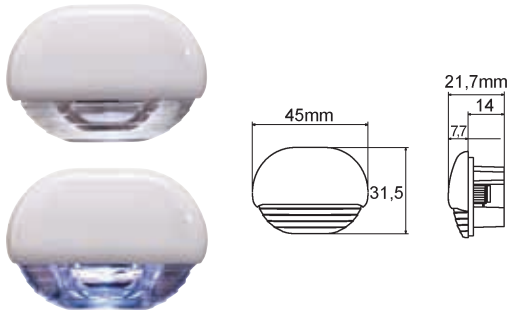
Number of LEDs	5 white LEDs
Electrical connection	electrical connection through a cable 170 mm long
Illumination angle	34°
Illuminance at 1 m	7,2 lux
IP Class (Protection)	6K9K
Current consumption	2.8 W (0.23 A at 12 V) 2.8 W (0.11 A at 24 V)
Voltage	12 V or 24 V
12 V	2JA 343 660-101
24 V	2JA 343 660-117

This product features the following properties:



LED STEP LIGHT

Number of LEDs	1 LED
Feature	with polished steel frame
Installation	Flush-mounting
1 blue LED	2XT 959 680-612
1 white LED	2XT 959 680-812



This product features the following properties:



LED STEP LIGHT	
Number of LEDs	1 LED
Electrical connection	electrical, using a 100 mm potted cable
Illumination	wide in close range areas
Illuminance at 1 m	< 10 lux
Colouring	White cover cap
Current consumption	0.5 W (0.04 A at 12 V) 0.5 W (0.02 A at 24 V)
Lens	Clear
Scope of supply	with seal
Installation	Flush-mounting, choice with 2 screws or with snap-on fastening
white LED	2JA 998 560-017
blue LED	2JA 998 560-057

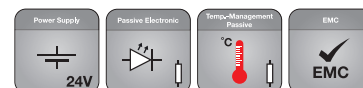


This product features the following properties:



LED STEP LIGHT	
Number of LEDs	2 LEDs
Electrical connection	electrical connection through a cable 120 mm long
Illumination angle	30°
Illuminance at 1 m	15 lux
Feature	with reverse polarity protection
Current consumption	0.5 W (0.04 A at 12 V) 0.5 W (0.02 A at 24 V)
Lens	Clear
Scope of supply	Seal, fastening screws and screw caps
Installation	Flush-mounting
white LEDs	2XT 959 510-427
blue LEDs	2XT 959 510-657

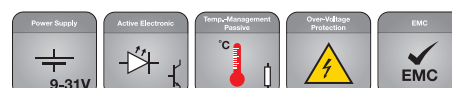
This product features the following properties:



AMBIENT LED-SPOT

Number of LEDs	1 LED
Illuminance at 1 m	5 lux
IP Class (Protection)	20
Current consumption	0.3 W (0.01 A at 24 V)
Lens	Clear
Scope of supply	3 frames (white, grey and black)
Installation	Surface-mounting via attachment element
LED white	2JA 344 170-121

This product features the following properties:



LED READING LIGHT, FLEXIBLY ADJUSTABLE ARM

Number of LEDs	1 white Power LED
Electrical connection	electrical, using a cable 150 mm long
Illumination	optimal for map-reading
Illumination angle	38°
Illuminance at 0.7 m	110 lux
IP Class (Protection)	53
Current consumption	2.5 W (0.20 A at 12 V) 2.5 W (0.10 A at 24 V)
Lens	patterned
Installation	Surface-mounting
150 mm	2JA 343 720-011
400 mm	2JA 343 720-111
Finisher colour black*	
150 mm	2JA 343 720-021
400 mm	2JA 343 720-121

Finisher colour silver*	
400 mm	2JA 343 720-191

with plug for cigarette lighter (150 mm)

Finisher colour black	2JA 343 720-081
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Electronic components – benefit from our unique experience and innovative power.

HELLA is one of the first ports of call for the international supplier industry not just in lighting technology but also in electronic components.

One thing all our products have in common is that their quality and performance are carefully optimised to match our customers' special requirements.

PRODUCT RANGES, SPECIAL OE ELECTRONICS

Energy Management



Careful use of energy by appropriately influencing the consumer:

These electronic systems make it possible to monitor and plan the energy budget and maintain the power supply.



Intelligent Battery Sensors



Voltage stabilisers

Components



Provide added convenience with compact solutions in a variety of areas:

These electronic systems are generally invisible little helpers for the various automatic processes within the vehicle.



Angle of rotation sensors



Air quality sensors



Remote controls



Rain light sensors



Actuators



Temperature sensors

Drive Train



Increasing safety and efficiency of the overall system and preventing failures:

These electronic systems make it possible to precisely measure and record measured value in the engine compartment and drive train.



Oil level switch



Oil pressure sensors



Oil level sensors



Accelerator pedal position sensors



Accelerator pedal position sensors

ENERGY MANAGEMENT

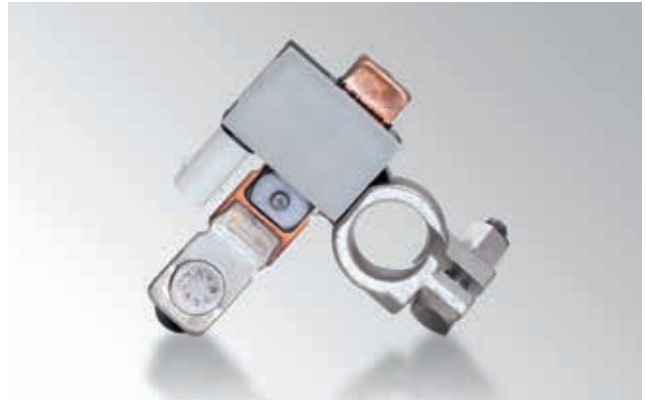
Intelligent battery sensors 12 V/24 V

Product description

- Precise shunt-based measurement of battery current, voltage and temperature
- Battery monitoring of State of Charge (SoC), State of Health (SoH) and State of Function (SoF)

Advantages:

- The starting ability of the engine can be guaranteed at all times
- Highest precision for current, voltage and temperature measurement
- Advanced battery algorithm for SoC, SoH and SoF
- Provides cost effective integration
- Worldwide production footprint



