Product Overview

Rugged Electronics & Lighting Solutions for **Defense Vehicles**



FORVIA

HELLA

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NATO STOCK NUMBERS (NSN) – ENABLING EFFICIENT MILITARY LOGISTICS AND LIFECYCLE SUPPORT

To ensure seamless integration into military supply chains, FORVIA HELLA products are fully aligned with the **NATO Stock Number (NSN)** system. Beyond the manufacturer's part number, NSNs serve as the standard reference for logistics, maintenance, and spare-parts management across depot organizations and tactical vehicle fleets.

Once assigned by the relevant authorities, **NSNs** are linked directly to FORVIA HELLA products, enabling efficient procurement, simplified logistics processes, and reliable lifecycle support throughout deployment, maintenance, and overhaul phases. The applicable NATO Stock Numbers are shown alongside the FORVIA HELLA article numbers in the product descriptions. A detailed cross-reference overview is provided starting on page 80.

PROVEN EXPERTISE. MISSION-READY TECHNOLOGY. RELIABLE PARTNERSHIP.

FORVIA HELLA has been supplying lighting and electronics solutions for military and security applications for many years. Combining deep automotive OEM expertise with a thorough understanding of defense-specific requirements, we develop innovative, robust solutions for demanding, mission-critical applications.

From complex vehicle architectures to reliable series products, we bring together the technology and expertise needed to enable next-generation, high-performance and resilient military platforms.



DECADES OF DEFENSE EXPERIENCE
you can rely on.

SCALABLE PRODUCTION
backed by sovereign supply chains.

AUTOMOTIVE TECHNOLOGY TRANSFER
adapted for defense.

CO-DEVELOPMENT
from customer requirements to series production.

MILITARY STANDARDS & CERTIFICATION KNOW-HOW
Expertise in MIL and VG standards, certification processes and defense requirements.

CUSTOMER CENTRICITY
with a **single point of contact** for all needs.



STANDARDS

FORVIA HELLA has many years of experience equipping vehicles of national and international armed forces with lighting and electronics. While products intended for civil road traffic fall under the scope of the UN regulations, special-purpose solutions with unique lighting functions – such as camouflage lighting – follow specific military requirements.

In doing so, FORVIA HELLA considers not only the **German military standards (VG standards)** but also **international MIL standards** as well as **NATO norms defined in the STANAG 4381.**

The VG standards are compatible with STANAG and are recognized not only in Germany but also in many other European countries and numerous additional regions worldwide. MIL standards likewise enjoy broad international acceptance and application.

Our products have complied with all these demanding military standards for decades. Developed by experts in the defense sector, they ensure reliable operation even under harsh conditions.

VG STANDARDS FOR LIGHTING

VG 96 957-2
Electrical systems for power driven vehicles – Part 2: Selection of components and interface description, interface standard

VG 96 945-5
Lighting and light-signalling devices on motor vehicles – Part 5: Blackout stop and blackout rear lamp, detail standard

VG 96 945-6
Lighting and light-signalling devices on motor vehicles – Part 6: Blackout driving light, detail standard

VG STANDARDS FOR EMC

VG 95 371-1
Electromagnetic compatibility (EMC) including electromagnetic pulse (EMP) and lightning protection – Fundamentals – Part 1: Circuit symbols, selection

VG 95 371-10
Electromagnetic compatibility (EMC) including electromagnetic pulse (EMP) and lightning protection – Fundamentals – Part 10: Threat levels for NEMP and lightning

VG 95373-10
Electromagnetic compatibility (EMC) – Electromagnetic compatibility of equipment – Part 10: Test procedure for conducted emissions (current)

VG 95 373-20
Electromagnetic Compatibility (EMC) – Electromagnetic compatibility of equipment – Part 20: Limits for conducted emissions (current)

MIL STANDARDS FOR LIGHTING

MIL-STD-810
Environmental Testing (Very Important for Lighting Devices). This is the primary standard for environmental qualification.
Covers:
- Temperature extremes (high/low)
- Thermal shock
- Vibration
- Shock
- Humidity
- Sand & dust
- Rain
- Salt fog
- Altitude

Almost all military lighting must demonstrate compliance to relevant MIL-STD-810 test methods.

MIL-STD-461
EMI/EMC Requirements. Applies to powered lighting systems (especially aircraft, naval, and vehicle lighting).
Covers:
- Conducted emissions
- Radiated emissions
- Susceptibility testing

Critical for:
- Aircraft lighting
- Naval lighting
- Tactical vehicle lighting

MIL-STD-704
Aircraft Electrical Power Characteristics. If the lighting device is aircraft-installed, it must tolerate:
- Voltage transients
- Frequency variations
- Power interruptions

MIL-STD-1472
Human Factors / Ergonomics
Relevant for:
- Cockpit lighting
- Panel backlighting
- Operator controls

Ensures proper:
- Illumination levels
- Color coding
- Night vision compatibility

MIL-STD-3009
NVIS Compatibility. Critical for:
- Aircraft interior lighting
- Tactical vehicle lighting

Defines:
- NVIS radiance limits
- Color requirements (NVIS Green A/B)
- Filtering requirements

MIL-PRF-22885
Lighting Fixture Performance Specification
Covers:
- General performance requirements
- Construction
- Testing
- Qualification

Often referenced for shipboard and military facilities lighting.

MIL-DTL-16377
Shipboard Lighting Fixtures. Used for:
- Naval vessel lighting
- Marine environments

Addresses:
- Corrosion resistance
- Watertight integrity
- Shock resistance

Important: Application drives the Specification
For example: Application Typical MIL Specs
Aircraft exterior light MIL-STD-810, MIL-STD-461, MIL-STD-704, MIL-STD-3009
Cockpit panel light MIL-STD-1472, MIL-STD-3009
Tactical flashlight MIL-STD-810
Naval light fixture MIL-DTL-16377, MIL-STD-810

NATO regulates the requirements in its Standardisation Agreement (STANAG). STANAG 4381 is one relevant standard that deals with „Blackout Lighting Systems for Tactical Land Vehicles".

IP PROTECTION CLASSES

What is an IP protection class?

IP stands for International Protection. The IP protection classes are defined in DIN 40050, Part 9. The purpose of this standard is to precisely specify the resistance of electrical equipment components in motor vehicles against the ingress of solid foreign objects, dust, and water. The different degrees of protection relevant for lighting and signalling systems are explained below.



IP 44
Protection against solid objects ≥ 1.0 mm and splashing water.



IP 5K4K
Protection against dust ingress and high-pressure water exposure.



IP 67
Dust-tight and protected against temporary immersion.



IP 68
Dust-tight and protected against continuous immersion.



IP X9K
Protection against high-pressure and steam-jet cleaning.



SCALABLE PRODUCTION SETUP FOR FUTURE-READY VOLUME EXPANSION

EUROPEAN SOVEREIGNTY & SUPPLY SECURITY

Independent European manufacturing footprint ensures reliable supply and strategic autonomy.

SCALABLE VOLUME RAMP-UP

Flexible and efficient production setup from prototype to high-volume series production.

SECURE END-TO-END VALUE CHAIN

Protected intellectual property, controlled processes and trusted partnerships.

EXPORT CONTROL EXPERTISE

Reliable. Compliant. Globally Connected.
The devices described in this brochure feature industry-specific technical characteristics and functionalities beyond standard UN requirements and are subject to statutory export control regulations administered by the German Federal Office for Economic Affairs and Export Control (BAFA).

Key Benefits

- ✓ BAFA-compliant processes
- ✓ Dedicated export control management
- ✓ Defense-specific documentation support
- ✓ Reliable international project execution

More information:
Federal Office for Economic Affairs and Export Control (BAFA)

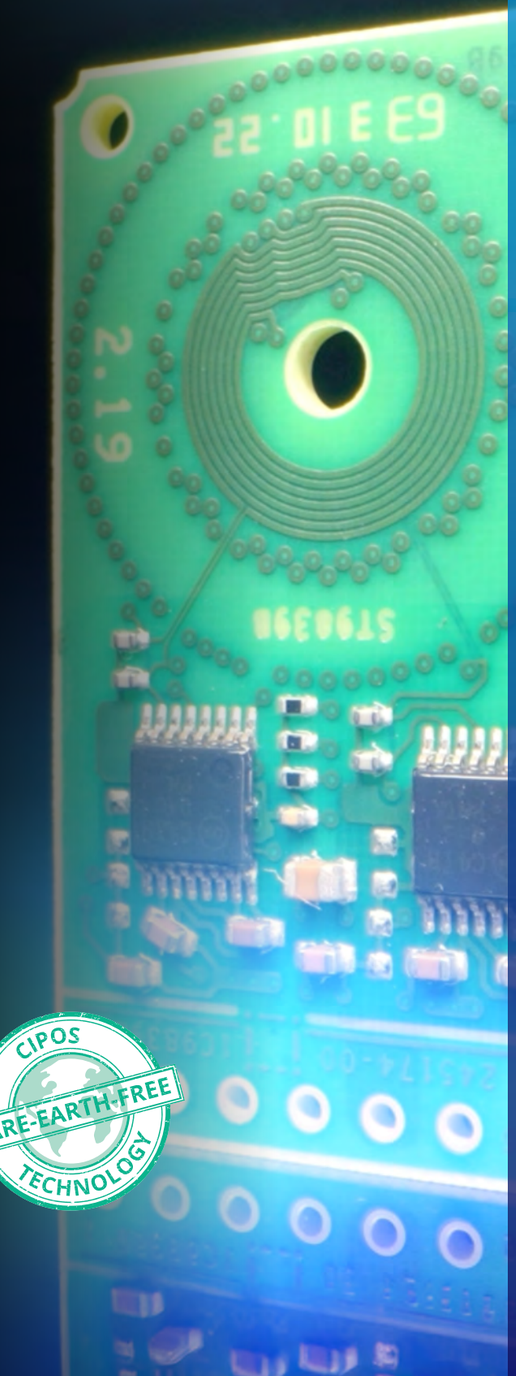
ELECTRIC & ELECTRONICS

We offer a broad spectrum of advanced electrical and electronic solutions that keep vehicles reliable, efficient, and mission-ready at all times. Our state-of-the-art electronic products enable intelligent energy management, precise battery monitoring, and powerful environment and object detection – including radar-based systems. Technologies such as CIPOS ensure maximum accuracy, robustness, and functional safety, even in demanding applications.

In addition, our portfolio includes a wide range of proven electrical components: from washer pumps and sensors to signal devices, reliable electrical connections, and intuitive control modules. Operating discreetly in the background, they perform essential functions within the vehicle and ensure operational safety, system efficiency, and long-term readiness – even under challenging conditions.

CONTENT

- Angular Sensors
- Pedals
- Actuators
- Pumps
- Radar
- Energy Management
- Acoustic Warning Systems
- Switches
- Electrical Connections



CIPOS TECHNOLOGY

PRECISE, RELIABLE, AND BUILT FOR DEMANDING APPLICATIONS

Products equipped with CIPOS technology deliver exceptionally accurate measurements of both rotary and linear positions, making them ideal for safety-relevant applications in commercial and off-highway vehicles. Whether in steering systems, actuators, pedal modules, or advanced chassis functions, CIPOS ensures precise, stable, and reliable signal output – even under extreme environmental conditions. This performance is backed by decades of field experience and more than one billion CIPOS-based applications worldwide.

WHAT MAKES CIPOS UNIQUE?

Robust, Redundant Measurement Architecture
CIPOS uses a multi-channel inductive structure that enables redundant measurements. This increases functional safety and reliability – especially in critical systems where precise position information is crucial.

Insensitive to Magnetic Fields
Because CIPOS works entirely without magnets, it is unaffected by magnetic fields or electromagnetic interference. This ensures accurate, stable measurements even in harsh E/E environments and contributes to rare-earth-free sensor designs.

High-Precision Inductive Sensing
Based on a contactless, inductive measuring principle, CIPOS delivers extremely accurate position signals – down to the smallest angular changes. The technology maintains its precision across a wide temperature range from - 40°C to +150°C, ensuring reliable performance throughout the sensor's lifetime.

Contactless and Wear-Free Operation
With no mechanical contact or friction, CIPOS provides a wear-free, long-lasting measurement solution. It remains highly stable under temperature fluctuations, vibrations, and mechanical stress-making it ideal for off-road, industrial, and heavy-duty environments.

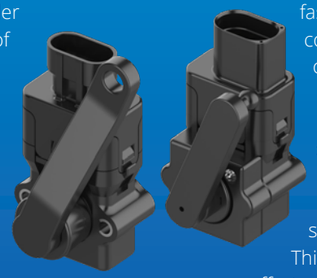
Mechanical and Chemical Robustness
CIPOS-based products are engineered to withstand challenging environmental influences such as dirt, moisture, chemicals, and shock loads. Their mechanical robustness is proven across a wide range of actuator and sensor applications, from pedal modules to vehicle level sensors and coolant valve control systems.

UNIVERSAL ANGULAR SENSOR

The Universal Angular Sensor (UAS) from FORVIA HELLA is a newly developed, modular rotary angle sensor for precise and reliable measurement of angular positions.

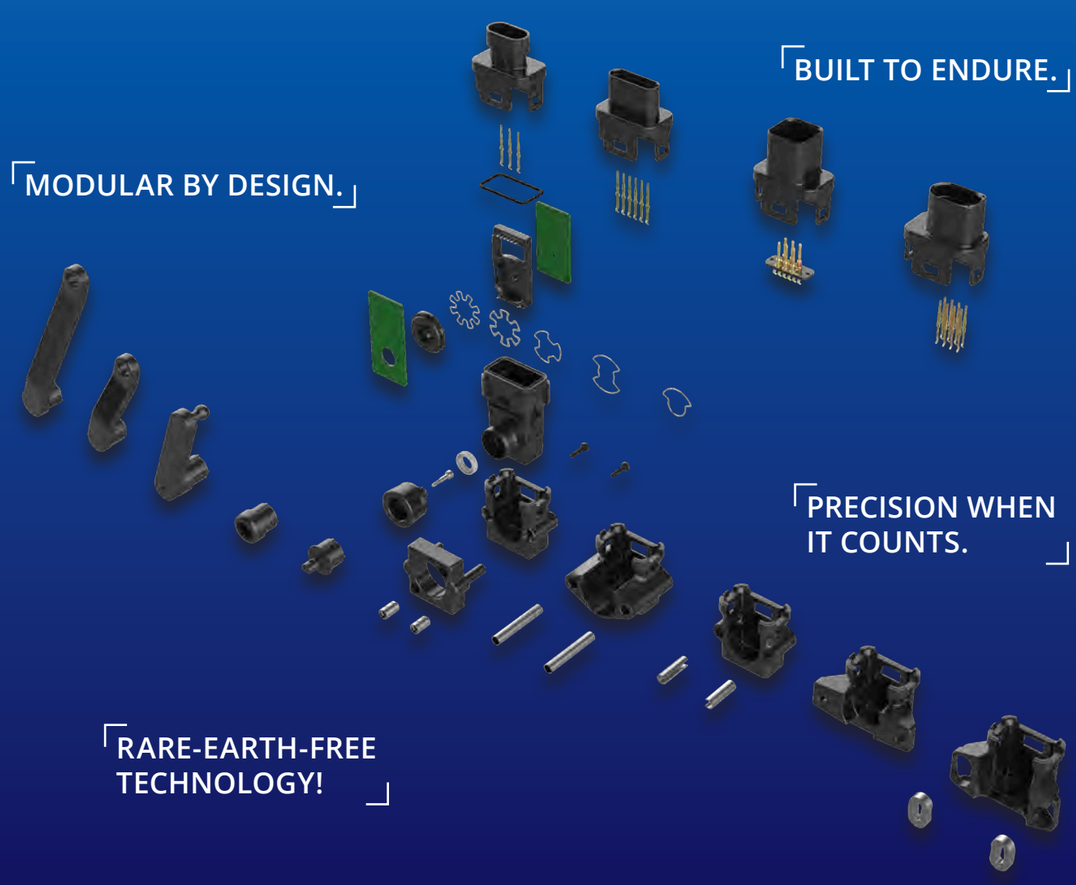
Modularity meets precision!

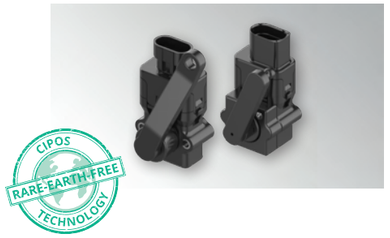
It uses proven **CIPOS** technology (Contactless Inductive Position Sensor), which enables a contactless, inductive measuring principle. This means that the sensor operates without wear and is extremely resistant to external magnetic fields and interference, even under extreme conditions. With its combination of high precision, flexibility and robustness, the UAS sets new standards in modern angle measurement across numerous off-highway applications.



Thanks to proven CIPOS technology, our new rotary angle sensor meets the industry's need for robust and modular measurement solutions. Here, we draw on our experience from the more than 1 billion CIPOS sensors produced to date, which are successfully used in a wide variety of applications.

Mechanically, the sensor consists of a base sensor that can be configured with different rotor elements, circuit boards and connections as required. This modular design allows different lever arms or profiled shaft connections, fasteners and further connectors to be combined so that the sensor can be optimally adapted to the respective installation situation. The measuring angle range, communication interface, signal resolution and even the nominal voltage can also be defined according to customer specifications to ensure seamless integration into existing systems. This modular design reduces development effort and installation costs. The robust design with IP6K9K protection allows usage in environments with dirt, dust, water and high mechanical loads without impairing the sensor function.





