

# LIGHTING TECHNOLOGY INFRARED AND CIVIL/WHITE LIGHT



**BEYOND VISIBILITY**

## Infrared, headlamp and lighting range

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We are happy to provide separate product data sheets, 2D drawings, CAD data and approval documents for all NOLDEN products on request.



NOLDEN: 0 MINUTES LATE

## **NOLDEN**

DEFENCE

Uncompromisingly high quality is our foundation – and has been for over four decades. That is how long NOLDEN has been dedicated to the demanding field of vehicle lighting. What sets us apart is our specialist expertise in high-quality technical LED solutions that must perform where standard products fail.

We focus not on quantity, but on quality and technological excellence. This commitment to excellence has made us a long-standing, valued and reliable partner to the defence industry. Today, we are proud to count almost all leading defence companies among our loyal customer base. Our products are not merely lighting; they are mission-critical components that have proven themselves thousands of times over in demanding conditions.

For us, innovation is not just a buzzword, but a daily reality. Whether it involves the development of highly specialised infrared systems or the integration of state-of-the-art 4th-generation LED technology – we consistently break new ground to ensure our customers' superiority in the field.

In doing so, we have a decisive advantage: NOLDEN's ideal size. We are large enough to independently develop highly complex, certified product groups. At the same time, we are agile enough to respond quickly and flexibly to the specific requirements and special requests of our partners.

This gives us confidence and provides you with the assurance that you are receiving first-class lighting solutions, both technologically and tactically.

Innovation made to measure, rather than off-the-peg solutions.



## We produce first-class products in series

At NOLDEN, we keep it simple. We accept only one standard of quality: the very best. The best ideas, the best engineering, the best design, the best components, the best manufacturing. All of this comes as standard with us – without exception in every one of our products.

To ensure you can be confident that you are receiving only the very best from NOLDEN, we apply the strictest standards to the finished product as well. Through rigorous testing and extensive inspections, we give engineers and end customers the assurance that they are receiving absolutely safe and high quality lighting.

But that is still not all. We also insist on the highest quality in our collaboration with manufacturers, developers and customers. Because for us, quality does not end with the product; it is only just beginning. After all, we want to retain your trust for many years to come.

**NOLDEN: Quality – quite simply.**

## Uncompromising



### LIFETIME

This can take some time: we provide you with the theoretical service life of the LED as determined by us. For NCC® headlights and luminaires, we assume a service life of 30,000 hours for the LED and the electronics. That is no less than three and a half years of continuous operation.



### ENVIRONMENTAL TESTS

The SAE standards organisation has been in existence since 1905. However, its regulations are up to date and modern – such as the SAE J2139 standard, which, among other things, defines the standard for environmental testing of lighting components for commercial vehicles. All our products must undergo these practical tests. And, of course, they pass them.



### PROTECTION CLASS

NCC® headlights and lights have to withstand a great deal. For example, the highest protection class, IP6K9K or IP67. This means, for instance, resistance to the jet of a high-pressure cleaner directed at a headlight and absolute protection against dust and submersion.



### APPROVAL

That is the law: NCC® headlights and lights comply with all legal requirements and regulations. This is documented by the mandatory approval of our products with the ECE mark valid in Europe and, outside Europe, with SAE approval. Further approvals such as CCC or similar are possible.



### RADIO INTERFERENCE

Electronics can be found everywhere in modern vehicles. Naturally, these components must not be subject to electromagnetic interference or cause any themselves. However, the highest possible standard under CISPR25 is merely the minimum standard for us – NCC® headlights and lights meet far higher requirements in terms of interference-free operation.



### WARRANTY

Everyone has to offer two years. That is the duration of the statutory warranty. However, NCC® headlights and lights are proven and tested quality products. That is why we voluntarily offer a three-year warranty on them, with no restrictions. You can rest assured.



### Military Standard (MIL)

Some NOLDEN spotlights and lights are tested to MIL-STD and are certified accordingly. It makes no difference whether our products are used for civilian or military applications – this designation stands for the highest standards.



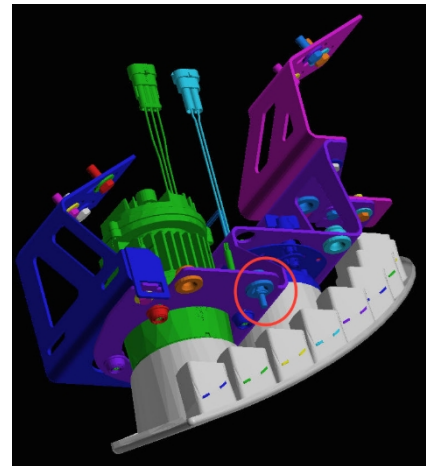
Engineering

**Partnership on equal terms: your vision, our solution**

What does working with NOLDEN look like in practice? We see ourselves not merely as a supplier, but as a strategic development partner who translates your individual requirements into precise technology.

**Engineering & Design Integration**

Our experienced engineers and CAD designers support you right from the first sketch. We design new headlamps and lighting systems with precision, tailored exactly to your specific manufacturing needs. In doing so, we work seamlessly with your in-house design teams or external partners to combine technical perfection with your design language.