COMPONENTS

Air quality sensors

Product description

- Detects NO₂ and CO which are indicators for exhaust gas outside the vehicle
- Data transmitted to air conditioning system
 - Control of the circulation function of the air conditioning system
 - Prevents loss of air quality inside the vehicle

Advantages:

- Using metal oxide gas sensing technology
- PWM output signal for flexible application
- Output of 5 different levels of contamination
- Intelligent software distinguishes between ambient conditions (e. g. city, countryside, motorway)
- Increased driving comfort by air quality inside the vehicle constantly being optimised



COMPONENTS

Remote controls

Product description

- Allows remote control of vehicle central locking system
- Activation of interior / exterior light
- Optional activation/ deactivation of immobiliser

Advantages:

- Reliable and robust design
- All functions in one microcontroller
- Compact form factor (key integration)
- Battery driven (3 V), long service time
- Modular approach with customisable key fob housing



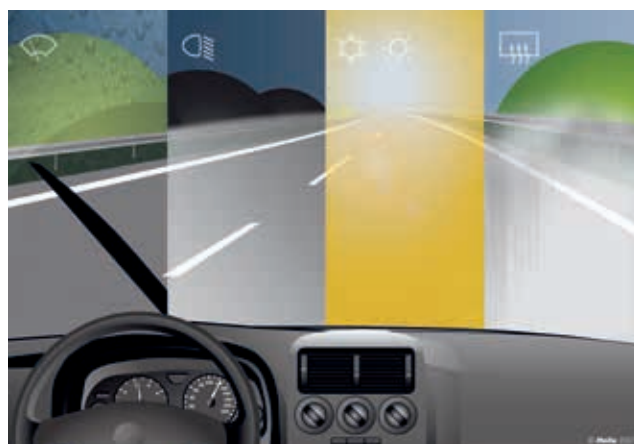
Rain light sensors

Product description

- Complete functional scope (five functions: rain sensor, light sensor, solar sensor, humidity measurement and head-up display) exclusively for use in passenger cars
- Limited use for vehicles with special windshields (thickness, slope, transmission)
- The optics of the second sensor are specially designed for vehicles with steep windshields and combines the rain and light recognition functions (environment and tunnel recognition).

Advantages:

- Modular concept allows flexible integration and compact design
- Reduced housing size and less weight
- Cost savings by integrating all functions into one part
- Simple to install without additional installation tools
- Air conditioning system know-how from HELLA
- Leading market position since 1999



COMPONENTS

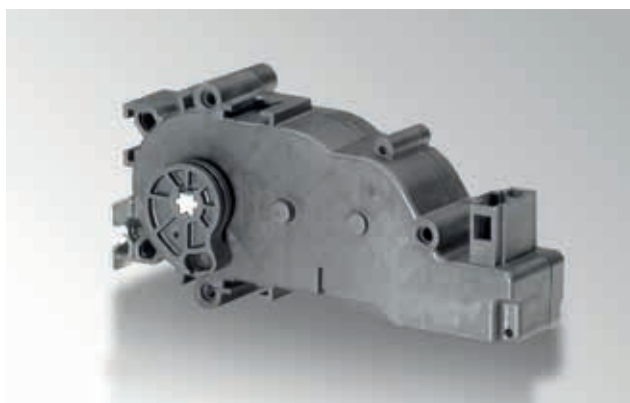
Actuators

Product description

- Applications for body actuators (rotary and linear actuators) are among other things locking or unlocking and control of:
- Central locking
 - Boot lock
 - Window lock
 - Radiator grill flap control
 - Toolbox lock

Advantages:

- Compact design and standard interfaces
- Wide range of customised and system-specific tool solutions
- Many years of experience – R&D and production since 1996
- Global development and production locations



Temperature sensors

Product description

The air temperature sensors measure temperatures in the air current of the air conditioning system. Furthermore, other corresponding versions for measuring outside and inside temperature can be implemented, keeping in mind their respective response times and protection classes in different industrial areas.

Advantages:

- Various designs
- EMC stable
- Quick response times



THE NEW HELLA SWITCH CONFIGURATOR



HELLA module switch configuration tool

Configure your switches yourself! First, choose between the new waterproof 3100 series (interior and exterior applications) or the 4100 series (interior applications).

You can select any switch functions as well as the operating voltage, combinations of symbols and the corresponding accessories with only a few clicks. They can easily be transferred to a favourites list, printed out or sent as an online request.

Your request will be processed individually with the desired symbol configuration and customer-specific article number on a project-specific basis.



www.hella.com/switch

3100 SWITCH SERIES

The new waterproof series of rocker switches for electrical systems. It meets the requirements of protection class IP 68. The lasered symbols are lit by integrated LEDs.

Variety of lasered symbol discs

- IP 68 according to test standard IEC EN 60529
- Extremely reliable in extreme conditions
- Ideal for use in agricultural and construction machinery
- A wide range of 12/24 V switch functions
 - Contact/changeover contact
 - Momentary-contact switch / maintained-contact switch
 - Locking functions
 - Hazard warning light switch
- Wide range of standard and customer-specific laser symbols
- Up to two LED light sources enable direct symbol illumination
- Simple to install, directly in the mounting hole or using a modular mounting frame
- Display lights in the same design for safety-related feedback



The HELLA switch configurator

You can configure your own switches individually at www.hella.com/switch.

Select switching functions, symbol combinations and accessories with just a few clicks.

TECHNICAL SPECIFICATIONS

Mounting opening	21,1 mm x 37,0 mm
Material rocker	PC transparent, painted
Base plate material	PBT
Connecting contacts	6,3 mm x 0,8 mm
Coating of switch contacts	CuZn silver-plated
Light source	max. 2 LEDs 1 x orientation lighting, green 1 x function light, red Warning lights available in amber and green available
Symbol type	lasered
Service life	6 A/24 V at 150,000 switching cycles
Leak tightness	IP 66 terminal side, IP 68
Operating temperature	-40 °C to +85 °C
Storage temperature	-40 °C to +85 °C
Dashboard thickness	for directly installed switches, 2 mm

ACCESSORIES

Installation frame

Modular

End piece left, right **9AR 169 209-102/-107**

Centre piece **9AR 169 208-102/-107**

Dummy panel **9HB 172 229-102/-107**

Receptacle housing

Type I **8JD 010 076-102/-107**

Type II **8JD 010 076-112/-117**

Type III **8JD 010 076-122/-127**

Female spade connector, 6.3 mm

0,5 mm² – 1 mm² **8KW 744 882-003**

1,5 mm² – 2,5 mm² **8KW 744 820-003**

Dismantling tool **8PE 197 631-001**

4100 SWITCH SERIES

The modular switch series with self-cleaning microswitches is suitable for modern electrical and electronic systems. This ensures reliable switching of small currents as well, without contaminating the contacts. The series features a timeless design, with lasered symbols lit by integrated LEDs.