Universal Angular Sensor

Optimum solution for the precise and reliable measurement of rotary positions in vehicles and machines. Thanks to its modular design, the sensor can be flexibly adapted to specific requirements and enables customized integration into a wide range of applications. The measuring principle of the universal angular sensor operates without magnets and is therefore rare-earth-free.

Supply voltage	U_s 5 V ± 10 % or 9–32 V
Current consumption	< 20 mA (after start up phase)
Mechanical angle range	360° (without electrical multiturn)
Compliant	CISPR 25 Class 4, SAE J-1113-41, ISO 26262 ASIL-D (AgPL e)
Interfaces	Single/double analogue, SENT or switch function, PWM
6PD 018 101-00...	PU: 1



- Reliable angle measurement of axles and suspension components to enhance vehicle stability and off-road capability
- Precise steering angle and pedal position sensing to ensure safe and controlled vehicle operation under extreme operating conditions
- Position measurement and control of steering and articulation angles in articulated or multi-axle vehicles
- Accurate position feedback of superstructures, ramps, flaps, and doors for safe and repeatable operation
- Monitoring the position of flaps or doors in protected compartments, stowage areas, or vehicle enclosures
- Precise positional feedback supporting the controlled alignment of mechanical protection systems at vehicle platform level
- Use as a pedal position sensor (accelerator/brake) for reliable electronic signal conversion in drive-by-wire systems.





Accelerator Pedal Sensors

Designed for acceleration within a Drive by Wire system. Contactless measurement principle, simple mechanical connection, redundant output signal and High measurement accuracy. High immunity to interference from electrical and magnetic fields.

Operating voltage	Pendant: 5 V ± 10 %, Upright: 5 V ± 6 %
Initial force	Pendant: 20 N, Upright: 15.5 N
Final force	Pendant: 35 N, Upright: 31 N
Actuation angle	Pendant: 13°, Upright: 15°

6PV 009 898-007	PU: 33, pendant pedal sensor
6PV 312 093-017	PU: 16, upright pedal sensor



Heavy Duty Pedal

Designed for acceleration within a Drive by Wire system. Robust design.

Operating voltage	5–32 V
Initial force*	15–25 N
Final force*	25–45 N
Actuation angle	Up to 20°

On request	PU: 1

* Depending on force actuation point.



Break Pedal Sensor (Gen 2)

First brake pedal sensor designed for brake-by-wire architectures, replacing the traditional mechanical linkage to the braking system. Supports ASIL-D fail-operational system architectures; electrical measurement of pedal position; two independent and precise sensors with inductive Hella-CIPOS- and Hall-technology; customizable interfaces

Pedal stroke and force	Adjustable
Pedal force creation	With conventional compression springs
Output signal	SENT
Weight reduction	> 70 % reduction against conventional brake pedal

On request



Rain-light sensors for vehicles with steeply raked windscreens

Dual function rain and light detection (ambient and tunnel detection)

Rated voltage	12 V
Protection class	IP 50
Communication interface	LIN 2.1

On request	PU: 1

BENEFIT FROM EXTENDED FUNCTIONALITY ALREADY IN DEVELOPMENT

Relative humidity and dew point sensing directly at the inner windshield surface enables proactive HVAC control to prevent fogging.



Oil level & temperature sensor

Important for detecting oil level with integrated temperature sensor, which provides an input variable for the thermal management of the engine. It is particularly resistant to shocks and vibrations ensured by the individual multi-chip module

Rated voltage	12 V
Length of damping cup	150 mm
Static and dynamic	13–144 mm

On request



Structural Monitoring Sensor

Enables condition monitoring of mechanical components by detecting early signs of wear and potential failures. By distinguishing between normal and abnormal vibrations, it supports predictive maintenance strategies and helps prevent unplanned downtime.

This allows faults to be identified weeks or even months before failure occurs, reducing the risk of consequential damage, lowering maintenance costs, and maximizing vehicle availability.

Rated voltage	12 V
Protection class	IP 6K9K
Operating temperature	-40 °C to +90 °C
Communication interface	LIN 2.1

On request	PU: 1



ACTUATORS



Rotatory smart actuators for 360° angle

Actuator controls the position of its output gear wheel in accordance with the target position. Thanks to the "True Power" function, the actuator can also cover angle ranges smaller than 180°. This enables immediate commissioning without prior calibration. The operating angle range is flexible and allows up to eight revolutions. The electric rotation can be to the left or to the right. It has an integrated error memory with corresponding feedback signals.

Rated voltage	13.5 V
Max. torque (13.5 V, RT)	< 300 Ncm
Protection class	IP 6K9K, IP 6K7 (depending on category of mating connector)
Interface	LIN 2.9 and PWM
6NW 011 303-711	PU: 1, power locking/unlocking and closing, power rotational movement to right/left, with position feedback via CIPOS technology
6NW 011 303-717	PU: 140, power locking/unlocking and closing, power rotational movement to right/left, with position feedback via CIPOS technology



Linear Actuator

When reliable electrical locking and unlocking, or closing of hinged and locking systems is required. Examples include the opening and closing of doors, flaps, windows, seats, glove compartments, and much more.

Rated voltage	12 V
Actuating force	-411: 30–140 N, -461/-471/-501: 30–170 N (dependent on the operating voltage and ambient temperature)
Conducted interference emissions	≤ 75 V
Interference suppression (in all ranges)	Intensity level 1 + 10 dB µV
Functional stroke	≤ 18 mm
6NW 009 203-411	PU: 1, electrical retraction and extension
6NW 009 203-461	PU: 1, electrical retraction, extension via mainspring
6NW 009 203-471	PU: 1, electrical retraction, extension via mainspring
6NW 009 203-501	PU: 1, electrical extension, retraction via mainspring





ACTUATORS



Rotatory Actuator for high forces

Used in applications for locking and unlocking or closing for very high actuating forces such as for large flaps and locks or seat release mechanisms. Universal interface for Bowden cable.

Rated Voltage	12 V
Conducted interference emissions	≤ 75 V
Vibration resistance (IEC 68-2-64)	3 geff.
6NW 009 424-781	PU: 1, retraction via spring, power extension
6NW 009 424-791	PU: 1, power extension and retraction
6NW 009 424-777	PU: 70, electrical retraction and extension, without shaft, without cable sheave, and without metal clip



Rotatory actuators for high temperatures

Regulates the pressure boost of turbo-charged combustion engines. It controls a valve that regulates the flow of exhaust gases to the turbine system.

Rated voltage	13.5 V
Temperature hot soak	140 °C to 160 °C
Nominal angle	108 ± 1.5°
Protection Class	IP 6K9K
On request	PU: 2, Waste Gate Actuator

PUMPS
WASHER PUMPS



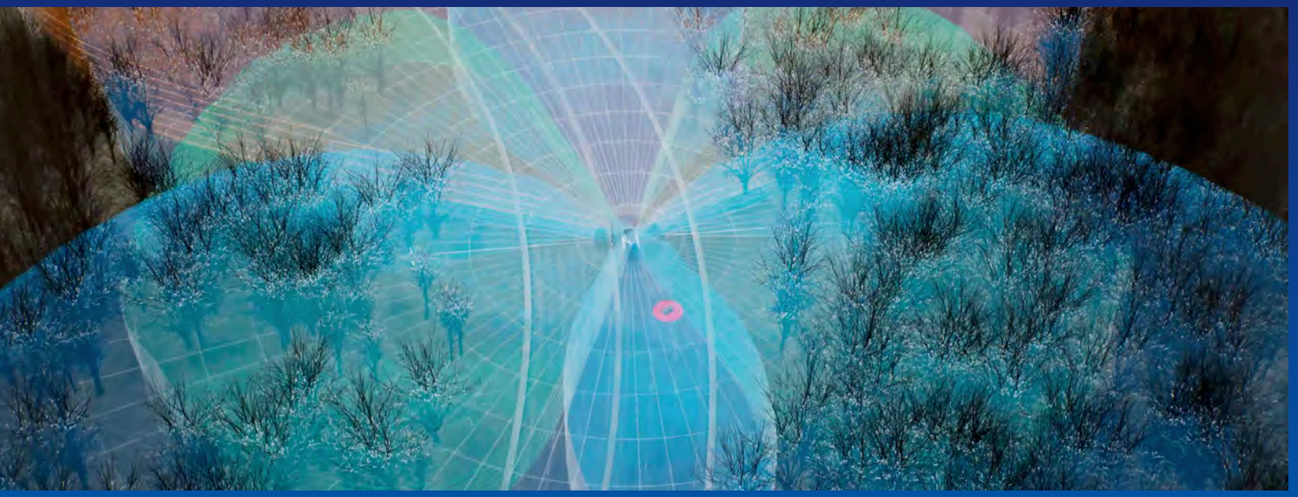
Pump

24 V washer pump, for pulsating water jet cleaning system, successor of 8TW 003 803-007

8TW 003 803-017	PU: 1, NSN: 4320-12-374-7761

RADAR-BASED ASSISTANCE FOR DEFENSE VEHICLES

Radar sensors provide reliable, continuous information about objects, people and terrain surrounding a vehicle. Unlike optical systems, radar remains effective in darkness and challenging conditions such as rain, fog, dust and smoke. This makes radar a key sensing technology for protected and tactical vehicles – supporting situational awareness, collision avoidance, driver assistance and increasingly automated operations.



ROAD APPLICATIONS

SAFER OPERATION IN TRAFFIC AND URBAN ENVIRONMENTS

On-road radar improves awareness around large, protected vehicles, helping compensate for restricted visibility, vehicle size and long braking distances.

- **Blind Spot Detection:** Monitors adjacent zones and warns of vehicles, cyclists or persons in critical areas.
- **Moving-Off Information System:** Detects objects and vulnerable road users around the vehicle before and during moving off.
- **Front Traffic Alert:** Warns of potential collisions with objects or road users ahead.
- **Rear Traffic Alert:** Monitors the rear during reversing and warns of approaching or crossing traffic.
- **Turn Assist:** Detects road users or obstacles alongside the vehicle during turning.
- **Automatic emergency brake:** Detects potential front collitions and autmatically applies the brakes if the driver does not react in time.

OFF-ROAD APPLICATIONS

DRIVER ASSISTANCE

Radar supports the crew where road markings, mapped routes or visual reference points are unavailable or unreliable.

- **Obstacle and Collision Avoidance:** Detects stationary and moving hazards along the intended path.
- **Terrain Traversability Assessment:** Assesses whether terrain ahead is likely to be traversable and helps identify potential routes.
- **Close-Formation Convoy Assistance:** Supports short-distance convoy operation, including automated or optionally crewed following.

TACTICAL SITUATIONAL AWARENESS

Radar contributes to situational awareness by detecting and tracking relevant objects around the vehicle.

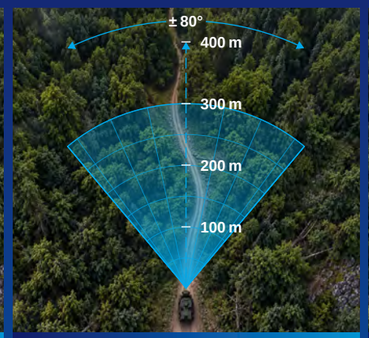
- **Dismounted Personnel and Vehicle Detection:** Detects persons and vehicles in the operational area.
- **All-Weather Environmental Awareness:** Maintains surveillance in darkness and adverse visibility conditions.
- **Radar-Based Localization and Environment Mapping:** Uses radar data to estimate vehicle position and map the surrounding environment.

SCALABLE RADAR SOLUTIONS FOR YOUR REQUIREMENTS

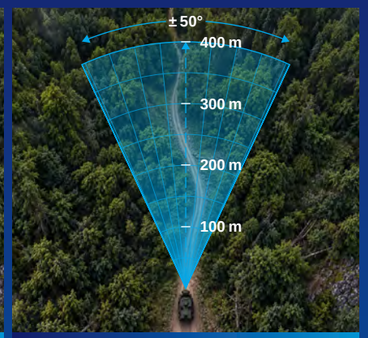
Different missions require different combinations of detection range, resolution, field of view and environmental robustness. The Generation 5, ForWave7^{CV} and ForWave7^{HD} radar families provide scalable sensing capabilities for applications ranging from close-range vehicle protection to extended-range detection and advanced driver assistance.



Generation 5 – SRR
(Short range radar)
- 77 GHz, 2x4 TRx
- MMIC + Processor architecture
- Range: **up to 90 m**
- FoV: ± 80°/± 10° (Azi./Elev.)
- Separability: 10°/--.-° (Azi./Elev.)

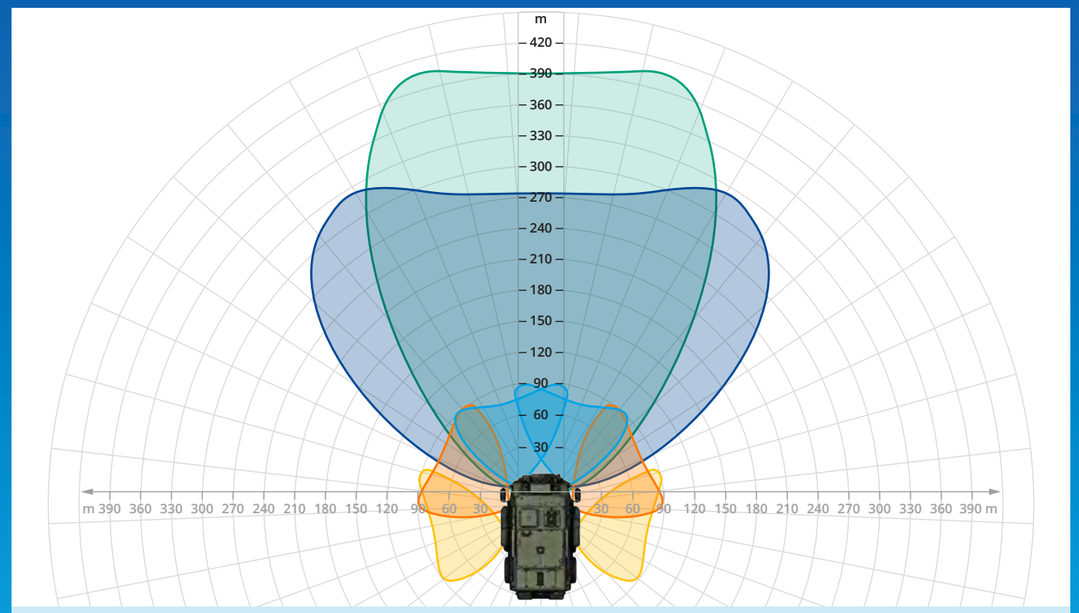


ForWave7^{CV} – SRR/MRR
(Short/Mid range radar)
- 77 GHz, 4x4 TRx
- Single chip architecture
- Range: **up to 300 m**
- FoV: ± 80°/± 15° (Azi./Elev.)
- Separability: 1.5°/19.0° (Azi./Elev.)



ForWave7^{HD} – HRR
(High resolution radar)
- 77.79 GHz, 24x24 TRx
- MMIC + Processor architecture
- Range: **up to 400 m**
- FoV: ± 50°/± 20° (Azi./Elev.)
- Separability: 0.7°/1.0° (Azi./Elev.)

Short-range radar supports side rear, side front and corner detection, while mid-range radar and high-resolution radar provide extended sensing capabilities at the vehicle front.





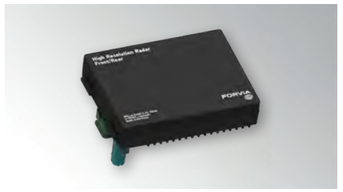
Dimensions | W 93 x H 68.6 x D 25.7 mm

7. Gen Radar

Supports hardware interface on detection level up to software perception & functions. Improved detection of close objects and slow moving VRUs. Supports multiple standard features like FTA, TA as well as MOIS & BSIS. Designed with anti-vibration components GSR II, ASIL B, Cybersecurity ISO and RED compliant.

Rated voltage	12 V and 24 V
NXP single chip	1x (4Tx/4Rx)
Field of view	Up to 300 m
Azimuth coverage	± 80°
Elevation coverage	± 15°
Protection class	IP 6K7, IP X9K*
Temperature range	-40 °C to +85 °C
Weight	< 100 g
On request	PU: 1

* If the membrane is protected according to an installation guideline for pressure equalization.



Dimensions | W 140 x H 100 x D 40 mm

High Resolution Radar (HRR)

Building on the proven 7. Gen radar platform, the next-generation High Resolution Radar (HRR) is being developed to extend detection capabilities, delivering enhanced resolution and longer-range performance. This ensures a scalable technology roadmap that meets increasing requirements for advanced safety, automation, and mission-critical applications.

Rated Voltage	12 V and 24 V
Range	Up to 350 m
Field of View	±50° in Az./ ±20° in Ele.
Angele separation (native)	1.5° for Az./2.0° for Ele.
Protection class	IP 6K7 and IP X9K*
Temperature range	-40 °C to +85 °C
Weight	< 500 g
On request	PU: 1

* If the vent menbrane is protected by integration.



Radar-Based Turning Assistant

Intelligent radar technology in the exterior mirrors. The system detects overtaking vehicles from a distance of up to 80 meters and warns the driver immediately – a decisive advantage when turning left on rural roads, where limited visibility and blind spots often lead to serious accidents.