The strength of the product range:

- Modular design of the switch
- Realisation of a wide variety of 12 V and 24 V switching functions:
 - Contact/changeover contact
 - Momentary-contact switch / maintained-contact switch
 - Locking function
 - Hazard warning light switch
- Wide range of standard and customer-specific symbols
- Selective, reliable and durable illumination of the symbols by using up to 4 LED light sources
- Simple to install, directly in the mounting hole or using a modular mounting frame
- Display lights in the same design for safety-related feedback
- Modern and timeless design
- Pleasant to the touch



The HELLA switch configurator
You can configure your own switches individually at www.hella.com/switch.

Select switching functions, symbol combinations and accessories with just a few clicks.

TECHNICAL SPECIFICATIONS

Mounting opening	19,8 mm x 41,8 mm
Material rocker	PC transparent, painted
Base plate material	PA white, housing PA black
Connecting contacts	3 mm Junior Power Timer
Coating of switch contacts	AgNi
Light source	max. 4 LEDs 2 x orientation lighting, green 2 x function lighting, red Warning lights also available in blue and amber
Symbol type	lasered
Service life	5 mA / 450,000 cycles 5 A / 24 V inductive / 270,000 cycles 4 A / 24 V lamp (75 W) / 90,000 cycles 10 A / 24 V resistive/80,000 cycles
Leak tightness	IP 54
Operating temperature	-40 °C to +85 °C
Storage temperature	-40 °C to +100 °C
Dashboard thickness	For directly installed switches, 2 mm

ACCESSORIES

Installation frame	
1 times	9AR 168 396-002/ -007
Modular	
End piece, left	9AR 169 209-002/ -007
End piece, right	9AR 169 210-002/ -007
Centre piece	9AR 169 208-002/ -007
Dummy panel	9HB 172 229-002/ -007
Cable sachet housing, 10-pin	8JD 010 076-002/ -007
Female spade connector, 2.8 mm	
Junior Power Timer 0.5 mm ² – 1 mm ²	8KW 863 934-003
Junior Power Timer 1.5 mm ² – 2.5 mm ²	8KW 863 934-023/ -024

Wide electrics range that has grown over the years

As a worldwide partner to the automotive industry, HELLA offers system know-how, experience with large volume production and also process know-how for fast implementation of innovative concepts in efficient and reliable serial products.

This is why the HELLA electrics range is particularly broad: from A as in "Acoustic signal unit" to W as in "Washer pumps". By continuously expanding and optimising, we offer a wide range of electrical plug connectors.

At HELLA you will find everything that connects: short or super-short, made of plastic or metal. HELLA makes something special even out of standard parts, simple to install or retrofit, in certified quality, in all variations, and suited to almost every special case.



DEUTSCH "DT SERIES" PLUG CONNECTORS

The concept combines high quality materials with a connecting system characterised by both reliability and easy handling. Thanks to these properties, the product range is particularly suited to applications where maximum performance is required with a minimum number of disruptions, despite tough environmental conditions.

The symmetrical star crimp process allows a gas-tight connection which is characterised by high resistance to temperature and oxidation-based fluctuations in resistance. The housing locking mechanism with integrated click-in function guarantees a quick and secure connection with a strong grip. The "wedgelocks" used for secondary locking facilitate precise, strain-resistant alignment of the contacts and are "clicked" into position on the contact side of the DT housing.



Range advantages

- Environmental sealing – maximum protection from external influences
- High quality housing material
- Strong, gas-tight crimp connections

SUPERSEAL CONNECTORS

Comply with the guidelines in IEC 529 as well as DIN ISO 40050 and have been given protection rating IP class 67, which guarantees maximum protection from water and dust penetration. The quality of the SUPERSEALS makes them ideal wherever other interconnection systems reach their limits due to adverse pressure or humidity conditions.

Range advantages

- OEM quality
- Reliable electrical connection
- Maximum protection from external influences





HELLA RELAYS





You can trust our quality relays

- Production expertise: HELLA produces more than 100 million units per year in its own facilities. Thanks to optimised production at an attractive price for customers and with one of the lowest failure rates in the whole branch.
- Flexibility: Large volumes are produced fully automatically, smaller volumes semi-automatically. This means we are in a position to change over quickly to semi-automatic production.
- Bespoke equipment customers: HELLA develops and produces relays for AGCO, Claas, Daimler AG, Ford, VW, GM, JCB, Opel/Vauxhall, Nissan, John Deere, Chrysler, Jaguar/Land Rover, and others. Many of our customer relationships have existed for decades.
- Production locations: Xiamen (China); Berlin (Deutschland).

Relay applications in buses

ABS, starters, audio systems, indicators, stoplights, injection pump, fanfares, horns, interior lighting, air-conditioning system, signage control, rear fog lights, wiper systems, headlights, seat heating, seat adjustment, hazard warning lights ...