Rated voltage	12 V
Field of View	Up to 80 m
Resolution	Full use of 77 GHz Band, high range resolution
RF-CMOS	Based on 77 GHz RADAR systems chips
On request	



INTELLIGENT BATTERY SENSORS

Intelligent Battery Sensors (IBS) play a key role in the military vehicle sector in ensuring operational readiness, system safety, and energy efficiency.

The IBS is designed for both 12 V and 24 V applications and provides precise real-time data on voltage, current, temperature, and the state-of-charge (SoC), state-of-health (SoH), and state-of-function (SoF), thereby forming the core of the entire energy anagement system. Through precise monitoring of the battery's health, critical situations such as deep discharge or loss of performance are detected early, and downtime can be prevented.

Find out more!
Especially technical details of the latest Electronic Products can be found on our website.

www.hella.com/soe/en/Products-1356/



IBS 12 V

Accurate measurement of battery voltage, current and temperature parameters, determination of the battery state of charge (SOC), state of health (SOH) and state of function (SOF) condition parameters, grounding bolt M8, output signal LIN (2.0) or higher

Operating voltage range	6–16.5 V
Power consumption	Operating modes: ≤ 15 mA (normal mode) ≤ 120 uA (sleep mode)
Permanent load current	± 155 A
Maximum current	± 1.500 A (500 ms)
Protection class	IP 6K9K
Functional safety	ASIL QM, ISO 26262
Temperature range	-40 °C to 115 °C
Max. battery capacity	249 Ah

6PK 010 842-105	PU: 1



IBS 24 V, QM

Accurate measurement of battery voltage, current and temperature parameters, determination of the battery state of charge (SOC), state of health (SOH) and state of function (SOF) condition parameters, grounding bolt M8, output signal LIN (2.0) or higher

Operating voltage range	7.5–32 V
Power consumption	Operating modes: ≤ 16 mA (normal mode) ≤ 230 uA (sleep mode)
Permanent load current	± 200 A
Maximum current	± 2,000 A (500 ms)
Protection class	IP 6K9K
Functional safety	QM
Temperature range	-40 °C to 80 °C
Max. battery capacity	255 Ah

6PK 011 700-001	PU: 1
6PK 011 700-007	PU: 100



IBS 24 V, ASIL B

Accurate measurement of battery voltage, current and temperature, determination of state of charge (SOC), state of health (SOH) and state of function (SOF), mounting at negative terminal, shunt for indirect current measurement, grounding bolt M8, output signal LIN 2.2a (also supports LIN 1.2, 2.0, 2.1, SAE J2602-1), cast housing with plug connector

Operating voltage range	7.5–32 V
Power consumption	Operating modes: ≤ 16 mA (normal mode) ≤ 230 uA (sleep mode)
Permanent load current	± 200 A
Maximum current	± 2,000 A (500 ms)
Protection class	IP 6K9K
Functional safety	ASIL B (ISO 26262, 2018)
Temperature range	-40 °C to 85 °C
Max. battery capacity	500 Ah

6PK 021 700-001	PU: 1

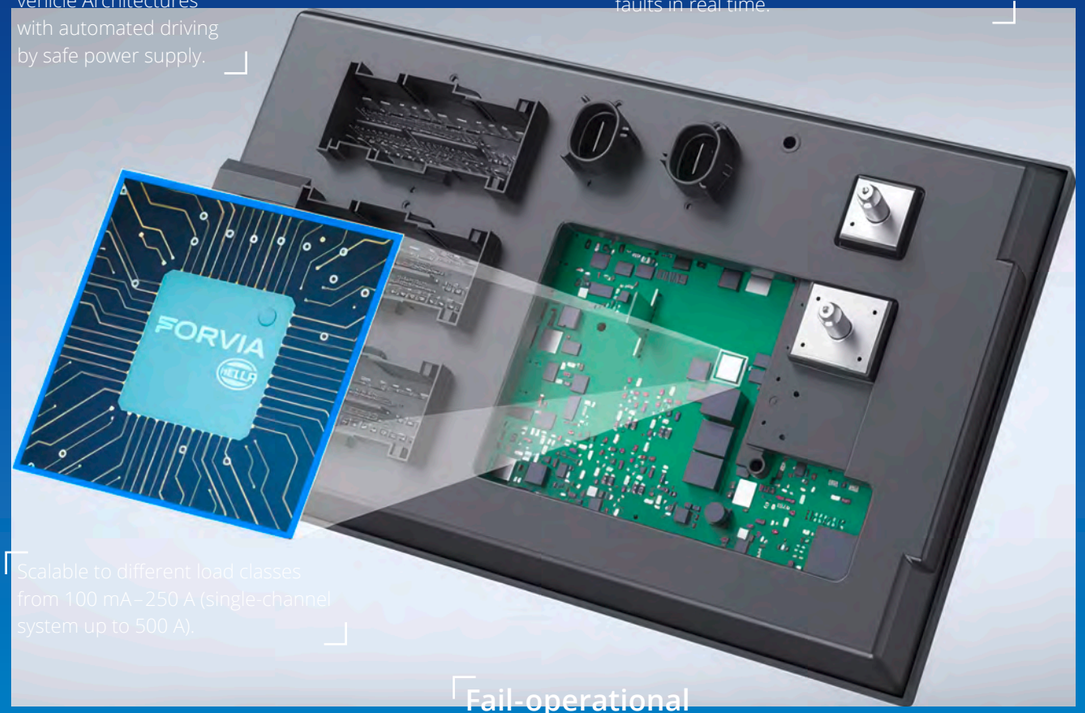
INTELLIGENT POWER DISTRIBUTION.

Safe and efficient vehicle power distribution with integrated electronic fuses, enabling intelligent per-channel control, predictive maintenance, and decentralized electrical architectures.

Enabler for new E/E vehicle Architectures with automated driving by safe power supply.

Intelligent eFUSE technology

Detects, isolates and manages electrical faults in real time.



Scalable to different load classes from 100 mA – 250 A (single-channel system up to 500 A).

Fail-operational power supply

Critical vehicle functions remain operational even in fault scenarios.

Upgradeability & Flexibility

Software based features lead to no hardware changes and versatile installation options.

Maximized vehicle uptime

Engineered to deliver comprehensive functionality within the smallest possible installation space, enabling seamless integration across a wide range of defense platforms.

ENERGY MANAGEMENT



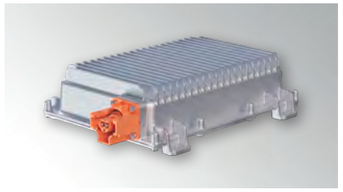
Dimensions | W 105.5 x H 41.4 x D 115.5 mm

DC/DC converter 24 V / 12 V

Efficient energy transfer from 24 V to 12 V power supply up to 300 W (passive air cooling), hardware-only solution without CAN/LIN for easy integration, built-in protection against short circuits and reverse polarity

Rated voltage	12 V and 24 V
Protection class	IP 30
Temperature range	-40 °C to +85 °C

8ES 013 517-001	PU: 1



Dimensions | W 235 x H 180 x D 65 mm

High-Voltage DC/DC Converter

Ensuring reliable 12 V power in 400 V and 800 V vehicle architectures. The bidirectional, passively air-cooled design achieves > 96 % efficiency and provides up to 1.2 kW continuous power, scalable via parallel operation

HV Voltage Range	**400 V:** 220 – 470 V; **800 V:** 340 – 850 V
Volume	2.45 l
ASIL Level	ASIL Level B
Cooling Concept	Passiv air cooling, Efficiency > 96 %
Communication interface	CAN

On request	PU: 1, 400 V to 12 V Boardnet
On request	PU: 1, 800 V to 12 V Boardnet

ACOUSTIC WARNING SYSTEMS



Dimensions | Ø 113 mm H 129 x D 53 mm

Low tone horn B36 bronce-green

Signal Horn, B36, 116 dB(A), housing colour: bronce-green, flat connector

3BA 002 768-211	PU: 1, NSN: 6350-12-146-1870, 24 V, 335 Hz, low tone



Dimensions | Ø 113 mm H 129 x D 53 mm

Low tone horn B36

Signal Horn, B36, 24 V, 116 dB(A), housing colour: grey, flat connector

3BA 002 768-382	PU: 1, NSN: 2590-12-199-2457, 24 V, 335 Hz, low tone

ACOUSTIC WARNING SYSTEMS



Dimensions | Ø 123 mm
H 134.5 x D 65 mm

Horn B133

Robust housing in first-class design with distinctive grill,with Teflon pellet and 6.3 mm splash-proof flat connector with rubber grommet

3AG 003 399-081	PU: 1, NSN: 2590-12-196-0842, 12 V, Set, 2 units **for military police and ambulance**: 300 ± 20 Hz low tone and 450 ± 20 Hz strong tone
3AF 003 399-051	PU: 1, 12 V, 450 ± 20 Hz, strong tone
3AF 003 399-071	PU: 1, NSN: 2590-12-195-8585, 24 V, 450 ± 20 Hz, strong tone
3AF 003 399-041	PU: 1, 12 V, 300 ± 20 Hz, low tone
3AF 003 399-061	PU: 1, NSN: 2590-12-195-8586, 24 V, 300 ± 20 Hz, low tone



Acoustic pedestrian alerting system (AVAS)

For pure electric drive vehicles (PEV), hybrid electric vehicles (HEV), and fuel cell vehicles (FCV) with a silent engine to increase the safety of road users, simulates simple engine noise (customised tones available on request)

Rated voltage	12 V
Current consuption	150 mA (normal state)
Communication interface	CAN
Protection class	IP 6K9K
Sound pressure level at 1 m	65 dB ± 5 dB
3SL 015 329-001	PU: 1
3SL 015 329-007	PU: 30



Revearse and warning alarm BM 30

Provides additional safety in dangerous working and traffic situations with a piercing, widely perceptible alarm tone. The alarm sound is generated when reverse gear is engaged and warns both nearby people and other road users of the vehicle backing up. Backup alarms are mandatory in many countries for vehicles with an obstructed view to the rear.

Rated voltage	12 – 48 V
Frequency range	700 – 2,800 Hz
Power consumption	12 W
Protection class	IP 67
3SL 996 139-227	PU: 36, 107 dB(A), with 150 mm cable
3SL 996 139-237	PU: 36, 112 dB(A), with 150 mm cable

SWITCHES



Rocker switches

Waterproof and dustproof rocker switch series for applications with special robustness and sealing needs. A high variety of lasered, abrasion-resistant, and LED-lit symbols provide maximum application flexibility. There are multiple configuration options in 12 V and 24 V.

Our switch configurator can be found at **www.hella.com/switch**

SWITCHES



Electrical switch for UN and blackout functions

Switch for headlight, 20,000 switching cycles, voltage drop before switching: max. 80 mV, voltage drop after switching: max. 160 mV

Test voltage	28.5 V
Protection class	IP 4
6LB 005 389-001	PU: 4, NSN: 5930-12-166-0796



Hazard warning light switch

Hazard warning light switch, voltage drop at electric exposure: max. 250 mv, electrical load: max. at 12 V is 14 A Ohmic load

Test voltage	-13.5 V ± 0.2 V
6HF 001 579-011	PU: 1, NSN: 5930-12-181-2666
	Accessories
8JA 001 926-001	PU: 10, NSN: 5935-12-166-7775, connecting element

ELECTRICAL CONNECTIONS
SOCKETS



Plug socket 1-pole with cover

Socket with cover, 1-pin connector, according to ISO 4165, blade terminal

8JB 001 946-011	PU: 10, NSN: 5935-12-158-9646



Plug socket 2-poles with cover

Socket with cover, 2-pin connector, according to ISO 4165, screw contact

8JB 001 946-021	PU: 10, NSN: 5935-12-300-4587



Plug socket

Socket without cover, 1-pin or 2-pin connector

8JB 001 946-031	PU: 10, NSN: 5935-12-130-9273, 2-poles
8JB 850 434-011	PU: 10, NSN: 5935-12-306-2247, 1-pole

LIGHTING

FRONT LIGHTING
HEADLAMPS



Dimensions
Flush mounting with plastic carrier frame | W 183 x H 102 x D 92 mm

Flush mounting | W 183 x H 93 x D 92 mm

Flush mounting with metal carrier frame | W 256 x H 144 x D 92 mm

Bi-LED low beam and high beam headlamp NovoLED

Bi-LED headlamp, low and high beam, left/right

Light function	Low beam, high beam
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	High beam: max. 18 W Low beam: max. 13 W
Protection class	IP 6K9K
Approved	UN-R10, UN-R149 (Class CS)

1SA 327 210-001	PU: 1, flush mounting with plastic carrier frame
1SA 327 210-011	PU: 1, flush mounting
1SA 327 210-031	PU: 1, bottom mounting
1SA 327 210-041	PU: 1, flush mounting with metal carrier frame



LIGHTING

Reliable lighting solutions designed to perform in harsh environments – this is what you will find on the following pages. Our products are thoroughly tested and certified, meeting relevant industry standards such as UN, ISO, and MIL specifications, and are engineered to withstand high-pressure water exposure with exceptional sealing performance.

In addition to our standard tactical headlamps, which we have been offering for decades, our range also includes 90 mm modules with different technologies as well as a large selection of signal lamps. These components are small but powerful and they stand for quality, practicality, safety and cost-efficiency.

Further variants can be found on **www.hella.com/soe**

CONTENT

- **Front Lighting**
  - 90 mm Modules
  - Shapeline
  - Blackout Lamps
  - Accessories
- **Rear and Signal Lighting**
  - Rear Lamps
  - Daytime running Lamps
  - Direction Indicators
  - Position Lamps/ Clearance Lamps
  - Stop Lamps
  - Convoy Lamps
  - Licence plate lamps
  - Beacons
- **Interior Lighting**
  - Reading Lamps
- **Work lamps**
  - Spot-, close-range and long-range illumination
  - Visiotech projection technology
  - Area Illumination



Dimensions | W 194 x H 120 x D 148 mm

Bi-LED low beam and high beam headlamp SlimLine

Bi-LED headlamp, low and high beam, flush mounting, left/right

Light function	Low beam, high beam
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	Low beam: 19.2 W High beam: 14.9 W Low beam and high beam: 34.1 W
Protection class	IP 6KX, IP X9K, IP X4K
Approved	UN-R10, UN-R10 06, UN ES/LES: R149 Class B, FMVSS 108
1AL 016 330-001	PU: 1, right-hand traffic
1LL 016 330-011	PU: 1, left-hand traffic
1AL 016 330-021	PU: 1, FMVSS
	Accessories
9AW 258 522-101	Carrier frame
9NS 258 539-001	Mounting kit group (4 pieces)
9NS 258 539-011	Leveling accessory group
6NM 007 282-221	Mounting set levelling motor (includes bracket for left-hand-mounting)
6NM 008 299-501	Leveling motor 24 V
8HG 138 620-007	Bracket for left-hand mounting
8HG 138 619-007	Bracket for right-hand mounting



Dimensions | W 110 x H 100 x D 71 mm

LED fog and cornering light SlimLine

Compact module with 2 functions (fog and cornering light) in one module, housing made of aluminium and lens made of polycarbonate

Light function	Fog light, cornering light
Light source	LED
Rated voltage	12 V and 24 V
Protection class	IP X9K, IP X4K, IP 5KX
Approved	UN-R149.01, FMVSS 108, CCC
1NL 016 340-001	PU: 1, HB3 connector



Dimensions
Bottom mounting |
W 246 x H 256 x D 141 mm

Centre mounting |
W 248 x H 165 x D 207 mm

LED combination headlamp C240

LED combination headlamp, Housing: PBT GF30, Connection, 6-pin DEUTSCH connector, Mounting M12 x 50 Bolt

Light function	High beam, low beam, daytime running light, position light and front direction indicator
Light source	LED
Rated voltage	12 V and 24 V
Protection class	IP 6K9K
Approved	UN ES / LES: R149.01 UN symmetric: R149.01 class CS UN-R148.01 FMVSS 108, UN-R10.06
Compliant	CISPR 25.06 class 5
	UN – Essential (with symmetrical light distribution)
1SF 328 550-011	PU:1, central mounting, left
1SF 328 550-021	PU:1, central mounting, right
1SF 328 550-031	PU:1, upright mounting, left
1SF 328 550-041	PU:1, upright mounting, right
	UN – Performance (with asymmetrical light distribution)
1EF 328 550-131	PU:1, Right-hand traffic, central mounting, left
1EF 328 550-141	PU:1, Right-hand traffic, central mounting, right
1EF 328 550-151	PU:1, Right-hand traffic, upright mounting, left
1EF 328 550-161	PU:1, Right-hand traffic, upright mounting, right
1LF 328 550-251	Left-hand traffic, central mounting, left
1LF 328 550-261	PU:1, Left-hand traffic, central mounting, right
1LR 328 550-271	PU:1, Left-hand traffic, upright mounting, left
1LR 328 550-281	PU:1, Left-hand traffic, upright mounting, right
	FMVSS
1EF 328 550-371	PU:1, Central mounting, left
1EF 328 550-381	PU:1, Central mounting, right
1EF 328 550-391	PU:1, Upright mounting, left
1EF 328 550-401	PU:1, Upright mounting, right