MINI RELAY 24 V – MAKE CONTACT WITH HOLDER

Product photo	Resistive load				Inductive load				Bulb load				Pin arrangement	Circuit diagram	Coil resistance [ohm]	Parallel resistance [ohm]	Order number
	N/O contact		Break contact		N/O contact		Break contact		N/O contact		Break contact						
	●	▲	●	▲	●	▲	●	▲	●	▲	●	▲					
	15	100	–	–	15	100	–	–	15	100	–	–	A	S10	315	–	4RA 003 530-051 with fuse link 15 A
	20	150	–	–	16	100	–	–	16	135	–	–	B	S2	305	1200	4RA 007 957-011
	20	250	–	–	16	100	–	–	16	250	–	–	B2	S6	350	–	4RA 933 791-071 with dual-output
	30	250	–	–	16	100	–	–	16	250	–	–	A	S1	360	–	4RA 965 400-031





●



Rated switching current (A) at 80°C ambient temperature

▲


Number of switching operations (thousands)

MINI RELAY 24 V, MAKE CONTACT WITHOUT HOLDER

Product photo	Resistive load				Inductive load				Bulb load				Pin arrangement	Circuit diagram	Coil resistance [ohm]	Parallel resistance [ohm]	Order number
	N/O contact		Break contact		N/O contact		Break contact		N/O contact		Break contact						
	20	150	–	–	16	100	–	–	16	135	–	–	B	S2	305	1200	4RA 007 957-001
	40	100	–	–	30	100	–	–	30	100	–	–	B3	S1	360	–	4RA 933 321-021
	20	250	–	–	16	100	–	–	16	250	–	–	B	S1	350	–	4RA 933 332-111
	20	250	–	–	16	100	–	–	16	250	–	–	B2	S6	350	–	4RA 933 791-081

 Rated switching current (A) at 80°C ambient temperature
 Number of switching operations (thousands)






MINI RELAY 24 V, CHANGE-OVER CONTACT WITH HOLDER

Product photo	Resistive load				Inductive load				Bulb load				Pin arrangement	Circuit diagram	Coil resistance [ohm]	Parallel resistance [ohm]	Order number
	N/O contact	Break contact			N/O contact	Break contact			N/O contact	Break contact							
	●	▲	●	▲	●	▲	●	▲	●	▲	●	▲					
	20	150	10	100	16	100	10	100	16	135	5	135	B1	W2	305	1200	4RD 007 903-011
	20	100	10	100	16	100	8	100	15	135	5	135	B1	W1	350	–	4RD 933 332-061
	20	100	10	100	16	100	8	100	15	135	5	135	B1	W3	350	–	4RD 933 332-081 with parallel diode

● Rated switching current (A) at 80°C ambient temperature

▲ Number of switching operations (thousands)

MINI RELAY 24 V, MAKE CONTACT WITHOUT HOLDER

Product photo	Resistive load				Inductive load				Bulb load				Pin arrangement	Circuit diagram	Coil resistance [ohm]	Parallel resistance [ohm]	Order number
	N/O contact		Break contact		N/O contact		Break contact		N/O contact		Break contact						
	●	▲	●	▲	●	▲	●	▲	●	▲	●	▲					
	20	150	10	100	16	100	10	100	16	135	5	135	B1	W2	305	1200	4RD 007 903-001
	20	150	10	100	16	100	10	100	16	135	5	135	B1	W2	305	–	4RD 007 903-021 with parallel diode
	20	100	10	100	16	100	8	100	15	135	5	135	B1	W1	350	–	4RD 933 332-071
	20	100	10	100	16	100	8	100	15	135	5	135	B1	W3	350	–	4RD 933 332-091 with parallel diode
	20	100	10	100	16	100	8	100	15	135	5	135	B1	W2	350	1200	4RD 933 332-261



●

Rated switching current (A) at 80°C ambient temperature

▲

Number of switching operations (thousands)

HIGH-POWER RELAY 24 V, MAKE CONTACT WITH HOLDER/WITHOUT HOLDER

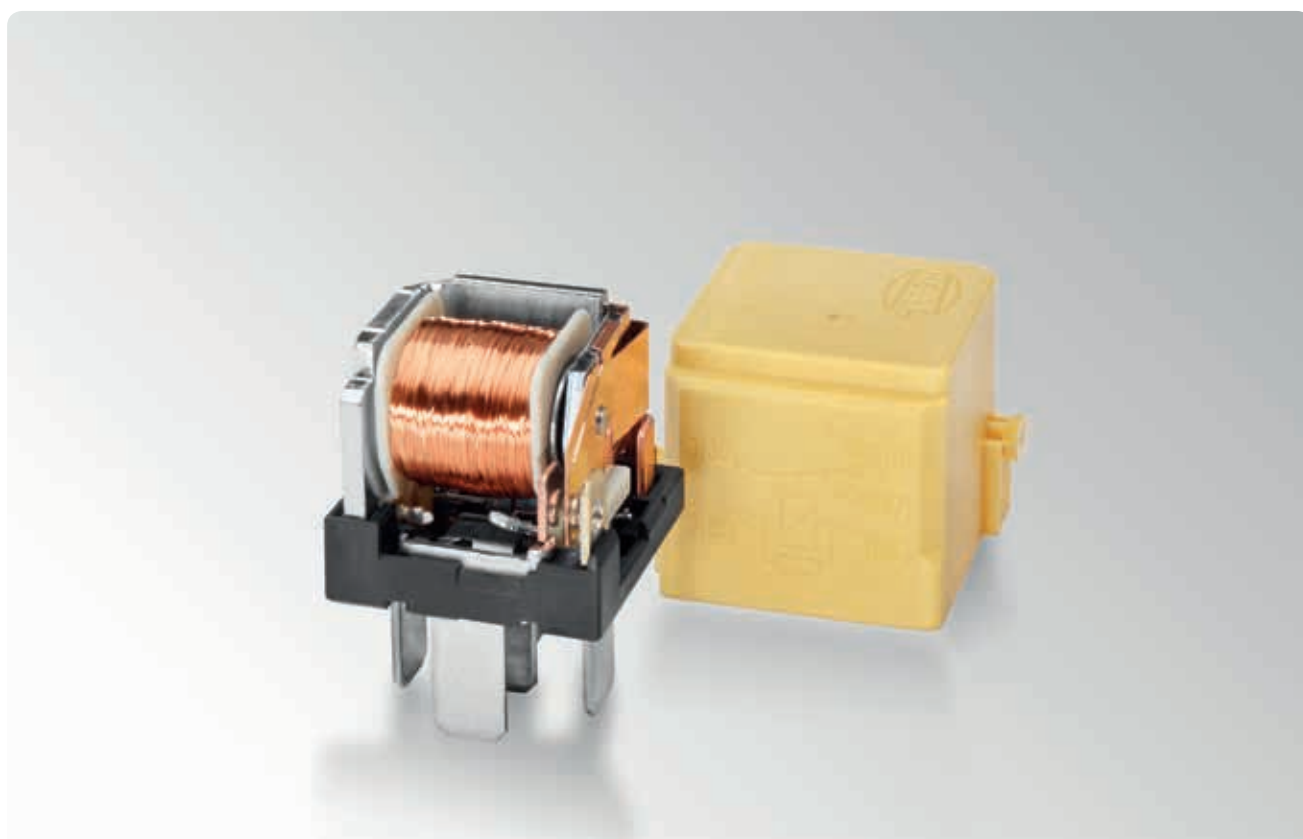
Product photo	Resistive load				Inductive load				Bulb load				Pin arrangement	Circuit diagram	Coil resistance [ohm]	Parallel resistance [ohm]	Order number
	N/O contact		Break contact		N/O contact		Break contact		N/O contact		Break contact						
	●	▲	●	▲	●	▲	●	▲	●	▲	●	▲					
	60	100	–	–	50	100	–	–	25	50	–	–	B3	S1	310	–	4RA 003 437-091
	60	100	–	–	50	100	–	–	25	50	–	–	B3	S1	310	–	4RA 003 437-121

●

Rated switching current (A) at 80°C ambient temperature

▲

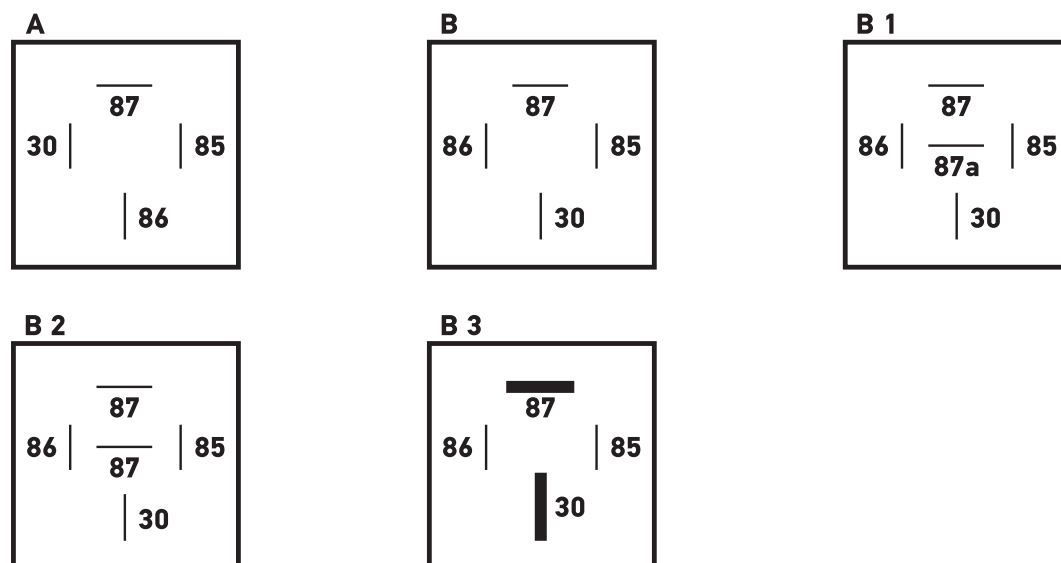
Number of switching operations (thousands)



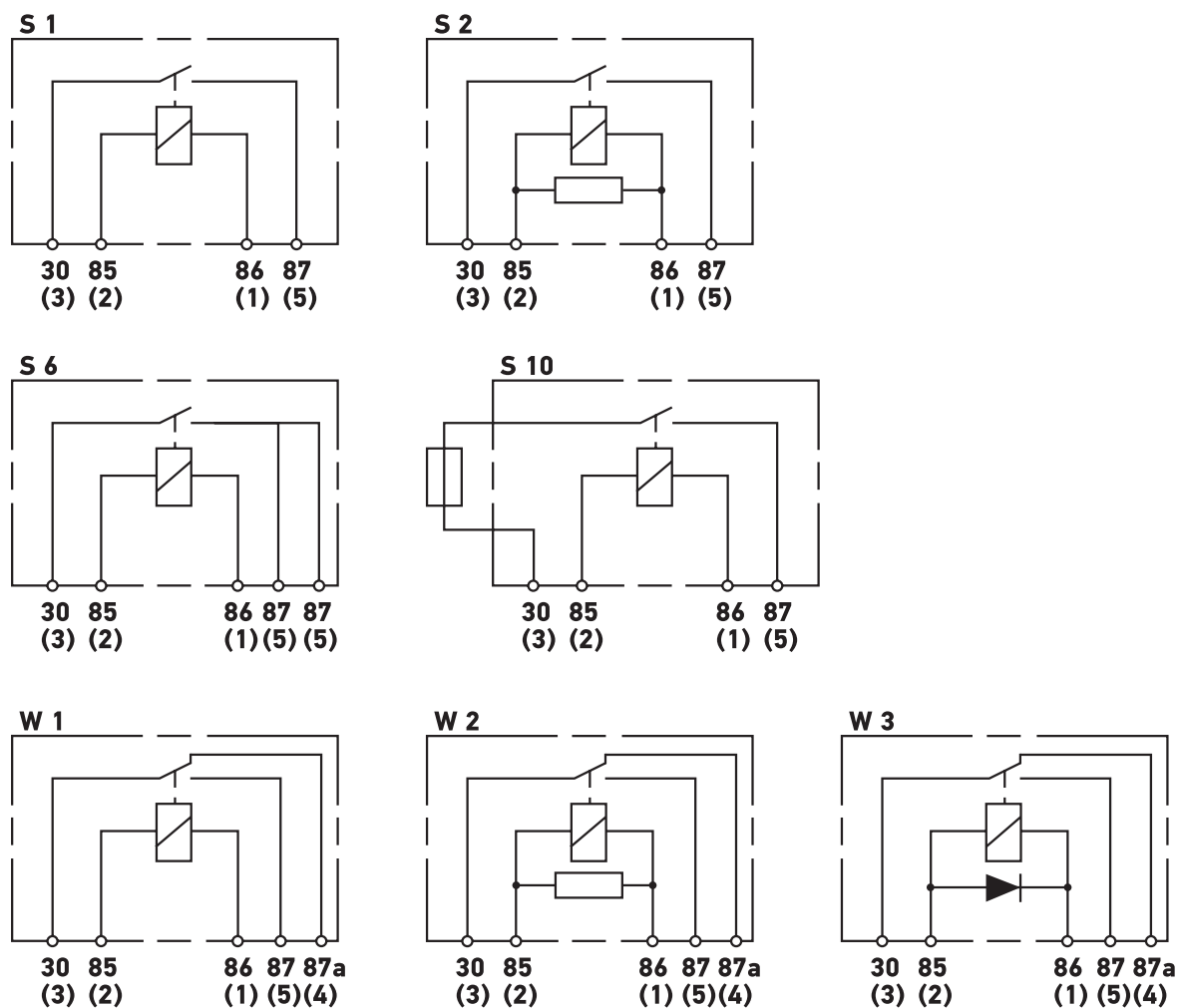
TECHNICAL DATA FOR THE RELAYS – OVERVIEW