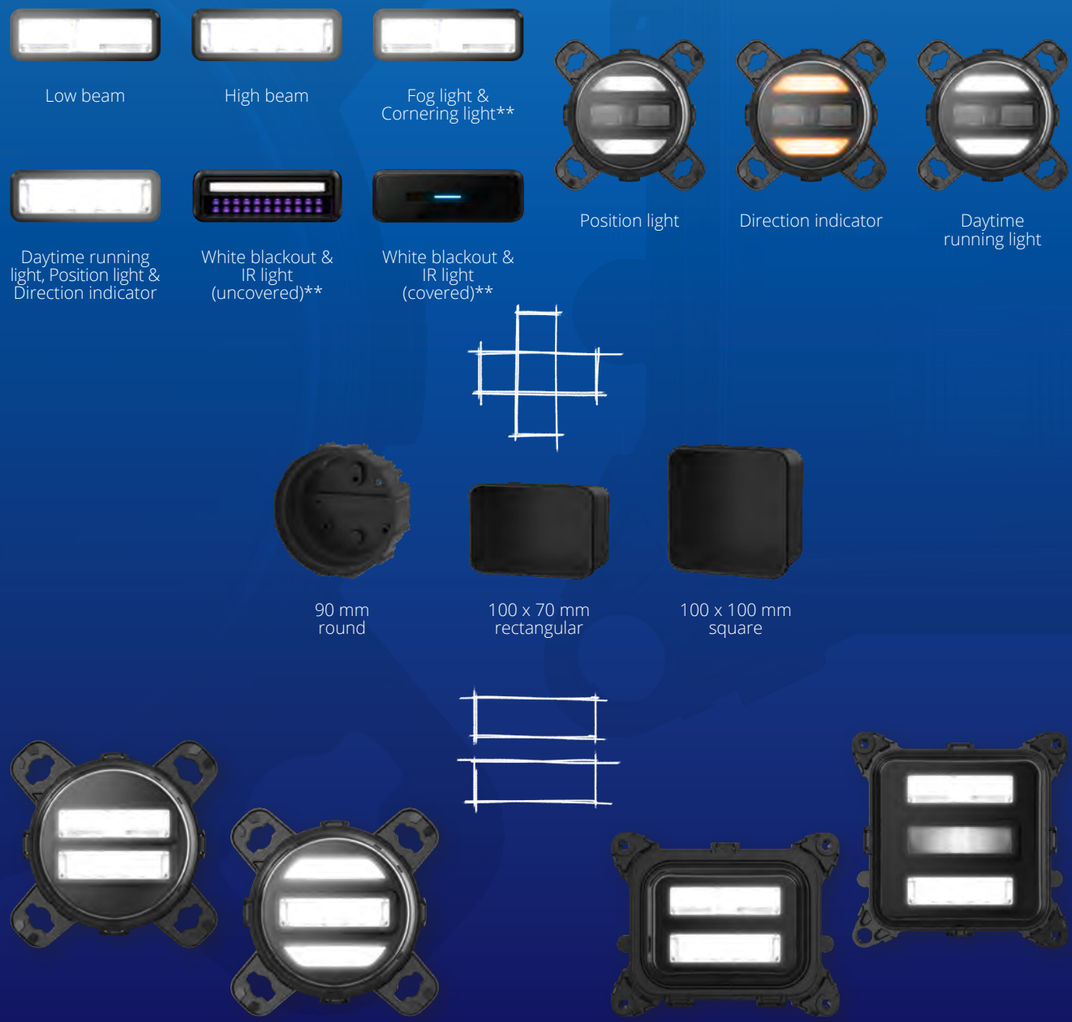


THE NEW LIGHTING KIT:

45 % SMALLER SIZE. 70 % LESS WEIGHT.

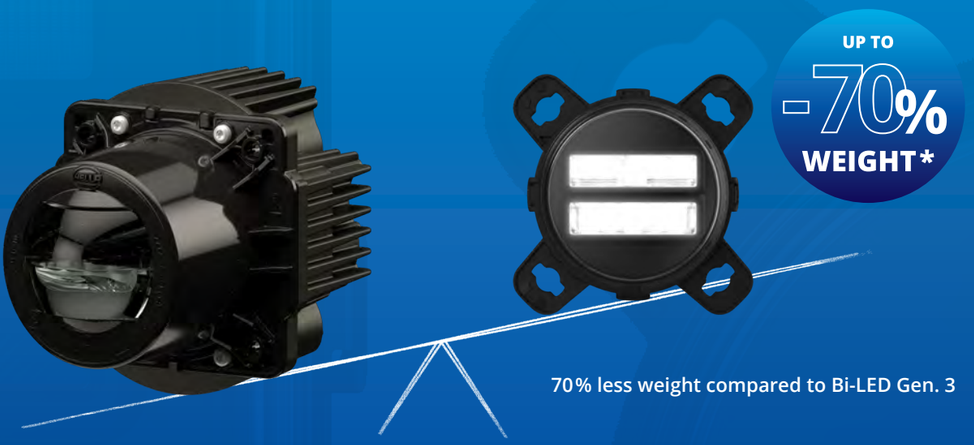
Building on the proven modularity of the 90 mm modules, the new FORVIA HELLA Lighting Kit marks the next step toward even greater flexibility and integration. With an ultra-compact design and high energy efficiency, it is tailored for modern front-end concepts. With the new FORVIA HELLA Lighting Kit the iconic 90 mm design gets a revolutionary twist: Stay tuned for a completely new design and multiple lighting possibilities. Symmetrical or Asymmetrical beam patterns, low beam, high beam, Bi-LED and high-performance precisely aligned to On- or Off-Highway requirements.

HIGHLY FLEXIBLE THANKS TO MODULARITY & SCALABILITY



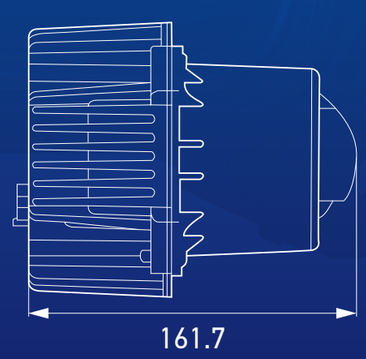
COMBINATION EXAMPLES

ONLY 485 G. A DIFFERENCE YOU CAN FEEL.

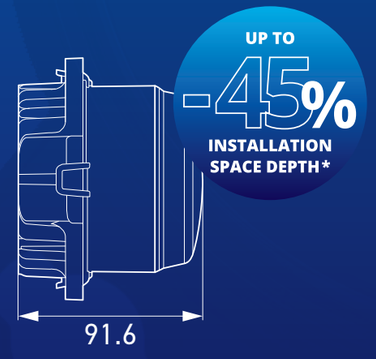


70 % less weight compared to Bi-LED Gen. 3

ONLY 91.6 MM. A DIFFERENCE YOU CAN FIT. ULTRA-COMPACT DESIGN FOR TIGHT SPACES AND SMART INTEGRATIONS.



Bi-LED Gen. 3 – 90 mm module
161.7 mm installation depth



Lighting Kit – 90 mm module
91.6 mm installation depth

* Compared to Bi-LED Gen. 3
** Design not yet final.

HEADLAMPS
90 MM MODULES



Dimensions | Ø 90 mm
W 119.5 x H 119.5 x D 80.8 mm

Fog light & Cornering light, White blackout & IR light uncovered/covered on request.

Lighting Kit 90 mm Round Mono

Low beam or high beam, left/right, 85 x 85 mm mounting distance, wadeable version available upon request

Light source	LED
Rated voltage	12 V and 24 V
Power consumption	Low beam: 20 W Only high beam: 20 W
Protection class	IP X9K, IP X4K, IP 5KX
Approved	UN-R10, UN-R149 Class B, FMVSS 108, CCC, India

1B0 018 430-001	PU: 1, low beam, UN ES
1M0 018 430-011	PU: 1, low beam, UN LES
1B0 018 430-021[1)]	PU: 1, low beam, FMVSS
1K0 018 431-001	PU: 1, high beam, UN ES + LES
1K0 018 431-021	PU: 1, high beam, FMVSS



Dimensions | Ø 90 mm
W 119.3 x H 119.3 x D 91.6 mm

Lighting Kit 90 mm Round Bi

Low beam and high beam, left/right, 85 x 85 mm mounting distance, wadeable version available upon request

Light source	LED
Rated voltage	12 V and 24 V
Power consumption	Low beam: 20 W Only high beam: 20 W
Protection class	IP X9K, IP X4K, IP 5KX
Approved	UN-R10, UN-R149 Class B, FMVSS 108, CCC, India

1A0 018 432-001	PU: 1, BiLED, UN ES
1L0 018 432-011	PU: 1, BiLED, UN LES
1A0 018 432-021[1)]	PU: 1, BiLED, FMVSS



Dimensions | Ø 90 mm
W 119.5 x H 119.5 x D 80.8 mm

Lighting Kit 90 mm Round Mono + Signal

Low beam or high beam in combination with wether daytime running light or position light or direction indicator, left/right, 85 x 85 mm mounting distance, wadeable version available upon request

Light source	LED
Rated voltage	12 V and 24 V
Power consumption	Low beam: 20 W Only high beam: 20 W Daytime running light/position light: on request Direction indicator: on request
Protection class	IP X9K, IP X4K, IP 5KX
Approved	UN-R10, UN-R149 Class B, FMVSS 108, CCC, India

1E0 018 430-201[2)]	PU: 1, low beam + DRL/PO, UN ES
1L0 018 430-211[2)]	PU: 1, low beam + DRL/PO, UN LES
1E0 018 430-221[1)]	PU: 1, low beam + DRL/PO, FMVSS
1K0 018 431-231[2)]	PU: 1, high beam + DRL/PO, UN ES + LES
1K0 018 431-201[2)]	PU: 1, high beam + PO, UN ES + LES
1K0 018 431-241[2)]	PU: 1, high beam + DI, UN ES + LES
1K0 018 431-221[1)]	PU: 1, high beam + PO, FMVSS

[1)] FMVSS versions SOP Q2 2027 | [2)] SOP Q3 2027





Dimensions |
W 100 x H 70 x D ~91.6 mm

Lighting Kit Rectangular

Low beam and high beam, left/right, wadeable version available upon request

Light function	Low and high beam
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	Low beam: 20 W Only high beam: 20 W
Protection class	IP X9K, IP X4K, IP 5KX
Approved	UN-R10, UN-R149 Class B
On request	PU: 1, BiLED, UN ES



Dimensions |
W 100 x H 100 x D ~91.6 mm

Lighting Kit Square

Low beam and high beam in combination with daytime running light, position light and direction indicator, left/right, high performance variants available for low beam and high beam, wadeable version available opon request

Light source	LED
Rated voltage	12 V and 24 V
Power consumption	Low beam: 20 W Only high beam: 20 W Daytime running light: on request Position light: 2 W Direction indicator: on request
Protection class	IP X9K, IP X4K, IP 5KX
Approved	UN-R10, UN-R149 Class B
1EA 018 433-001	PU: 1, BiLED, DRL/PO/DI, UN ES
1BA 018 433-101[1)]	PU: 1, high performance low beam + DRL/PO/DI, UN ES
1KA 018 433-201[1)]	PU: 1, high performance high beam + DRL/PO/DI, UN ES

[1)] SOP Q4 2027





Dimensions | Ø 90 mm
W 125 x H 85 x D 182 mm

Bi-Halogen low and high beam headlamp

Low beam and high beam, left/right, wadeable version

Light function	Low and high beam
Light source	Bulb H7 24 V
Rated voltage	24 V
Power consumption	Bulb: 70 W
Protection class	IP X9K, IPX8 fording ability
Approved	UN-R112, CCC No update to UN-R149 possible (due to technical restrictions)
1AL 009 998-201	PU: 1, Bi-Halogen, UN ES
1LL 009 998-221	PU: 1, Bi-Halogen, UN LES



Dimensions | Ø 90 mm
W 114 x H 114 x D 143 mm

L 4060 LED low beam headlamp

Low beam, left/right, wadable version available upon request

Light function	Low beam, position light, day time running light
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	Low beam: 20 W Position light: 16 W Day time running light: 2 W
Protection class	IP X9K, IP 67 fording ability
Approved	UN-R7, -R10, -R87, -R112, -R148, -R149, FMVSS 108
1BL 012 488-041	PU: 1, low beam + DRL/PO, UN + FMVSS



Dimensions | Ø 90 mm
W 114 x H 114 x D 91 mm

L 4060 LED high beam headlamp

High beam, left/right, with pulse generator, for performance mounting, wadable version available upon request

Light function	High beam, direction indicator
Light source	LED
Rated voltage	12 V – 24 V
Power consumption	High beam: 20 W Direction indicator: 16 W
Protection class	IP X9K, IP 67 fording ability
Approved	UN-R6, -R10, -R112, -R148, -R149, Ref. 12,5, FMVSS 108
1F0 011 988-191	PU: 1; high beam + DI, UN + FMVSS

HEADLAMPS
90 MM MODULES



Dimensions | Ø 90 mm
W ~154.7 x H 145.1 x D 184.2 mm

Bi-LED low beam and high beam headlamp L 4565 – Performance

Headlamp module with robust die-cast aluminium housing, flat cover lens and 4-pin DEUTSCH connector, with "Zero Tolerance Integration"

Light function	Low and high beam
Light source	LED
Rated voltage	12 V and 24 V
Protection class	IP 6K9K
Type approval	UN-R149.00 Table 8, Class B, FMVSS 108
1AL 015 318-031	PU: 1, BiLED, UN ES
1LL 015 318-041	PU: 1, Bi-LED, UN LES
1AL 015 318-051	PU: 1, Bi-LED, FMVSS



Dimensions | Ø 94.4 mm
W 124 x H 135.2 x D 161.7 mm

Bi-LED low beam and high beam headlamp L 4565 – Essential

Headlamp module with robust die-cast aluminium housing and 4-pin DEUTSCH DT connector

Light function	Low and high beam
Light source	LED
Rated voltage	12 V and 24 V
Protection class	IP 6K9K
Type approval	UN-R149.00 Table 8, Class B, FMVSS 108
1AL 015 318-001	PU: 1, BiLED, UN ES
1AL 015 318-111	PU: 1, Bi-LED, UN ES, with pre-assembled mounting set
1AL 015 318-211	PU: 1, Bi-LED, UN ES, with pre-assembled mounting set, carrier frame and levelling motor component
1LL 015 318-011	PU: 1, BiLED, UN LES
1LL 015 318-131	PU: 1, Bi-LED, UN LES, with pre-assembled mounting set
1AL 015 318-231	PU: 1, Bi-LED, UN LES, with pre-assembled mounting set, carrier frame and levelling motor component
1AL 015 318-021	PU: 1, Bi-LED, FMVSS
1AL 015 318-151	PU: 1, Bi-LED, FMVSS, with pre-assembled mounting set
1AL 015 318-251	PU: 1, Bi-LED, FMVSS, with pre-assembled mounting set, carrier frame and levelling motor component

90 MM ACCESSORIES

Discover our full range of accessories for 90 mm modules in the overview.



FRONT LIGHTING
DAYTIME RUNNING, POSITION AND DIRECTION INDICATOR LAMPS



Dimensions | Ø 91 mm
W 91 x H 91 x D 66 mm

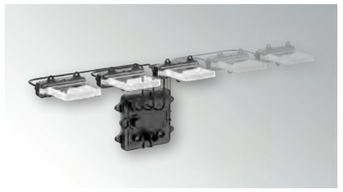
LED combination lamp CircLED 90

Combination lamp: daytime running light, position light and direction light, compact design in 90 mm format and low installation depth

Light function	Daytime running light, position light, direction indicator light (various light function combinations available)
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	Daytime running light: 5 W Position light: 1.5 W Direction indicator: 5 W
Protection class	IP 5K9K, IP 5K4K
Approved	UN-R148.01, FMVSS 108, CCC
2BE 016 540-001	PU: 1, DRL, PO, DI, FEP connector, UN
2BE 016 540-011	PU: 1, DRL, PO, DI, DEUTSCH DT connector, UN
2BE 016 540-031	PU: 1, DRL, PO, DI, DEUTSCH DT connector, FMVSS
2PT 016 540-111	PU: 1, DRL and PO, DEUTSCH DT connector, UN / FMVSS
2BE 016 540-211	PU: 1, PO and DI, DEUTSCH DT connector, UN
2BE 016 540-231	PU: 1, PO and DI, DEUTSCH DT connector, FMVSS



FRONT LIGHTING
DAYTIME RUNNING, POSITION AND DIRECTION INDICATOR LAMPS



Dimensions
Module |
W 92 x H 48 x D 95 mm

Control unit |
W 125.6 x H 114 x D 37.7 mm

LED combination lamp LEDayFlex III

LEDayFlex III combines 3 LED light functions (daytime running, position and direction indicator light) in one module, it has a particularly homogeneous appearance thanks to EdgeLight technology, its housing is made of polycarbonate and the lens of PMMA, scope of delivery: one module chain including control unit

Light function	Daytime running, position light, direction indicator
Light source	LED
Rated voltage	12 V and 24 V
Protection class	IP X9K, IP X4K, IP 5KX
Approved	UN-R148

2BE 016 400-301	PU:1, 3 LED light modules, FEP connector
2BE 016 400-341	PU:1, 3 LED light modules, DEUTSCH connector
2BE 016 400-401	PU:1, 4 LED light modules, FEP connector
2BE 016 400-411	PU:1, 4 LED light modules, direction indicator with wiper function (left), FEP connector
2BE 016 400-421	PU:1, 4 LED light modules, direction indicator with wiper function (right), FEP connector
2BE 016 400-501	PU:1, 5 LED light modules, FEP connector



Dimensions | W 171 x H 82 x D 67 mm

LED combination lamp SlimLine

Compact module with 3 functions (daytime running, position and direction indicator light) in one module, housing and lens made of polycarbonate, with 4 LEDs

Light function	Daytime running light, position light, direction indicator
Light source	LED
Rated voltage	12 V and 24 V
Protection class	IP X9K, IP X4K, IP 5KX
Approved	UN-R10, UN R148.01, FMVSS 108

2BE 016 545-001	PU: 1, UN, DEUTSCH connector
2BE 016 545-101	PU: 1, UN, FEP connector
2BE 016 545-011	PU: 1, FMVSS, DEUTSCH connector
2BE 016 545-811*	PU: 1, FMVSS, DEUTSCH connector

* Double variant for vehicles with a width above 2,032 mm according FMVSS 108 and a DI size of > 75mm².