	Mini relays 24 V		High-power relay 24 V
	4RA 007 957-... 4RD 007 903-... 4RA 003 530-...	4R. 933 332-... 4RA 933 791-... 4RA 965 400-...	4RA 003 437-...
General specifications			
Test voltage	27 V	27 V	27 V
Test temperature	+23°C ± 5°C	+23°C ± 5°C	+23°C ± 5°C
Permissible ambient temperature	-40°C ... +125°C	-40°C ... +85°C	-40°C ... +85°C
Storage temperature	-40°C ... +130°C	-40°C ... +125°C	-40°C ... +125°C
Blade terminal (according to ISO 8092)			
30	6,3 x 0,8 mm	6,3 x 0,8 mm	9,5 x 1,2 mm
85	6,3 x 0,8 mm	6,3 x 0,8 mm	6,3 x 0,8 mm
86	6,3 x 0,8 mm	6,3 x 0,8 mm	6,3 x 0,8 mm
87	6,3 x 0,8 mm	6,3 x 0,8 mm	9,5 x 1,2 mm
87a	6,3 x 0,8 mm	6,3 x 0,8 mm	–
Coil specifications			
Rated voltage	24 V	24 V	24 V
Operating voltage range at permissible ambient temperature	16 V ... 30 V	16 V ... 30 V	16 V ... 30 V
Pick-up voltage at test temperature	< 17 V	< 15,6 V	< 17 V
Drop-out voltage at test temperature	> 3,5 V	> 3,5 V	> 5 V
Coil resistance at test temperature without parallel component	305 / 315 Ohm ± 10 %	350 / 360 Ohm ± 10 %	310 Ohm ± 10 %
Response time	< 10 ms	< 10 ms	< 10 ms
Drop-out time	< 10 ms	< 10 ms	< 10 ms
Insulation resistance Coil circuit/load circuit	> 100 MOhm	> 100 MOhm	> 100 MOhm
Breakdown strength Coil circuit/load circuit	> 1000 VDC	> 1000 VDC	> 1000 VDC
Contact details			
Contact voltage drop-out at test voltage ...			
... in new state N/O contact	< 10 mV / A	< 10 mV / A	< 3 mV / A
... in new state break contact	< 10 mV / A	< 15 mV / A	–
... after service life test N/O contact	< 10 mV / A	< 15 mV / A	< 10 mV / A
... after service life test break contact	< 15 mV / A	< 20 mV / A	–
Residual current	1 A / 6 V	1 A / 6 V	1 A / 6 V
Mechanical design life	10 ⁷	10 ⁷	10 ⁷

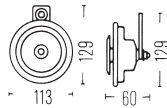
CONNECTOR DIAGRAMS



CIRCUIT DIAGRAMS



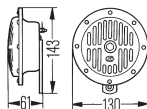
ACOUSTIC SIGNAL DEVICES



SIGNAL HORN B36

Sound pressure level at 2 m distance: 116 dB(A). Power output: 72 W per horn. Galvanised metal housing, black membranes. Bracket on the horn for M8 fastening screw. With 6.3 mm blade-terminals, protected. With teflon pill to protect against humidity.

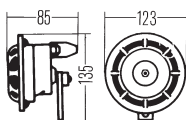
24 V, 335 Hz	3BA 002 768-441
24 V, 400 Hz	3BA 002 768-201



SUPERTONE HORN DL50

Sound pressure level at 2 m distance: 114 dB(A). Black, varnished metal housing with protective grid. Bracket on the horn for M8 fastening screw. Power output: 84 W per horn,

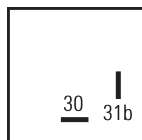
24 V, 310 Hz	3CA 004 811-021
24 V, 380 Hz	3CA 004 811-031



SUPERTONE HORN B133

Metal housing and protective grid coated black. Bracket on the horn for M10 fastening screw. With 6.3 mm blade-terminals, protected. With teflon pill to protect against humidity. With interference-suppression capacitor. Power output: 78 W

24 V, 375 Hz	3AF 003 399-327
24 V, 500 Hz	3AF 003 399-337



BUZZER WITH BRACKET

2 blade couplings 6.3 mm, frequency: 500 Hz; sound level: 70 dB(A) (1 m). Operating temperature: -40°C to +85°C

24 V	3SB 003 985-061
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ACOUSTIC SIGNAL DEVICES

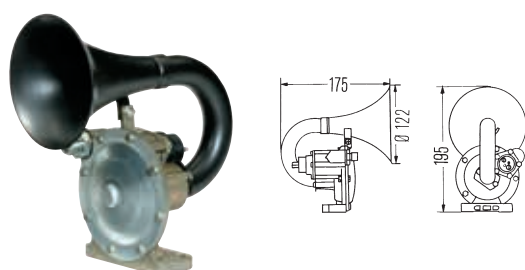


COMPRESSED AIR TRUMPET HORN

For vehicles with pneumatic brake system. Suitable for Ø 10 mm compressed air tube. Stable die-cast housing. Grey sound funnel made of plastic. 2 holes for M10 fastening screws. With 6.3 mm blade-terminals, open. Sound pressure level at 2 m distance: 118 dB(A). Power output: 48 W at 24 V. Compressed air range: 6–8.3 bar.