FRONT LIGHTING
DAYTIME RUNNING AND POSITION LAMP



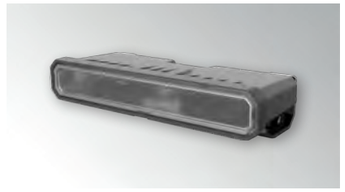
Dimensions | Ø 90 mm
W 90 x H 90 x D 93 mm

90 mm daytime running light/position light combination

24 V, left/right, wadable version available

Light function	Daytime running light, position light
Light source	Daytime running light: LED Position light: P21W longlife bulb
Rated voltage	12 V or 24 V
Power consumption	Daytime running light: LED 1 W Position light: 21 W
Protection class	IP X9K, IP 67 fording ability
Approved	UN-R7, -R10, -R112

2BE 010 102-101	PU: 1, daytime running light/position light, 12 V
2PT 010 102-111	PU: 1, daytime running light/position light, 24 V
2PT 010 102-211	PU: 1, daytime running light/position light, 24 V, with fording capability for venting hose
2BE 010 102-001	PU: 1, direction indicator/position light, 12 V
2BE 010 102-011	PU: 1, direction indicator/position light, 24 V



Dimensions | W 180 x H 40.5 x D 32 mm

OctaLane

Multivoltage, LED daytime running and position lamp, grained lens and homogeneous light appearance

Light function	Daytime running light (DRL), Position light (PO)
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	DRL: 8 W, PO: max. 2 W
Protection class	IP 5KX, IP X4K, IP X9K
Approved	UN-R10.06, UN-R148.01, FMVSS 108

2PT 017 879-011	PU: 1, UN/FMVSS







Style Design



Tech Design

DESIGN FREEDOM JUST A MOUSE CLICK AWAY

Use the Shapeline online configurator and become a lighting designer yourself: with a few clicks, make your own vehicle light design for the front, side and rear – and see the results applied to a realistic car outline straight away.

www.hella.com/shapeline

DESIGN YOUR LIGHT – WITH HELLA SHAPELINE!

The variety and range of shapes and the various combination options paired with a technically optimised product design make the Shapeline lamp series a true innovation in the field of vehicle lighting!



FRONT LIGHTING

SHAPELINE – VERSATILE MODULE COMBINATIONS

Our Shapeline range offers you countless mounting and combination options. Thanks to the modular product range, these lamps can be combined in virtually every conceivable constellation. Simply configure your individual lighting design.



Front view example

Daytime running and position lamp, Slim, front

Homologation	UN / SAE
Number of LEDs	6
Connectors & wiring	3-pin AMP SUPERSEAL integrated

2PT 014 627-021



Direction indicator, Wing, front

Homologation	UN / SAE
Number of LEDs	12
Connectors & wiring	2-pin AMP SUPERSEAL integrated

2BA 013 334-021



Direction indicator, Category 6, on the side

Homologation	UN
Number of LEDs	2
Connectors & wiring	500 mm cable, open ends

2BM 013 339-021



FRONT LIGHTING

SHAPELINE MODUL OVERVIEW

FRONT

	Style	Tech
Position Lamps	2PF 013 324-  2PF 013 325-  2PF 013 325-  2PF 013 326-  2PF 013 326-	 2PF 013 323-
Reflex reflectors	 8RA 013 347-	 8RA 013 403-
Direction indicators	 2BA 013 334-  2BA 013 334-  2BA 013 335- 2BA 013 335-	 2BA 013 330-  2BA 013 398-
Daytime running and position lamps	 2PT 014 627-	

All information about the product range can be found in the **Shapeline brochure** at **www.hella.com/shapeline**



Dimensions |
W 216 x H ~240 x D ~180 mm

Low/high beam LED headlamp

Socket mounting, rear fixation, front, left / right

Light function	Low beam, high beam
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	Low beam: 20 W High beam: 20 W
Protection class	IP 68, IP X9K, watertight up to 0.6 bar
Approved	UN-R20, Ref. 12,5, K 4301, K 4302 (national approval, Germany)
On request	PU: 1



Dimensions |
W 216 x H ~230 x D ~206 mm

Low/high beam H4 with blackout lamp

Socket mounting, rear fixation, front, left/right

Light function	Low beam, high beam, blackout lamp
Light source	Low/high beam: halogen bulb H4 Blackout light: conventional bulb R 18 W
Rated voltage	12 V* and 24 V
Power consumption	75/70 W (24 V), 18 W (24 V)
Protection class	IP 68, IP X9K; watertight up to 0.6 bar
Approved	UN-R20, Ref. 12,5, K 4301, K 4302 (national approval, Germany)
1A3 001 123-081	PU: 1, NSN: 6220-12-348-4850

* The headlamp can also be powered by a 12 V bulb – both the main beam and the blackout lamp.

Accessories for 1A3 001 123-001 and 1A3 001 123-081

1A3 002 850-021	PU: 1, NSN: 6220-12-198-9148, Low/high beam lamp insert H4
8GJ 002 525-251	PU: 1, NSN: 6240-12-165-3331, Light source, 24 V, 75/70 W, H4
8GA 002 072-241	PU: 10, NSN: 6240-12-120-8025, Light source, socket bulb, DIN 72601R 24 V 18 W
8JA 001 909-001	PU: 10, NSN: 5935-12-186-9560, Connector H4
8XT 002 116-001	PU: 2, NSN: 6220-12-136-2601, Quick mounting socket
8XT 004 034-007	PU: 2, NSN: 6220-12-194-5414, Quick mounting socket with vibration damper
9MK 087 369-001	PU: 5, NSN: 6220-12-139-8228, Contact element for socket
9EV 087 390-001	PU: 1, NSN: 6220-12-139-8212, Lens with lensretaining ring
9ES 087 392-002	PU: 10, NSN: 6220-12-139-8209, Lens blackout light
9GD 087 393-001	PU: 10, NSN: 5330-12-139-8210, Gasket for blackout light cap



Dimensions |
W 216 x H ~240 x D ~180 mm

Low/high beam H4 with blackout lamp

Socket mounting, bottom fixation, front, left/right

Light function	Low beam, high beam, blackout lamp
Light source	Low/high beam: halogen bulb H4 Blackout light: conventional bulb R 18 W
Rated voltage	12 V* and 24 V
Power consumption	75/70 W (24 V), 18 W (24 V)
Protection class	IP 68, IP X9K; watertight up to 0.6 bar
Approved	UN-R20, Ref. 12,5, K 4301, K 4302 (national approval, Germany)
1A3 001 123-001	PU: 1

* The headlamp can also be powered by a 12 V bulb – both the main beam and the blackout lamp.



Dimensions | W 216 x H 181 x D 206 mm

Low/high beam lamp H4

Socket mounting, front, left/right

Light function	Low beam, high beam
Light source	Halogen bulb H4
Rated voltage	12 V* and 24 V
Power consumption	75/70 W (24 V)
Protection class	IP 68, IP X9K, watertight up to 0.6 bar
Approved	UN-R20, Ref. 12,5, K 4301, K 4302 (national approval, Germany)
1A3 003 600-017	PU: 1, NSN: 6220-12-179-3794

Accessories

8GJ 002 525-251	PU: 1, NSN: 6240-12-165-3331, Light source, 24 V, 75/70 W, H4
8JA 001 909-001	PU: 10, NSN: 5935-12-186-9560, Connector
8XT 002 116-001	PU: 2, NSN: 6220-12-136-2601, Quick mounting socket
8XT 004 034-007	PU: 2, NSN: 6220-12-194-5414, Quick mounting socket with vibration damper

* The headlamp can also be powered by a 12 V bulb.



Dimensions | Ø 135 mm, W 146 mm

Low/high beam lamp insert

Flush fitting, front, left/right

Light function	Low beam, high beam
Light source	Halogen bulb H4 12 V* or 24 V
Protection class	IP 5K4K
Approved	UN-R20, Ref. 12,5
1A3 002 850-021	PU: 1, NSN: 6220-12-198-9148

Accessories

8GJ 002 525-251	PU: 1, NSN: 6240-12-165-3331, Light source, 24 V, 75/70 W, H4
8JA 001 909-001	PU: 10, NSN: 5935-12-186-9560, Connector

* The headlamp can also be powered by a 12 V bulb.

BLACKOUT LAMP LED: FORM, FIT AND EXTENDED FUNCTION

Based on decades of experience with blackout headlamps, FORVIA HELLA created this state-of-the-art LED product with extended functionality in an established housing. The products allow a simple replacement without the necessity for body modifications in current series production of tactical vehicles.

Blackout lamp LED white & IR, short range
- Visible white light
- Invisible lighting by IR radiation
- Optimized illumination for offroad cornering
- VG standard wiring

1XA 002 409-301



Blackout lamp LED white & IR, short range
- Visible white light
- Invisible lighting by IR radiation
- Optimized illumination for offroad cornering

1XA 002 409-347



Blackout lamp LED IR, long range
- Especially for IR radiation
- Shutter (blackout light cap) to avoid stray light above 0° line
- VG standard wiring

1XA 002 409-311



Blackout lamp LED IR, long range
- Especially for IR radiation
- Shutter (blackout light cap) to avoid stray light above 0° line

1XA 002 409-357



Complete product details can be found from page 47.

FRONT LIGHTING
BLACKOUT LAMPS



Dimensions | W 113 x H 80 x D 117 mm

Blackout lamp LED white & IR, short range

LED technology, visible white light, invisible lighting by IR radiation, optimized illumination for offroad cornering due to special blackout light cap, harness 290 mm according to VG standard

Light function	Blackout lamp, short range
Light source	Visible white light LED, IR radiation LED
Rated voltage	24 V
Power consumption	1.5 W
Protection class	IP 68, IP X9K, watertight up to 0.2 bar
Approved	UN-R10
1XA 002 409-301	PU: 1
	Accessories
9GD 087 393-001	PU: 10, NSN: 5330-12-139-8210, Gasket for blackout light cap



Dimensions | W 113 x H 80 x D 117 mm

Blackout lamp LED white & IR, short range

LED technology, visible white light, invisible lighting by IR radiation, harness 200 mm automotive wiring with open ends

Light function	Blackout lamp, short range
Light source	Visible white light LED, IR radiation LED
Rated voltage	24 V
Power consumption	1.5 W
Protection class	IP 68, IP X9K, watertight up to 0.6 bar
Approved	UN-R10
1XA 002 409-347	PU: 1, NSN: 6220-12-414-2371
	Accessories
9GD 087 393-001	PU: 10, NSN: 5330-12-139-8210, Gasket for blackout light cap

FRONT LIGHTING
ACCESSORIES



Dimensions | Ø 136 mm, H 47 mm

Quick mounting socket

Surface mounting, front, left/right

Rated voltage	24 V
8XT 002 116-001	PU: 2, NSN: 6220-12-136-2601

FRONT LIGHTING
BLACKOUT LAMPS



Dimensions | W 113 x H 80 x D 117 mm

Blackout lamp LED IR, long range

LED technology, especially for IR radiation, special shutter (blackout light cap) to avoid stray light above 0° line, harness 290 mm according to VG standard

Light function	Blackout lamp, long range
Light source	IR radiation LED
Rated voltage	24 V
Power consumption	1.5 W
Protection class	IP 68, IP X9K, watertight up to 0.2 bar
Approved	UN-R10
1XA 002 409-311	PU: 1
	Accessories
9GD 087 393-001	PU: 10, NSN: 5330-12-139-8210, Gasket for blackout light cap



Dimensions | W 113 x H 80 x D 117 mm

Blackout lamp LED IR, long range

LED technology, especially for IR radiation, harness 200 mm automotive wiring with open ends

Light function	Blackout lamp, long range
Light source	IR radiation LED
Rated voltage	24 V
Power consumption	1.5 W
Protection class	IP 68, IP X9K, watertight up to 0.2 bar
Approved	UN-R10
1XA 002 409-357	PU: 1, NSN: 6220-12-414-2372
	Accessories
9GD 087 393-001	PU: 10, NSN: 5330-12-139-8210, Gasket for blackout light cap

FRONT LIGHTING
ACCESSORIES



Dimensions | Ø 136 mm, H 47 mm

Quick mounting socket with vibration damper

Surface mounting, front, left/right

Rated voltage	24 V
8XT 004 034-007	PU: 2, NSN: 6220-12-194-5414



FRONT LIGHTING
BLACKOUT LAMPS



Dimensions | W 113 x H 80 x D 117 mm

Blackout lamp

Surface mounting, front, left/right, without bulb R 24 V 18 W

Light function	Blackout lamp
Light source	Conventional bulb R 18 W
Rated voltage	24 V
Power consumption	18 W
Protection class	IP 68, IP X9K, watertight up to 0.6 bar
1XA 002 409-031	PU: 1
1XA 002 409-038	PU: 24, NSN: 6220-12-166-1650
	Accessories
8GA 002 072-241	PU: 10, NSN: 6240-12-120-8025, Light source, socket bulb, DIN 72601R 24 V 18 W
9ES 087 392-002	PU: 10, NSN: 6220-12-139-8209, Lens blackout light
9GD 087 393-001	PU: 10, NSN: 5330-12-139-8210, Gasket for blackout light cap
9GD 104 486-007	PU: 10, NSN: 5330-12-151-4413, Gasket for cable gland
9NU 104 487-007	PU: 10, NSN: 5310-12-164-1827, Washer for cable gland



Dimensions | W 112 x H 56 x D 116 mm

Blackout lamp

Surface mounting, front, left/right, without bulb R 18 W

Light function	Blackout lamp, short range
Light source	Conventional bulb R 18 W
Rated voltage	24 V
Power consumption	18 W
Protection class	IP 68, IP X9K, watertight up to 0.6 bar
1XA 001 512-001	PU: 6, NSN: 6220-12-121-7310, restricted availability, for predefined projects only
	Accessories
8GA 002 072-241	PU: 10, NSN: 6240-12-120-8025, Light source, socket bulb, DIN 72601R 24 V 18 W
9GD 072 484-005	PU: 150, NSN: 5330-12-121-7312, Seal
9GT 012 144-001	PU: 10, NSN: 5325-12-156-4150, Grommet

CIVIL & MILITARY FUNCTIONS. FULLY INTEGRATED.

The new Full-LED Rear Combinatin Lamp combining certified civil and military lighting functions in a single compact architecture.

All-in-One Functionality

Military and civilian lighting functions combined in a single solution – integrating blackout light, tail light, red light, and infrared light for maximum operational flexibility.

Robust & Modern

State-of-the-art technology meets uncompromising ruggedness – ensuring reliable operation in the most demanding environments.



SWaP-Optimized Design

Engineered to deliver comprehensive functionality within the smallest possible installation space, enabling seamless integration across a wide range of defense platforms.



Dimensions
W 400 x H 158.9 x D 91.9 mm

Full-LED Truck Rear Lamp – MAN

Allows for both surface mounting and screw-fixing; the integrated housing design ensures a high degree of robustness, DIN bayonet circular connector

Light function	Tail light (glowing body), strip-shaped: tail light, stop light, direction indicator light, rear fog light, reverse light, clearance light, side marker light and with reflex reflector
Light source	LED
Rated voltage	24 V
Power consumption	Side marker and end outline marker and tail light: 2 W Stop light: 2 W Direction indicator: 3 W Rear fog light: 2 W Reverse light: 4 W Licence plate light: 1,7 W
Protection class	IP X9K, IP 5K4K
Approved	UN-R10, UN-R48

2VD 012 381-011	PU: 1, left, with licence plate light
2VP 012 381-021	PU: 1, right
2VD 012 381-031	PU: 1, left, with licence plate light
2VP 012 381-041	PU: 1, right
2VP 012 381-051	PU: 1, left
2VP 012 381-061	PU: 1, right, with backup and warning alarm
2VP 012 381-081	PU: 1, right, with backup and warning alarm

Wadeable version available upon request.





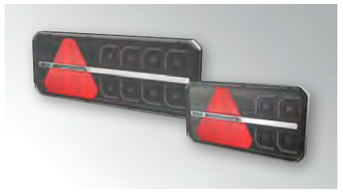
Dimensions | W 410 x H 140 x D 55.5 mm

Full-LED rear lamp 340 970

Truck version, surface mounting with M8 fastening bolts, rear, left/right, central
7-pin DIN bayonet connector, 2-pin AMP-SUPERSEAL connector for auxiliary light functions

Light function	Tail light, stop light, direction indicator light, reverse light, rear fog light and reflector
Light source	LED
Rated voltage	24 V
Power consumption	Tail light: 2 W Stop light: 26 W Direction indicator light: 24 W Reverse light: 3 W Rear fog light: 1.6 W
Protection class	IP 6K9K
Approved	UN-E24 148R-00 5934, 150R-00 5934

2VP 340 970-701	PU: 1, Direction indicator light (flashing)
2VP 340 970-711	PU: 1, Direction indicator, light (wiping)



Dimensions
Standard | W 350 x H 135 x D 75 mm

Compact | W 256 x H 135 x D 75 mm

Full-LED trailer rear combination lamp

Homogeneous illumination due to „Glowing Body“ technology. Efficient lighting technology thanks to EdgeLight technology

Light function	Tail light, direction indicator, stop light, reverse light, rear fog light and reflex reflector
Light source	**Standard**: Tail light (48 LEDs), direction indicator light (4 LEDs), stop light (4 LEDs), reverse light (4 LEDs), rear fog light (3 LEDs), reflex reflector **Compact**: Tail light (24 LEDs), direction indicator light (2 LEDs), stop light (2 LEDs), reverse light (2 LEDs), rear fog light (3 LEDs), reflex reflector
Rated voltage	24 V
Power consumption	**Standard**: Direction indicator: Input 8.2 W, Output max. 5 W (SML), Reverse light: Input 6.5 W, Output max. 19 W, Tail light: Input 2.2 W, Output max. 4 W (LPL), Stop light: Input 3.3 W, Fog light: Input 2.2 W, Rubber arm: Output max. 2 W (ML) **Compact**: Direction indicator: Input 7.5 W, Output max. 5 W (SML), Reverse light: Input 6.5 W, Output max. 19 W, Tail light: Input 2 W, Output max. 4 W (LPL), Stop light: Input 1.5 W, Fog light: Input 2.2 W,
Protection class	IP 6K9K
Approved	UN-R10, UN-R149, ADR/GGVS

2VP 018 287-017	PU: 12, Standard, left-hand side
2VP 018 287-037	PU: 12, Standard, right-hand side
2VP 018 287-117	PU: 12, Standard with rubber arm, left-hand side
2VP 018 287-107	PU: 12, Standard with rubber arm, right-hand side
2VP 018 288-017	PU: 16, Compact, left-hand side
2VP 018 288-037	PU: 16, Compact, right-hand side

Q3/27 COMPACT VARIANT FOR TRUCK APPLICATION IN DEVELOPMENT.





Dimensions
With screw holes |
W 209.6 x H 64.6 x D 52.4 mm

With stud screws |
W 209.6 x H 64.6 x D 50.4 mm

Further variants can be found on www.hella.com/soe

Combination lamp LeanLED II for the rear

Characteristic LED light curtain provides a homogeneous light signature thanks to Edge light technology. Robust and compact construction for the toughest demands. Compact version available for vehicle with minimum space

Light function	Tail light, stop light, direction indicator light, reverse light and reflex reflector
Light source	LED
Rated voltage	12 V and 24 V
Current consumption	**Direction indicator light** 13.5 V | min. 123.3 mA, max. 202.4 mA 28 V | min. 76.5 mA, max. 116.6 mA **Tail light** 13.5 V | min. 118.8 mA, max. 237.6 mA 28 V |min. 73.8 mA, max. 147.4 mA **Reverse light** 13.5 V | min. 90.9 mA, max. 138.6 mA 28 V |min. 54.9 mA, max. 81.4 mA **Stop light** 13.5 V | min. 96.3 mA, max. 148.5 mA 28 V |min. 101.7 MA, max. 150.7 mA
Protection class	IP 6K9K
Approved	UN-R148, UN-R10

2VP 327 300-011	PU: 1, 12 V, with reverse light, ISO pulse, cable with open ends, screw holes
2VP 327 300-021	PU: 1, 12 V, with reverse light, ISO pulse, cable with open ends, M6 stud screw
2VP 327 300-051	PU: 1, 24 V, with reverse light, ISO pulse, cable with open ends, screw holes
2VP 327 300-061	PU: 1, 24 V, with reverse light, ISO pulse, cable with open ends, M6 stud screw
2VA 327 300-091	PU: 1, 12 V, with ISO pulse, cable with open ends, screw holes
2VA 327 300-131	PU: 1, 24 V, with ISO pulse, cable with open ends, screw holes
2VP 327 300-171	PU: 1, 12 V, with reverse light, cable with open ends, screw holes
2VP 327 300-181	PU: 1, 12 V, with reverse light, cable with open ends, M6 stud screw
2VP 327 300-211	PU: 1, 24 V, with reverse light, cable with open ends, screw holes
2VP 327 300-221	PU: 1, 24 V, with reverse light, cable with open ends, M6 stud screw
2VA 327 300-251	PU: 1, 12 V, with cable with open ends, screw holes
2VA 327 300-291	PU: 1, 24 V, with cable with open ends, screw holes



Dimensions | W 300 x H 130 x D 40 mm

Full-LED rear lamp Coluna

Tail light generated via an innovative flat LED light guide patented by HELLA, maintenance-free, fully sealed LED light, extremely flat

Light function	Tail lamp, stop light, direction indicator, rear fog light, reverse light and reflex reflector
Light source	LED
Rated voltage	12 V or 24 V
Power consumption	Tail lamp: 2.6 W (12 V), 2.8 W (24 V) Stop light: 1.8 W (12 V), 2 W (24 V) Direction indicator: 3.3 W (12 V), 3.8 W (24 V) Rear fog light: 2.2 W (12 V), 2.4 W (24 V) Reverse light: 3.8 W (12 V), 5.6 W (24 V)
Protection class	IP 6K9K
Approved	UN-R148, UN-R10, ADR/GGVSEB

	Towing vehicles
2VP 345 900-401	PU: 1, 12 V, left/right, 500 mm cable with open ends, with direction indicator failure control
2VP 345 900-411	PU: 1, 12 V, left/right, 500 mm cable with open ends
2VP 345 900-201	PU: 1, 24 V, left/right, 500 mm cable with open ends, with direction indicator failure control
2VP 345 900-211	PU: 1, 24 V, left/right, 500 mm cable with open ends
	Trailer
2VP 345 900-331	PU: 1, 12 V, left, 500 mm cable with open ends, left
2VP 345 900-341	PU: 1, 12 V, right, 500 mm cable with open ends





Dimensions | W 177 x H 100 x D 32 mm

DuraLED PRIME rear signal lamp

Homogeneous illumination due to „Glowing Body" technology, 2.5 m cable

Light source	LED
Rated voltage	12 V and 24 V
Power consumption	Tail light: 4.6 W Stop light: 4.2 W Direction indicator: 4 W Reverse light: 4,4 W
Protection class	IP 6K7, IP 6K9K
Approved	UN-R10, ADR/GGVSEB

2BA 350 300-011	PU: 1, direction indicator (wiping) and tail light, horizontal
2BA 350 300-031	PU: 1, direction indicator (flashing) and tail light, horizontal and vertical
2SB 350 300-051	PU: 1, stop and tail light, horizontal and vertical
2ZR 350 300-071	PU: 1, reverse and tail light, horizontal and vertical



Dimensions | W 223 x H 96 x D 26 mm

LED rear lamp DuraLED Combi

Horizontal, maintenance-free, fully hermetically sealed, impact-resistant, and lastingly UV-resistant, slim design with an installation height of just 25 mm

Light function	Tail light, stop light, direction indicator light, reverse light
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	Tail light: 1.5 W Stop light: 5 W Direction indicator light: 6 W Reverse light: 2 W Parking light (2VP 015 075-101 only): 1.5 W
Protection class	IP 6K7, IP 6K9K
Approved	UN-R10, UN-E24, ADR/GGVSEB

2VP 015 074-101	PU: 1, with 2,500 mm cable
2VP 015 075-101	PU: 1, with parking light and integrated 6-pin DEUTSCH DT connector (DT 06-6S mating connector to be used)



REAR LIGHTING
MULTI-FUNCTION LAMPS



Dimensions | W 211 x H 82 x D 75 mm

Blackout tail/tail/stop/direction indicator lamp

Surface mounting, rear, left/right, masked tail light, combined tail/brake/indicator light amber, bulb for masked tail light 12/24 V 2 W, 2 holes for fastening screws M8 x 12 not included in scope of delivery, hole spacing 110 mm, rear cable feed through gland PG11 with special sealing ring for 1–5 single stands 1.5 mm² with cable diameters of between 2.2–3 mm, fixing torque for fastening screws for the lens max. 2 Nm

Light function	Blackout tail light, tail light, stop light, direction indicator
Light source	Blackout tail light: conventional bulb H 2 W Tail light: conventional bulb R 5 W Stop light: Conventional bulb P 21 W Direction indicator: Conventional bulb P 21 W (bulbs are not included into delivery)
Rated voltage	12 V/24 V
Power consumption	21 W, 5 W, 2 W with lamp protection grid: 21 W, 10 W, 2 W
Protection class	IP 6K9K, watertight up to 0.6 bar
Approved	01 2a E1 43268, 02 R1 43268, R1 0228148R00, S1 E1 02281
2SD 001 698-001	PU: 1, NSN: 6220-12-151-4411, housing color: bronce-green RAL 6031
2SD 001 698-021	PU: 1, housing color: beige
2SD 001 698-301	PU: 1, housing color: black
	Accessories
8GA 002 071-121	PU: 10, NSN: 6240-12-120-7998, Light source, 12 V, R 5 W
8GA 002 071-241	PU: 10, NSN: 6240-12-120-7950, Light source, 24 V, R 5 W
8GA 002 073-121	PU: 10, NSN: 6240-12-159-7268, Light source, 12 V, P 21 W
8GA 002 073-241	PU: 10, NSN: 6240-12-150-4410, Light source, 24 V, P 21 W
8GP 002 068-121	PU: 10, NSN: 6240-12-120-7996, Light source, 12 V, H
8GP 002 068-241	PU: 10, NSN: 6240-12-120-7952, Light source, 24 V, H
9EL 104 544-001	PU: 2, NSN: 6220-12-151-4412, Lens
9FT 104 548-001	PU: 10, NSN: 6250-12-188-7259, Bulb carrier
9GD 104 486-007	PU: 10, NSN: 5330-12-151-4413, Seal
9NS 104 488-097	PU: 10, NSN: 5975-12-311-4801, Screw PG DIN 46255
9NU 104 487-007	PU: 10, NSN: 5310-12-164-1827, Washer
9GP 004 028-007	PU: 1, NSN 5340-12-190-2370, vibration dampener for surface mounting

REAR LIGHTING
REAR LAMP MODULES



Dimensions | W 151 x H 87 x D 71 mm

Rear fog lamp

Surface mounting, rear/reverse lamp, left/right, bronce-green RAL 6031; cable feed through gland PG11 with special sealing ring for 1–5 single cable 1.5 mm² with cable diameters of between 2.2–3 mm, wiring by means of screw-type and plain connectors, optional installation by means of angle brackets or direct mounting, screw spacing: 106 mm, fastening screws M8 not included in delivery, fixing torque for fastening screws max. 2 Nm

Light function	Rear fog light, reverse light
Light source	Conventional bulb P 21 W
Rated voltage	12 V and 24 V
Power consumption	21 W
Protection class	Watertight up to 0.6 bar
Approved	UN-R38 (rear fog light), UN-R23 (reverse light)
	Rear fog lamp
2NE 002 481-001	PU: 1, NSN: 6220-12-152-8600, with bracket
2NE 002 481-017	PU: 20, NSN: 6220-12-152-8600
	Reverse lamp
2ZR 002 481-031	PU: 1, NSN 6220-12-306-3494
	Accessories
8GA 002 073-251	PU: 10, Light source, 24 V, P21W
9EL 111 600-001	PU: 5, NSN: 6220-12-164-7718, Lens rear fog lamp
9GD 104 486-007	PU: 10, NSN: 5330-12-151-4413, Seal
9NS 104 488-097	PU: 10, NSN: 5975-12-311-4801, Screw
9NU 104 487-007	PU: 10, NSN: 5310-12-164-1827, Washer



Dimensions | W 92 x H 141 x D 29 mm

Q110R reverse lamp

Extra-wide illumination, 5,700 K, compact design, upright and pendant mounting, overheating protection

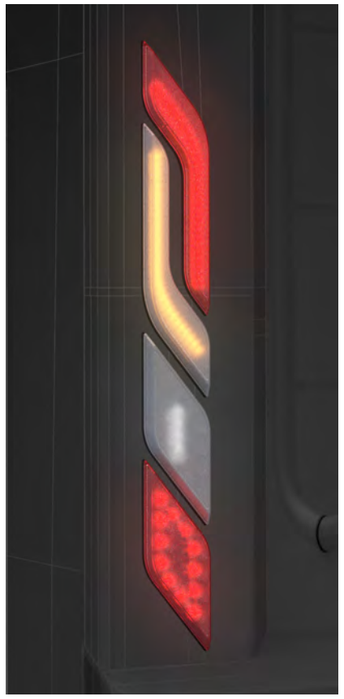
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	11 W
Light output (warm)	1,150 lm
Protection class	IP 6K7, IP 6K9K
Approved	UN-R10, UN-R148, ADR/GGVSEB
2ZR 996 285-501	PU: 1, 1,000 mm cable and DEUTSCH DT connector
2ZR 996 285-601	PU: 1, 1,000 mm cable and AMP connector
2ZR 996 285-617	PU: 30, 2,000 mm cable and AMP connector
2ZR 996 285-627	PU: 30, 3,000 mm cable and AMP connector

REAR LIGHTING
SHAPELINE MODULE OVERVIEW – SIDE LIGHTING

SIDE

Style	Tech
Direction Indicators	
 2BM 013 338-  2BM 013 339-	 2BM 013 336-  2BM 013 337-  2BM 013 337-
Reflex Reflectors	
 8RA 013 347-	 8RA 013 403-
Clearance Lamps	
	 2XS 013 327-
Side Marker Lamps	
 2PS 013 305/6-  2PS 013 305-  2PS 013 307-  2PS 013 307-	 2PS 013 300/2-  2PS 013 300-  2PS 013 303-  2PS 013 303-  2PS 013 301/2-  2PS 013 301-  2PS 013 304-  2PS 013 304-

SHAPELINE
REAR VIEW EXAMPLE



Tail-stop lamp, Wing

Homologation	UN
Number of LEDs	30
Connectors & wiring	3-pin AMP SUPERSEAL integrated

2SB 013 399-131 With MD12 (UN) and PWM/AAG compatible



Rear fog lamp

Homologation	UN / SAE
Number of LEDs	12
Connectors & wiring	3-pin AMP SUPERSEAL integrated (with 2-pin function)

2NE 013 345-031



Direction indicator, Wing, rear

Homologation	UN
Number of LEDs	30
Connectors & wiring	2-pin AMP SUPERSEAL integrated

2BA 013 333-031



Reverse lamp

Homologation	UN / SAE
Number of LEDs	4
Connectors & wiring	3-pin AMP SUPERSEAL integrated (with 2-pin function

2ZR 013 345-131



Reflex reflector, rear

Homologation	UN / SAE
Number of LEDs	–
Connectors & wiring	–

8RA 013 347-061



Side marker lamp, amber

Homologation	UN / SAE
Number of LEDs	3
Connectors & wiring	AMP SUPERSEAL, 250 mm cable, overmoulded

2PS 013 305-011



REAR LIGHTING
SHAPELINE MODUL OVERVIEW

REAR

Style	Tech
Position Lamps	
 2SA 013 324-	 2SA 013 323-
Tail-Stop Lamps	
 2SB 013 342-  2SB 013 342-  2SB 013 399-*  2SB 013 399-*  2SB 013 343-  2SB 013 343-	 2SB 013 341-
Direction Indicators	
 2BA 013 331-  2BA 013 331-  2BA 013 331-  2BA 013 331- 2BA 013 333- 2BA 013 333- 2BA 013 332-* 2BA 013 332-*	2BA 013 330- 2BA 013 330-
Tail-Stop-Direction Indicator Lamps	
2SD 013 342- 2SD 013 342-	2SD 013 341-
Reverse Lamps	
2ZR 013 345- 2ZR 013 345- 2ZR 013 401- 2ZR 013 401- 2ZR 013 401-	2ZR 013 344-
Rear Fog Lamps	
2NE 013 345- 2NE 013 345- 2NR 013 345- 2NR 013 345- 2NE 013 343- 2NE 013 343- 2NE 013 343-	2NE 013 344- 2NR 013 344-
Reflex Reflectors	
8RA 013 402- 8RA 013 347-	8RA 013 403-

* PWM/AAG compatible and with MD12 (UN).