24 V, 400 Hz

3PA 004 206-011

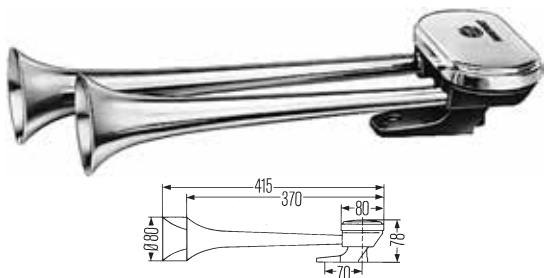


COMPRESSED AIR TRUMPET HORN

With rounded sound funnel. Suitable for Ø 8 mm compressed air tube. With Ø 4 mm round connector, and suppression diode. Power consumption: 108 W

24 V, 350 Hz

3PA 004 206-031

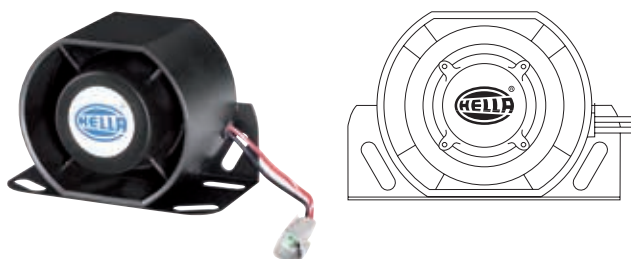


COMPRESSED AIR TRUMPET HORN

For vehicles with pneumatic brake system. With 2 sound funnels. Chrome-plated cap and sound funnel, matt black foot. Air pressure 4–8.5 bar. 300 Hz (sound funnel 295 mm long), 320 Hz (sound funnel 340 mm long).

24 V

3PB 005 411-001

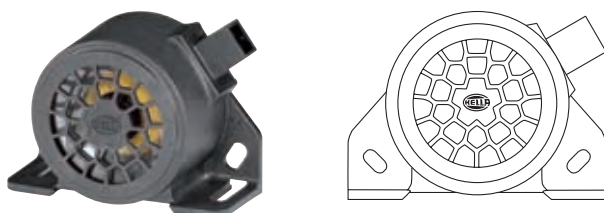


REVERSING AND WARNING ALARM

German DT04-2P, 12–24 V, frequency: 1,200 Hz, sound level: 87–112 dB (A) (1.2 m), Housing dimensions (L x W x H): 146 x 78 x 101 mm, automatic adjustment to ambient noise levels.

12–24 V

3SL 996 139-202



REVERSING AND WARNING ALARM

German DT04-2P, 12–24 V, frequency: 1,200 Hz, sound level: 97 dB (A) (1.2 m), Housing dimensions (L x W x H): 101 x 46 x 74 mm

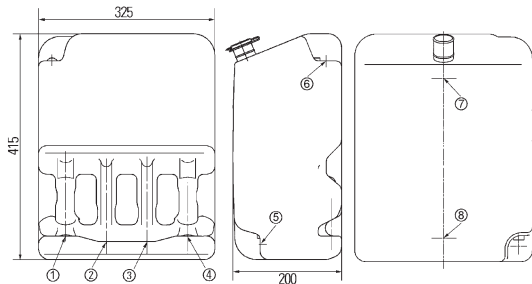
12–24 V

3SL 009 148-011

WATER RESERVOIR



Example for version -017



WATER RESERVOIR

Contents: 20 l, black,
Ø 35 mm pump holder for positions 1-4.

with 3 washer fluid pumps, 24 V

Position 1: closed
Position 2: Ø 11 mm hole with pump 8TW 005 496-051
Position 3: Ø 11 mm hole with pump 8TW 005 496-051
Position 4: Ø 20 mm hole with pump 8TW 004 764-041
Position 5-8: closed

20 units **8BW 007 757-007**

with 2 washer fluid pumps, 24 V

Position 1: closed
Position 2: Ø 11 mm hole with pump 8TW 005 496-051
Position 3: Ø 11 mm hole with pump 8TW 005 496-051
Position 4-8: closed

20 units **8BW 007 757-017**

with 2 washer fluid pumps, 24 V

Position 1: closed
Position 2: Ø 11 mm hole with pump 8TW 005 496-051
Position 3: Ø 11 mm hole with pump 8TW 005 496-051
Position 4-6: closed
Position 7-8: Ø 11 mm hole, fill level indicator

20 units **8BW 007 757-027**

with 2 washer fluid pumps, 24 V

Position 1: closed
Position 2: Ø 11 mm hole
Position 3: Ø 11 mm hole
Position 4: closed
Position 5: Level switch 6PR 005 345-017
Position 6: Ø 11 mm hole, one-way valve 9XL 564 781-002
Position 7-8: Ø 11 mm hole, fill level indicator

20 units **8BW 007 757-037**

with 2 washer fluid pumps, 24 V

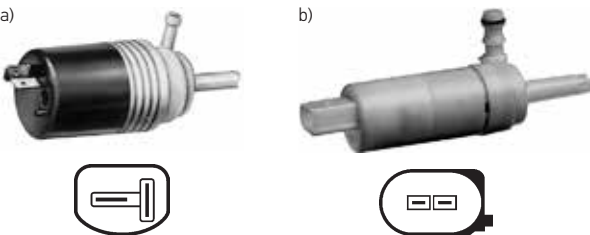
Position 1: closed
Position 2: Ø 11 mm hole with pump 8TW 005 496-051
Position 3: Ø 11 mm hole with pump 8TW 005 496-051
Position 4: Ø 20 mm hole, grommet with stopper
Position 5-8: closed

20 units **8BW 007 757-047**

with 1 washer liquid pump, 24 V

Position 1: closed
Position 2: Ø 11 mm hole with pump 8TW 005 496-051
Position 3-8: closed

20 units **8BW 007 757-067**



WASHER FLUID PUMPS

a) Performance: 2 bar, 1 l/min,
Ø Input: 7 mm,
Ø Output: 6 mm

24 V **8TW 005 496-051**

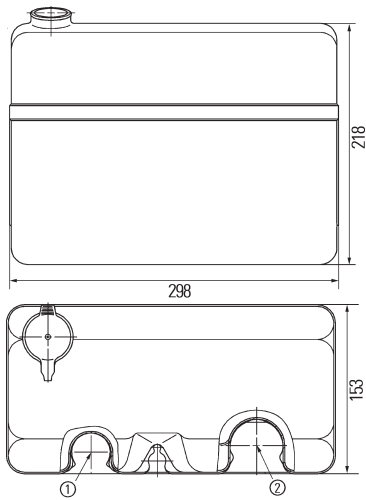
Plugs **8JD 008 151-021**

b) Lens wiper system, performance: 2.5 bar, 7.2 l/min, type Mono
Ø housing: 35/46 mm,
Ø Input: 10.5 mm,
Ø Output: 11 mm