Dimensions | W 65 x H 90 mm

Direction indicator lamp

Surface mounting, left/right

Light function	Direction indicator
Light source	Conventional bulb P 21 W
Rated voltage	12 V and 24 V
Power consumption	21 W
Approved	K 12643 (national approval, Germany)
2BA 001 225-001	PU: 1
	Accessories
8GA 002 073-121	PU: 10, NSN: 6240-12-159-7268, Light source, 12 V, P21W
8GA 002 073-241	PU: 10, NSN: 6240-12-150-4410, Light source, 24 V, P21W
9GD 066 177-001	PU: 10, NSN: 5340-12-122-4416, Seal
9GD 066 178-001	PU: 10, NSN: 5330-12-122-4418, Seal



Dimensions | W 65 x H 90 mm

Direction indicator lamp (half side)

Surface mounting, left/right, lens varnished inside (half side) yellow olive (RAL 6014)

Light function	Direction indicator
Light source	Conventional bulb P 21 W
Rated voltage	12 V and 24 V
Power consumption	21 W
Approved	K 12643 (national approval, Germany)
2BA 001 225-017	PU: 45, NSN: 6220-12-171-8462
	Accessories
8GA 002 073-121	PU: 10, NSN: 6240-12-159-7268, Light source, 12 V, P21W
8GA 002 073-241	PU: 10, NSN: 6240-12-150-4410, Light source, 24 V, P21W
9EL 064 243-015	PU: 60, NSN: 6220-12-171-4797, Lens
9GD 066 177-001	PU: 10, NSN: 5340-12-122-4416, Seal
9GD 066 178-001	PU: 10, NSN: 5330-12-122-4418, Seal



Dimensions | Ø 78 mm, H 97 mm

Direction indicator lamp

Surface mounting, left/right; housing with 2 gland lines (PG 11), optionally with feed from side or bottom, for 1–5 single cables 1.5 mm² with cable diameters between 2.2–3 mm

Light function	Direction indicator
Light source	Conventional bulb P 21 W
Rated voltage	12 V and 24 V
Power consumption	21 W
Protection class	Watertight up to 0.6 bar
Approved	K 43293 (national approval, Germany)
2BA 001 298-027	PU: 6, NSN: 6220-12-166-4992
	Accessories
8GA 002 073-121	PU: 10, NSN: 6240-12-159-7268, Light source, 12 V, P21W
8GA 002 073-241	PU: 10, NSN: 6240-12-150-4410, Light source, 24 V, P21W
9EL 102 580-001	PU: 5, NSN: 6220-12-151-4410, Lens
9GD 078 328-001	PU: 10, NSN: 5330-12-138-5085, Seal
9GD 104 486-007	PU: 10, NSN: 5330-12-151-4413, Seal
9HG 102 578-001	PU: 5, NSN: 6220-12-173-9607, Grille
9NS 104 488-097	PU: 10, NSN: 5975-12-311-4801, Screw
9NU 104 487-007	PU: 10, NSN: 5310-12-164-1827, Washer



Dimensions | Ø 78 mm, H 97 mm

Direction indicator/position lamp

Surface mounting, front, left/right; housing with 1 gland line (PG 11) with special sealing for 1–5 single cables 1.5 mm² with cable diameters between 2.2–3 mm

Light function	Direction indicator, position light
Light source	Direction indicator: conventional bulb P 21 W Position light: Conventional bulb R 5 W
Rated voltage	12 V and 24 V
Power consumption	21 W, 5 W
Protection class	Watertight up to 0.6 bar
Approved	K 43293, K 11678 (national approval, Germany)
2BE 001 298-011	PU: 1, NSN: 6220-12-151-4409
	Accessories
8GA 002 071-121	PU: 10, NSN: 6240-12-120-7998, Light source, 12 V, R5W
8GA 002 071-241	PU: 10, NSN: 6240-12-120-7950, Light source, 24 V, R5W
8GA 002 073-121	PU: 10, NSN: 6240-12-159-7268, Light source, 12 V, P21W
8GA 002 073-241	PU: 10, NSN: 6240-12-150-4410, Light source, 24 V, P21W
9EL 102 580-001	PU: 5, NSN: 6220-12-151-4410, Lens
9GD 078 328-001	PU: 10, NSN: 5330-12-138-5085, Seal
9GD 104 486-007	PU: 10, NSN: 5330-12-151-4413, Seal
9HG 102 578-001	PU: 5, NSN: 6220-12-173-9607, Grille
9NS 104 488-097	PU: 10, NSN: 5975-12-311-4801, Screw
9NU 104 487-007	PU: 10, NSN: 5310-12-164-1827, Washer



Dimensions | Ø 101,5 mm, H 67 mm

Position lamp

Surface mounting, front, left/right; cable feed optionally from side or bottom through 2 glands PG9, wiring by means of screwed connection

Light function	Position light, white
Light source	Conventional bulb R 5 W
Rated voltage	12 V and 24 V
Power consumption	5 W
Protection class	Watertight up to 0.6 bar
Approved	UN-R7

2PF 001 645-001	PU: 1, NSN: 6220-12-141-1131
	Accessories
8GA 002 071-121	PU: 10, NSN: 6240-12-120-7998, Light source, 12 V, R 5 W
8GA 002 071-241	PU: 10, NSN: 6240-12-120-7950, Light source, 24 V, R 5 W
8HG 002 363-001	PU: 10, NSN: 5340-12-138-5086, Bracket
9GD 078 328-001	PU: 10, NSN: 5330-12-138-5085, Seal



Dimensions | Ø 76 mm, H 61 mm

Position lamp

Surface mounting, front, left/right; cable feed optionally from side or bottom through 2 glands PG11 with special sealing ring for 1 – 5 single cable 1.5 mm² with cable diameters of between 2.2 – 3 mm, wiring by means of screwed connection

Light function	Position light
Light source	Conventional bulb R 5 W
Rated voltage	12 V and 24 V
Power consumption	5 W
Protection class	Watertight up to 0.6 bar
Approved	UN-R7

2PF 001 645-011	PU: 1, NSN: 6220-12-156-5168, white light
2XS 001 645-057	PU: 10, NSN: 6220-12-310-3225, red light
	Accessories
8GA 002 071-121	PU: 10, NSN: 6240-12-120-7998, Light source, 12 V, R 5 W
8GA 002 071-241	PU: 10, NSN: 6240-12-120-7950, Light source, 24 V, R 5 W
9GD 078 328-001	PU: 10, NSN: 5330-12-138-5085, Seal
9GD 104 486-007	PU: 10, NSN: 5330-12-151-4413, Seal
9NS 104 488-097	PU: 10, NSN: 5975-12-311-4801, Screw
9NU 104 487-007	PU: 10, NSN: 5310-12-164-1827, Washer



Dimensions | Ø 56 mm, W 90 x H 65 mm

Blackout stop lamp

Surface mounting, rear, left/right with yellow or red lens; hole spacing of the fastening screws 45 mm (screws M6 x 25 and nuts included in delivery), fixing torque for fastening screws max. 2 Nm, cable feed from bottom through gland screw-type connection PG11 with special sealing ring for 1 – 5 single cable 1.5 mm² with cable diameters of between 2.2 – 3 mm, usable bulb T8/2 W

Light function	Blackout stop light
Light source	Conventional bulb H 2 W
Rated voltage	24 V
Power consumption	2 W
Protection class	Watertight up to 0.6 bar

2DA 001 324-021	PU: 1, NSN: 6220-12-151-4414, red lens
2DA 001 324-121	PU: 1, NSN: to be defined, yellow lens
	Accessories
8GP 002 068-241	PU: 10, NSN: 6240-12-120-7952, Light source, 24 V, H 2 W
9FT 091 148-001	PU: 5, NSN: 6250-12-132-5596, Bulb carrier
9GD 104 486-007	PU: 10, NSN: 5330-12-151-4413, Seal
9GP 085 005-001	PU: 10, NSN: 6220-12-138-5093, Washer
9NS 104 488-097	PU: 10, NSN: 5975-12-311-4801, Screw
9NU 104 487-007	PU: 10, NSN: 5310-12-164-1827, Washer



SIGNAL LIGHTING
CONVOY LAMPS



Dimensions | W 270 x H 272 x D 95 mm

Convoy lamp

Surface mounting, rear; guiding cross white, guiding cross flaps and light head varnished, **wiring by means of gland PG9**

Light function	Convoy light
Light source	Conventional bulb H 2 W
Rated voltage	24 V
Power consumption	2 W
Protection class	Watertight up to 0.6 bar

2PF 001 637-001	PU: 3, NSN: 6220-12-140-5767, for fixed mounting on the vehicle
2PF 001 637-017	PU: 3, NSN: 6220-12-138-3987, with detachable holding chain and 2-strand, supply cable (2-pin plug 8JA 001 915-001 to be ordered separately)
2PF 001 637-027	PU: 30, NSN: 6220-12-309-2437, Daimler only, with 500 mm long 2-strand cable, universal packaging on demand
	Accessories
8GP 002 068-241	PU: 10, NSN: 6240-12-120-7952, Light source, 24 V, H 2 W



Dimensions | W 270 x H 272 x D 95 mm

Convoy lamp

Surface mounting, rear; guiding cross white, guiding cross flaps and light head varnished, **wiring by means of gland PG11** with special sealing ring for 1–5 single cable 1.5 mm² with cable diameters of between 2.2–3 mm

Light function	Convoy light
Light source	Conventional bulb H 2 W
Rated voltage	24 V
Power consumption	2 W
Protection class	Watertight up to 0.6 bar

2PF 001 637-031	PU: 1, NSN: 6220-12-162-0204, for fixed mounting on the vehicle
2PF 001 637-041	PU: 1, NSN: 6220-12-151-4418, with detachable holding chain
2PF 001 637-061	PU: 1, NSN: to be defined, MAN only, with detachable holding chain
	Accessories for 2PF 001 637-031
8GP 002 068-241	PU: 10, NSN: 6240-12-120-7952, Light source, 24 V, H 2 W
9GD 104 486-007	PU: 10, NSN: 5330-12-151-4413, Seal
9NS 104 488-097	PU: 10, NSN: 5975-12-311-4801, Screw
9NU 104 487-007	PU: 10, NSN: 5310-12-164-1827, Washer



SIGNAL LIGHTING
CONVOY LAMPS



Dimensions | W 270 x H 272 x D 95 mm

Convoy light, Daimler

Surface mounting, rear; with 500 mm Daimler specific harness, corrugated hose, nominal bore 8,5 mm, norm connector A 928 000 020 black and protective cap

Light function	Convoy light
Light source	Conventional bulb H 2 W
Rated voltage	24 V
Power consumption	2 W
Protection class	Watertight up to 0.6 bar

2PF 001 637-077	PU: 36, NSN: to be defined, olive colour, universal packaging on demand
2PF 001 637-097	PU: 36, NSN: to be defined, grey-beige colour, with rubber base plate and brackets, universal packaging on demand



Dimensions | W 270 x H 272 x D 95 mm

Convoy lamp x-shaped, grey-beige

Surface mounting, rear, X-shaped, grey-beige; for fixed mounting on the vehicle, guiding cross white, guiding cross flaps and light head varnished, wiring by means of gland PG9, with removable fixation chain

Light function	Convoy light
Light source	Conventional bulb H 2 W
Rated voltage	24 V
Power consumption	2 W
Protection class	Watertight up to 0.6 bar

2PF 001 637-051	PU: 1, NSN: to be defined
2PF 001 637-087	PU: 36, with 500 mm Daimler specific harness, NSN: to be defined, universal packaging on demand

LED VERSIONS IN PREPARATION!

All versions of the „Convoy lamp X-Shaped, Grey-Beige“ (Surface-mounting, rear – X-shaped, grey-beige finish) will also be available as **LED versions** in the future.



SIGNAL LIGHTING
LICENCE PLATE LAMPS



Dimensions | Ø 56 mm, W 90 x H 65 mm

Licence plate lamp

Surface mounting, rear; hole spacing of the fastening screws 45 mm (screws M6 x 25 and nuts included in delivery), fixing torque for fastening screws max. 2 Nm, cable feed from bottom through gland screw-type connection PG11 with special sealing ring for 1–5 single cable 1.5 mm with cable diameters of between 2.2–3 mm

Light function	Numberplate light
Light source	Conventional bulb R 5 W
Rated voltage	12 V and 24 V
Power consumption	5 W
Protection class	Watertight up to 0.6 bar
Approved	UN-R4

2KA 001 324-051	PU: 1, NSN: 6220-12-159-6554
	Accessories
8GA 002 071-121	PU: 10, NSN: 6240-12-120-7998, Light source, 12 V, R 5 W
8GA 002 071-241	PU: 10, NSN: 6240-12-120-7950, Light source, 24 V, R 5 W
9EL 072 373-001	PU: 5, NSN: 6220-12-151-4415, Lens
9GD 104 486-007	PU: 10, NSN: 5330-12-151-4413, Seal
9GP 085 005-001	PU: 10, NSN: 6220-12-138-5093, Washer
9NS 104 488-097	PU: 10, NSN: 5975-12-311-4801, Screw
9NU 104 487-007	PU: 10, NSN: 5310-12-164-1827, Washer



Dimensions | W 82.7 x H 32.6 x D 23.7 mm

LED licence plate lamp 010 278

Flush mounting*, with bezel and 6.3 x 0.8 mm flat receptacles

Light function	Licence plate light
Light source	LED
Rated voltage	12 V or 24 V
Power consumption	1 W
Protection class	IP 6K9K
Approved	520 x 120 mm plate size: UN E1 2609 280 x 200 mm and 340 x 240 mm plate size: UN E1 2911

2KA 010 278-311	PU: 1, 12 V, for Licence plate size 520 x 120 mm
2KA 010 278-011	PU: 1, 24 V, for Licence plate size 520 x 120 mm
2KA 010 278-411	PU: 1, 12 V, for Licence plate sizes 340 x 240 mm and 280 x 200 mm

* 2 lamps required above licence plate.

SIGNAL LIGHTING
BEACONS



Dimensions | Ø 112 mm

K-LED Nano 80

LED beacon, rotating or flashing warning signal, black housing

Light function	Beacon
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	Flashing: < 19 W, Rotating: < 5 W
Protection class	IP 6K7, IP 6K9
Approved	UN-R65, UN-R10

2RL 099 979-011	PU: 1, amber, rotating, pipe socket mounting
2RL 099 979-001	PU: 1, amber, rotating, fixed mounting
2XD 066 979-011	PU: 1, amber, flashing, pipe socket mounting
2XD 066 979-001	PU:1, amber, flashing, pipe socket fixed mounting
2XD 066 979-211*	PU: 1, red, flashing, pipe socket mounting
2XD 066 979-201*	PU: 1, red, rotating, fixed mounting

* No UN-R65 approval, the relevant country-specific legal requirements and guidelines for motor vehicles must be observed when installing the product.



Dimensions | Ø 165 mm

K-LED 2.0

LED beacon, flashing amber warning signal, black housing

Light function	Flashing beacon
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	30 W
Protection class	IP 6K7, IP 6K9K
Approved	UN-R65, UN-R10

2XD 011 557-801	PU: 1, fixed mounting
2XD 011 557-811	PU: 1, pipe-socket mounting



Dimensions | Ø 188 mm

K-LED Quadra 100

LED beacon, amber warning signal, black housing

Light function	Double Flashing, Rotating & Steady ON
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	48 W
Protection class	IP 67, IP 69K
Approved	UN-R10, UN-R65, ADR / GGVSEB, SAE J845 Class 1

2XD 357 558-001	PU:1, xxx



Dimensions | customizable

Flexible Light Guide

One lighting solution for multiple operational scenarios, flexible integration and white and red illumination enable situation-specific lighting across different vehicle platforms, high-performance LED technology and optimized thermal management provide reliable, long-lasting illumination, while the cut-to-length light guide allows easy adaptation to different interior geometries without dedicated tooling costs

Light function	Interior and ambient light
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	2.2 W to 4.2 W (depending on the rated voltage)
Protection class	IP 3X

On request



Dimensions | W 85 x H 72 x D 72 mm

LED dome lamp 009 038

Both general and reading illumination; compact and durable design, easy „snap-in flush mounting“-option for quick and secure installation

Light function	Dome lamp and reading lamp
Light source	LED
Rated voltage	24 V
Power consumption	~ 5 W
2JA 009 038-327	PU: 48



Dimensions | W 145 x H 125 x D 69 mm

Interior lamp

Lens for reading light white, for night vision light blue or red, with integrated switch for functions: reading light/off/night vision light, bulb for reading light 12 V and 24 V, 21 W = (P25/1) for night vision light = 12/24 V 5 W (R19/5)

Light function	Interior light
Light source	Reading light: conventional bulb P 21 W Night vision light: conventional bulb R 5 W
Rated voltage	12 V and 24 V
Power consumption	21 W, 5 W
Protection class	IP 54
2JA 001 361-007	PU: 6, NSN: 6220-12-170-8081, blue night vision light
2JA 001 361-017	PU: 6, NSN: 6220-12-151-4468, red night vision light
	Accessories
8GA 002 071-121	PU: 10, NSN: 6240-12-120-7998, Light source, 12 V, R 5 W
8GA 002 071-241	PU: 10, NSN: 6240-12-120-7950, Light source, 24 V, R 5 W
8GA 002 073-121	PU: 10, NSN: 6240-12-159-7268, Light source, 12 V, P 21 W
8GA 002 073-241	PU: 10, NSN: 6240-12-150-4410, Light source, 24 V, P 21 W



Dimensions | W 133 x H 31 x D 34 mm

Interior lamp

Surface mounting; lamp switched on by opening the cover

Light function	Interior light
Light source	K10W
Rated voltage	12 V and 24 V
Power consumption	10 W
2AB 001 208-001	PU: 5, NSN: 6210-12-147-4230
	Accessories
8GM 002 091-131	PU: 10, Light source, 12 V, 10 W
8GM 002 091-251	PU: 10, Light source, 24 V, 10 W



Flexible LED reading lamp 343 720 621

Surface mounting; compact lamp head with on/off switch, black, flexible metal bracket with foot for fixed installation, with 400 mm lenght

Light function	Interior light
Light source	LED
Rated voltage	12 V and 24 V
2JA 343 720-621	White/red light, black housing, PU: 1

BLACKOUT VERSION ON REQUEST!
This lamp will also be available as with a blackout function in future.