24 V **8TW 007 540-391**

Plugs **VAG: 1J0 973 722 A**

WATER RESERVOIR



WATER RESERVOIR

Content: 8 l, white,
Ø 35 mm pump holder for position 1, Ø 35 mm for position 2.

with washer fluid pump, 24 V

Position 1: Ø 11 mm hole
Position 2: Ø 20 mm hole, open

24 units

8BW 003 966-007

with washer fluid pumps, 24 V

Position 1: Ø 11 mm hole
Position 2: closed

1 unit

8BW 003 966-037

with washer fluid pump, 24 V

Position 1: Ø 11 mm hole
Position 2: Ø 11 mm hole, open

1 unit

8BW 003 966-057

with washer fluid pump, 24 V

Position 1: Ø 11 mm hole
Position 2: Ø 20 mm hole, grommet with stopper

28 units

8BW 003 966-067

For accessories, HELLA is your go-to partner

Our extensive range of quality accessory components supplement our comprehensive product range and enhance the functionality of individual products.

HELLA offers a continuously growing range of products that includes sophisticated, practical technologies, particularly in the electrical and electronics areas. We make something special from norm parts: easy to install, with tested quality, in all versions and equipped for almost any application.

For many years, our competence has been reflected in our highly diverse innovations. Our wide selection of products makes us one of the leading providers on the market.

PLUGS



UNIVERSAL CONNECTOR

2-pin with screwed tension relief and 8 A fuse, suitable for cigarette lighters and standard sockets (ISO 4165) screw connection up to 2.5 mm

6–24 V

8JA 007 589-001



PLUGS

2-pin in accordance with ISO 4165

6–24 V

8JA 002 262-001



PLUGS

7-pin in accordance with ISO 1724, plastic version, screw connections

12 V

8JA 001 930-003



PLUGS

13-pin in accordance with ISO 11 446, plastic version, screw connections, with rubber grommet

12 V

8JA 005 951-001



MINI-SHORT ADAPTER

from 7-pin socket (ISO 1724) on the traction vehicle to 13-pin connector (ISO 11 446) on the trailer

12 V

8JA 008 981-001



CABLE ADAPTER

from 13-pin socket (ISO 11 446) on the traction vehicle to 7-pin connector (ISO 11 446) on the trailer, with 250 mm cable

12 V

8JA 005 952-001



SUPER-SHORT ADAPTER

from a 13-pin socket (ISO 11 446) on a towing vehicle to a 7-pin plug (ISO 11 446) on a trailer

12 V

8JA 008 969-001

SOCKETS


CONNECTOR SOCKET

7-pin in accordance with ISO 1724, plastic version, screw connections, 12 V

12 V

8JB 001 943-003


CONNECTOR SOCKET

13-pin in accordance with ISO 11 446, plastic version, screw connections, 12 V

with rubber grommet and rubber seal in hinged cover

8JB 005 949-001

with rear fog light switch-off

8JB 005 949-011


SOCKET

2-pin in accordance with ISO 4165, without cover, 6.3 mm blade-terminals,
Load capacity: max. 16 A

6–24 V

8JB 001 946-072


SOCKET

2-pin in accordance with ISO 4165, 6.3 mm blade terminals
Load capacity: max. 16 A, 6–24 V

with spring-loaded cover

8JB 001 946-082


SOCKET

2-pin in accordance with ISO 4165, 6.3 mm blade terminals
Load capacity: max. 16 A, 6–24 V

with snap-on cover

8JB 001 946-092


SURFACE-MOUNTED SOCKET

2-pin according to ISO 4165, screw connections
Load capacity: max. 16 A

6–24 V

8JB 004 123-001


POWER SOCKET

2-pin with cover and clamping sleeve, suitable for cigarette lighter socket, 6.3 mm blade terminals
Load capacity: max. 16 A

6–24 V

8JB 008 023-001

ACCESSORIES



MINI-CHARGER BATTERY CHARGER AUTOMATIC 6 / 12 V

CE-certified, 230 V/50 Hz/10 W,
Charging current at 6 V = 0.8 A or at 12 V = 0.6 A, automatic switch-off,
suitable for gel batteries, with reverse polarity protection

8ES 006 266-011



HAZARD WARNING LIGHT MODEL 3003 ACCU

when the engine is running, the rechargeable battery is charged through contacts in the charging bracket. Automatic 12 / 24 V
vehicle electric system voltage changeover, operating time in flashing mode 40 hours or 7 hours with work light, charging
bracket and rechargeable lead-gel battery included in delivery

type-tested

2XW 007 146-011



HAZARD WARNING LIGHT MODEL 3003

with fastening bracket (for battery operation via 5 mono cells, not included)

type-tested

2XW 007 146-001



BOXES OF SPARE BULBS

A must for every responsible camper. The assortment contains one bulb for each of the most common lighting functions
as well as various spare fuses.

H4, 12 V

8GJ 002 525-913

H9, 12 V (not shown)

8GH 007 157-901



HAND LAMP

with 11 Watt PL tubes, impact-proof protective tube,
handle and cap made of oil- and petrol-resistant rubber,
length 44 cm, protective rating IP 64

Protection class II

2XM 001 974-051

HELLA WORLDS

Welcome to our Original Equipment worlds.

On this website, you can find information about technology, new products and possibilities for equipping your vehicle:



[www.hella.com / bus](http://www.hella.com/bus)

We understand what you want: find out more about our solutions for modern buses and coaches.

HELLA MOBILE APPS



With our HELLA apps, you can interact with the products and make use of our practical services when using your smartphone or tablet while on the road.

You can try our products before you buy with the "HELLA Horns" app. Select your vehicle from a list of 8 vehicle types to see which products are suitable for you. There is a special feature to complement the downloadable information and the technical data: you can listen to the sound of each of the horns and fanfares. This allows you to choose between high and low-pitched tones and to add or exclude background sound typical of the road.

Let yourself be drawn into the world of HELLA horns and fanfares.

www.hella.com/app

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