Dimensions | W 133 x H 31 mm

Reading lamp

Switched by opening the cover, bulb holder with vibration damp bearing

Light function	Reading light
Light source	Conventional bulb H 2 W
Rated voltage	12 V and 24 V
Power consumption	5 W
2AB 001 208-021	PU: 5, NSN: 6210-12-121-7333, maximum opening angle 70°
2AB 001 208-031	PU: 5, NSN: 6210-12-151-6078, maximum opening angle 170°
	Accessories
8GP 002 068-121	PU: 10, NSN: 6240-12-120-7996, Light source, 12 V, H 2 W
8GP 002 068-241	PU: 10, NSN: 6240-12-120-7952, Light source, 24 V, H 2 W

INTERIOR LIGHTING
CEILING AND STEP LAMPS



Dimensions
Without bezel and switch |
W 91.6 x H 47 x D 29.2 mm

With bezel and switch |
W 125.35 x H 55.45 x D 29.2 mm

Mini OvalLED

White LEDs are ideal for use in conventional lighting tasks, the separate switching of colored LEDs can be used to achieve attractive red or blue ambient lighting, variants without switch and bezels are absolutely waterproof

Light function	Interior and ambient light
Light source	LED
Rated voltage	12 V or 24 V
Power consumption	1.7 W (E-LEDs), 3.6 W (G-LEDs)
Protection class	IP 6K9K (without bezel), IP 40 (with bezel)
	Without bezel and switch
2JA 343 570-011	PU: 1, 12 V, power (G-LEDs), red
2JA 343 570-117	PU: 48, 12 V, power (G-LEDs), blue
2JA 343 570-001	PU: 1, 24 V, power (G-LEDs), red
	With bezel and switch
2JA 343 570-051	PU: 1, 12 V, power (G-LEDs), red
2JA 343 570-071	PU: 1, 12 V, standard (E-LEDs), red
2JA 343 570-157	PU: 48, 12 V, power (G-LEDs), blue
2JA 343 570-041	PU: 1, 24 V, power (G-LEDs), red
2JA 343 570-061	PU: 1, 24 V, standard (E-LEDs), red
2JA 343 570-141	PU: 1, 24 V, power (G-LEDs), blue



Dimensions | W 84 x H 29 x D 9 mm

DuraLED 980 855

Slim design: thickness of 9 mm, low power consumption combined with a long lifetime, high resistance to external influences such as chemicals and UV radiation

Light function	Interior light
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	0.5 W
Protection class	IP 6K7, IP 6K9K
2XT 980 855-117	PU: 16, white
2XT 980 855-267	PU: 16, amber
2XT 980 855-347	PU: 16, red
2XT 980 855-517	PU: 16, green



Dimensions | Ø 86.3 mm, D 42 mm

Spot-shaped lamp 343 790

CELIS® ring upgrades the vehicle interior with pleasant, indirect ambient lighting, compact height enables flexible use

Light function	Interior spotlight
Light source	LED
Rated voltage	12 V
Power consumption	2.5 W
Protection class	IP 3X
2JA 343 790-301	PU: 1, white
2JA 343 790-311	PU: 1, black
2JA 343 790-411	PU: 1, black
2JA 343 790-011	PU: 1, black, with red ambient light
2JA 343 790-107	PU: 1, white, with blue ambient light
2JA 343 790-117	PU: 1, black, with blue ambient light

WORK LAMPS



Dimensions | W 115 x H 133 x D 85 mm



Ultra Beam LED Generation 2

6,500 K, high light output, robust design, upright and pendant mounting (except **ZERO**GLARE), DEUTSCH DT connector, overheating protection

Light source	LED
Rated voltage	12 V and 24 V
Power consumption	45 W
Light output (warm)	Close-range, long-range, spot: 4,400 lm **ZERO**GLARE: 3,000 lm
Protection class	IP 6K9K, IP 6K8
Housing color	Black (standard), bronze green (RAL 6031) and other colors on request
Approved	UN-R10, ADR/GGVSEB
Compliant*	RCM, CISPR 25 Class 5 (12 V and 24 V)
1GA 995 606-001	PU: 1, close-range illumination
1GA 995 606-011	PU: 1, long-range illumination
1GA 995 606-401	PU: 1, **ZERO**GLARE illumination
1GA 995 606-021	PU: 1, spot illumination

* MIL-STD-461: successful pre-evaluation (certification on request)



Dimensions | W 138 x H 179 x D 102 mm

Ultra Beam LED with magnetic base and spiral cable

6,500 K, can be positioned flexibly, immediately ready to use, with cigarette lighter plug, cable length 3,500 mm

Light source	LED
Rated voltage	12 V and 24 V
Power consumption	30 W
Light output (warm)	2,000 lm
Protection class	IP 6K9K, IP 6K8
Approved	UN-R10, ADR/GGVSEB
Compliant	RCM, CISPR 25 Class 5 (12 V and 24 V)
1GA 995 506-111	PU: 1, NSN: 6230-41-005-3315, close-range illumination



Dimensions | W 115 x H 133 x D 85 mm

Ultra Beam LED Generation 4 – Black Editon

5,700 K, strong performance in compact size, upright and pendant mounting, DEUTSCH DT connector, overheating protection

Light source	LED
Rated voltage	12 V and 24 V
Power consumption	Multi-voltage: 57 W 24 V: 68 W
Light output (warm)	Multi-voltage: 6,300 lm 24 V: 7,000 lm
Protection class	IP 6K9K, IP 6K8
Housing color	Black (standard), bronze green (RAL 6031) and other colors on request
Approved	UN-R10, ADR/GGVSEB
Compliant	RCM, CISPR 25 Class 5 (12 V and 24 V)
1GA 995 806-401	PU: 1, close-range illumination, Multi-voltage
1GA 995 806-411	PU: 1, long-range illumination, Multi-voltage
1GA 995 806-421	PU: 1, close-range illumination, 24 V
1GA 995 806-431	PU: 1, long-range illumination, 24 V



Dimensions | W 83 x H 114 x D 64 mm

Module 70 S-series II – Black Edition

6,500 K, black and compact design, heat-conductive plastic, upright and pendant mounting, DEUTSCH DT connector, overheating protection

Light source	LED
Rated voltage	12 V and 24 V
Power consumption	12 V: 17 W* 24 V: 17 W**
Light output (warm)	1,850 lm (Further lumen variants available on request.)
Protection class	IP 6K7, IP 6K9K
Approved	UN-R10, ADR/GGVSEB
Compliant	RCM, CISPR 25 Class 5 (12 V) and Class 4 (24 V)

1G0 996 776-401	PU: 1, close-range illumination,
1G0 996 776-411	PU: 1, long-range illumination



Dimensions | W 83 x H 111 x D 74 mm

Module 70 LED Generation 5

6,500 K, compact design, three high-performance LEDs, upright and pendant mounting, DEUTSCH DT connector, overheating protection

Light source	LED
Rated voltage	12 V and 24 V
Power consumption	12 V: 29 W* 24 V: 27.7 W**
Light output (warm)	3,500 lm
Protection class	IP 6K9K, IP 6K8
Housing color	Black (standard), bronze green (RAL 6031) and other colors on request
Approved	UN-R10
Compliant	RCM, CISPR 25 Class 5 (12 V and 24 V)

1G0 996 476-001	PU: 1, close-range illumination,
1G0 996 476-011	PU: 1, long-range illumination
1G0 996 476-031	PU: 1, extra-wide illumination



Dimensions | W 83 x H 145 x D 159 mm

Module 70 LED handheld search lamp

6,500 K, compact handheld design, flexible illumination wherever it is needed, three high performance LEDs

Light source	LED
Rated voltage	12 V and 24 V
Power consumption	Gen. 3: 13 W Gen. 5: 29 W (12 V)*, 27.7 W (24 V)**
Light output (warm)	Gen. 3: 800 lm Gen. 5: 3,500 lm
Protection class	IP 6K9K, IP 6K7
Approved	UN-R10

1H0 996 376-491	PU: 1, Generation 3, spot illumination
1H0 996 476-501	PU: 1, Generation 5, long-range illumination
1H0 996 476-511	PU: 1, Generation 5, close-range illumination

* Warm measured at 13.2 V after 30 minutes of operation.
** Warm measured at 28 V after 30 minutes of operation.



Dimensions | W 112 x H 95 x D 66 mm

Power Beam S-series III – Black Edition

6,500 K, black design, heat-conductive plastic, upright and pendant mounting, DEUTSCH DT connector, overheating protection

Light source	LED
Rated voltage	12 V and 24 V
Power consumption	12 V: 22 W 24 V: 22 W
Light output (warm)	2,150 lm
Protection class	IP 6K7, IP 6K9K
Approved	UN-R10, ADR/GGVSEB

1GA 996 688-401	PU: 1, close-range illumination
1GA 996 688-411	PU: 1, long-range illumination



Dimensions | W 243 x H 66 x D 38 mm

FMS Prime – Black Edition

6,500 K, flat & compact design, for confined installation situations

Light source	LED
Rated voltage	12 V and 24 V
Power consumption	28 W
Light output (warm)	2,500 lm
Protection class	IP 6K9K, IP 6K8
Approved	ADR/GGVSEB

1GB 996 098-011	PU: 1



Dimensions | W 528 x H 44 x D 74 mm

RokLUME S700 Red

VISIOTECH projection technology for communication using light, Projects a red strip-shaped warning line to increase safety by indicating danger zones, with 2,500 mm cable

Light function	VISIOTECH projection technology
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	25 W
Protection class	IP 6K9K, IP 6K7
Approved	UN-R10, RCM

2XD 958 130-661	PU: 1

HYPALUME SERIES

Reliable illumination whenever needed.

HIGH-POWER AREA LIGHTING

Wide and homogeneous illumination of working and operational areas helps crews perform maintenance, logistics, loading operations, and vehicle inspections efficiently during low-light and nighttime conditions.

Enhanced Operational Safety

Improved visibility around the vehicle supports obstacle detection, safer personnel movement, and better coordination during area activities.



Ready for Harsh Deployment Conditions

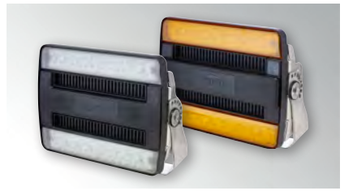
The sealed housing, advanced thermal management, and integrated electrical protection functions ensure dependable performance in demanding military and off-road operations.

BUILT FOR EXTREME CONDITIONS

Built to withstand extreme environments, HypaLUME is resistant to dust, water, vibration, shock, corrosion, chemicals, and UV exposure, ensuring reliable operation where conventional lighting reaches its limits.

Flexible Integration

Available with different beam patterns for close-range, long-range, or extra-wide illumination, allowing vehicle manufacturers and integrators to tailor the lighting concept to specific requirements.



Dimensions | W 520 x H 360 x D 166 mm

HypaLUME 24/48 V DC

Specially developed for illuminating areas with extremely high light requirements, fully sealed and corrosion-protected

Light source	LED
Rated voltage	24 V DC/ 48 V DC
Power consumption	max. 260 W
Light output (warm)	25,000 lm
Protection class	IP 6K9K, IP 6K7
Approved	RCM, FCC

1GJ 011 872-501	PU: 1, clear cover lens, close-range illumination
1GJ 011 872-511	PU: 1, clear cover lens, long-range illumination
1GJ 011 872-521	PU: 1, clear cover lens, extra-wide illumination
1GJ 011 872-601	PU: 1, amber cover lens, close range illumination



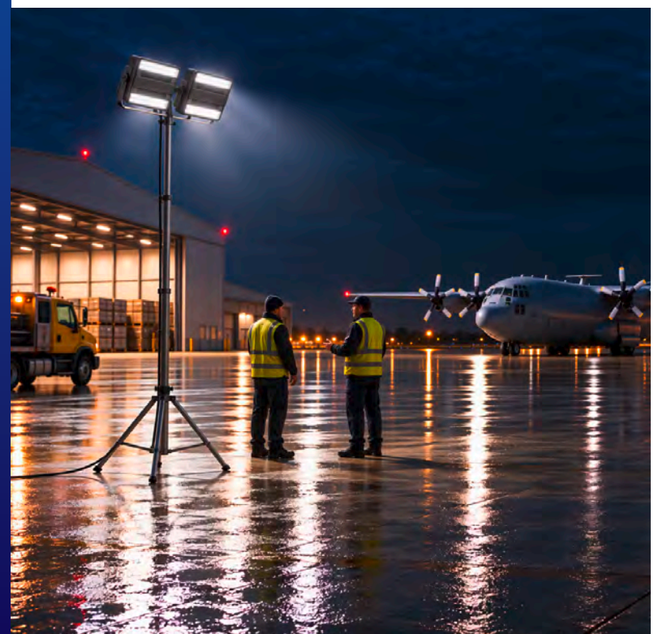
Dimensions | W 520 x H 360 x D 180 mm

HypaLUME 110/230 V AC

Specially developed for illuminating areas with extremely high light requirements, fully sealed and corrosion-protected

Light source	LED
Rated voltage	110 V AC/230 V AC
Power consumption	max. 300 W
Light output (warm)	28,000 lm
Protection class	IP 6K7, IP 6K6

1GJ 958 334-011	PU: 1, clear cover lens, close-range illumination
1GJ 958 334-021	PU: 1, clear cover lens, long-range illumination
1GJ 958 334-031	PU: 1, clear cover lens, extra-wide illumination
1GJ 958 334-111	PU: 1, amber cover lens, close-range illumination
1GJ 958 334-121	PU: 1, amber cover lens, long-range illumination





MARINE LIGHTING

In the marine sector, ruggedness, absolute reliability, and standard-compliant visibility are critical to the safety of modern maritime vessels. Hella marine navigation lights are specifically designed to perform consistently under extreme conditions and reliably meet the operational requirements of military yacht builders. With fully sealed, shock-, vibration-, and corrosion-resistant LED systems, they produce clear, unmistakable signals – even in the most demanding operational scenarios.

CONTENT

- Navigation lamps

The navigation lamps are currently available exclusively to marine retailers and can only be purchased from specialist marine retailers.

HELLA
Hella marine

NAVIGATION LAMPS



Dimensions | W 87 x H 90 x D 57 mm

NaviLED Pro Port Navigation Light

Visibility 2 NM, black shroud with red lens, 2.5 m cable

Light function	Navigation light, red
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	< 2W (0.17 A at 12 V, 0.09 A at 24 V)
Protection class	IP 67
Approved	IMO COLREG 72, USCG, ABYC C-5, Maritime NZ, Wheelmark (MED), Red Ensign, RCM
2LT 017 460-001	PU: 1, NSN: 6260-98-209-3614

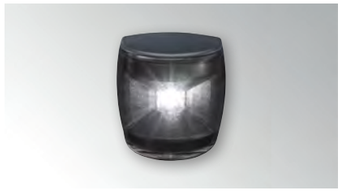


Dimensions | W 87 x H 90 x D 57 mm

NaviLED Pro Starboard Navigation Light

Visibility 2 NM, black shroud with green lens, 2.5 m cable

Light function	Navigation light, green
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	< 2W (0.17 A at 12 V, 0.09 A at 24 V)
Protection class	IP 67
Approved	IMO COLREG 72, USCG, ABYC C-5, Maritime NZ, Wheelmark (MED), Red Ensign, RCM
2LT 017 461-001	PU: 1, NSN: 6260-98-209-3613



Dimensions | W 87 x H 90 x D 57 mm

NaviLED Pro Stern light white

Visibility 2 NM, black shroud with clear lens, 2.5 m cable

Light function	Navigation light, white
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	< 2 W (0.17 A at 12 V, 0.09 A at 24 V)
Protection class	IP 67
Approved	IMO COLREG 72, USCG, ABYC C-5, Maritime NZ, Wheelmark (MED), Red Ensign, RCM
2LT 017 462-001	PU: 1, NSN: 6220-41-004-2903



NAVIGATION LAMPS



Dimensions | Ø 60 | H 56 mm

NaviLED 360 Compact All Round White Navigation Lamps

Visibility 2 NM, black shroud with white LED, 500 mm cable, surface mounting

Light function	Navigation light, white
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	1 W
Protection class	IP 67
Approved	IMO COLREG 72, Wheelmark (MED), USCG, ABYC C-5, Maritime NZ, Red Ensign, RCM
2LT 980 960-001	PU: 1, NSN: 6220-41-003-1550



Dimensions | Ø 90 | H 68

NaviLED 360 PRO – All Round Navigation

2NM, black shroud with white lens, 1.4 m cable, surface mounting

Light function	Navigation light, white
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	1.5 W
Protection class	IP 67
Approved	IMO COLREG 72, Wheelmark (MED), USCG, ABYC C-5, Maritime NZ, Red Ensign, RCM
2LT 980 910-121	PU: 1

NAVIGATION LAMPS



Dimensions | Ø 85 | H 95

NaviLED TRIO Tri Colour Navigation Lamp

2NM, black shroud with white, green and red lens, 400 m cable

Light function	Navigation light, white, green and red
Light source	LED
Rated voltage	12 V and 24 V
Power consumption	Port, Starboard and Stern – <3.5 W combined All Round White/Anchor – <1.5 W
Protection class	IP 67
Approved	BSH, IMO COLREG 72, USCG, ABYC A-16, RCM, Maritime NZ
2LT 980 650-001	PU: 1
2LT 980 650-007	PU: 10



CROSS-REFERENCES

NATO STOCK NUMBERS (NSN)

As well as the manufacturer's part number, parts logistics at depot organisations and tactical vehicles manufacturers are also based on the international NATO supply number (NSN). After the users have applied and the relevant authorities have issued them, these NSNs are assigned to FORVIA HELLA products and are provided in this overview.



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