**Specialised solutions for the military and defence sector**

For use in extreme environments, we primarily offer robust complete systems. Alternatively, our innovative NCC® modules provide enormous design freedom: they combine state-of-the-art technology with the scope for a bespoke design that clearly sets you apart from the competition.

**Full-service packaging**

Even for small batches We know that innovation does not always require production runs in the millions. That is why we offer our full range of services even for comparatively small quantities. Our ‘one-stop shop’ principle includes:

- **Optics:**
- **Peripherals:** Precisely fitting bezels, brackets and mounting systems
- **Electronics:** Assemblies and light sources using intelligent light LED technology
- **Logistics:** We deliver worldwide



## The evolution of night vision: Infrared technology on the modern battlefield

The ability to operate, conduct reconnaissance and move across terrain in complete darkness without revealing one's own position is one of the key factors in the superiority of modern armed forces. Where traditional, visible lighting concepts immediately expose one's own signature and make the vehicle and its crew a direct target for enemy reconnaissance, infrared (IR) technology comes into play. The mere use of residual light amplifiers quickly reaches its physical limits without a moonlit sky. This is particularly true in dense foliage and in the absence of any residual light from cities. Here, vehicle-mounted infrared systems act as active light sources that are almost invisible to the human eye. They not only drastically increase the range and depth of detail of night vision, but also make it possible to drive safely in convoy or to quickly leave danger zones.

For tactical planning and system integration on vehicle platforms, the choice of the correct infrared wavelength is of strategic importance.

### 850 nm – Maximum range and illumination performance

- **The operational advantage:** An IR spotlight with 850 nm delivers extremely high light output and enables ranges of up to 150 metres and more.
- **The tactical trade-off:** When looking directly into the spotlight's optics from a short distance, a faint, reddish glow from the LED diodes is visible ('red glow').



### 940 nm – Absolute concealment and covert operations

- **The operational advantage:** This wavelength is almost invisible to the human eye. There is barely any perceptible glow from the diodes at the front of the vehicle. Furthermore, 940 nm offers excellent signature control, as this frequency is almost undetectable even by older first-generation night vision devices as well as standard smartphones or digital cameras.
- **The tactical trade-off:** As the photocathodes of older night-vision devices are significantly less efficient in the 940 nm range, the effective viewing range is reduced compared to 850 nm at the same power output, but is generally still more than adequate. To exploit the full potential of 940 nm, use in combination with modern third-generation low-light image intensifiers or advanced CMOS digital sensors, which are specifically optimised for this wavelength, is recommended.

### One system. All wavelengths. Uncompromising operational readiness

Whether it's maximum detection range or absolute, residual-light-free signature detection – with our portfolio of professional infrared illumination systems, we fully meet the most diverse and extreme requirements of modern armed forces and security forces. Through our precise mastery of both tactical wavelengths (850 nm and 940 nm, or a combination of both), we offer vehicle manufacturers and procurers tailor-made, defence-certified solutions that can be seamlessly integrated into any vehicle architecture.



## NCC® 70 mm IR Bi-LED: Professional infrared technology for the most demanding requirements

When light discipline determines the success of a mission, the **NCC® 70 mm IR Bi-LED** is the tool of choice. Tried and tested thousands of times by international forces, this compact spotlight enables safe movement across terrain with full night vision – without revealing one's own position through visible light.

### Tactical superiority through infrared precision:

- **Combined Bi-IR system:** The first universal infrared spotlight to combine low beam and high beam in a compact 70 mm housing.
- **Signature control (940 nm):** Available in the 940 nm wavelength for maximum concealment. This wavelength produces an extremely low signature for the human eye, smartphones and even first-generation night vision devices.
- **Civilian appearance:** The optics are designed to look like a conventional, dark spotlight. This allows civilian vehicles to be equipped discreetly for covert investigations or special operations.



### Maximum illumination in the field:

- **Precise low beam:** A wide illumination range of 30 to 40 metres enables safe navigation and the early detection of IEDs and enemy forces.
- **Powerful high beam:** With a range of up to 150 metres (at 850 nm), the high beam enables extremely rapid troop movements in the field and provides effective target illumination.

### Built for the toughest conditions:

- **Extreme efficiency:** With a power consumption of less than 4 W (dipped beam) or 8 W (main beam), it can be used without any problems even on vehicles with low-output alternators (e.g. ATVs, SSVs or snowmobiles).
- **Toughest protection:** Certified to **IP6K9K** and **IP68** and shock-resistant up to **40G**.
- **Military classification:** The headlamp is officially classified as military equipment and meets the most common MIL standards.
- **NATO Stock Number:** The product has a NATO Stock Number (NSN5855-12-401-4672) and is therefore available to all NATO partners directly via established supply chains.



**NCC® 70 mm IR Bi-LED – See without being seen.**



## NCC® Starlight IR: Invisible precision for the convoy

### Maximum safety with minimal signature

In covert operations, maintaining light discipline is mission-critical. The NCC® Starlight IR stop and tail light offers a highly specialised solution for safe convoy driving whilst using night vision goggles (NVG). With its ultra-compact, inconspicuous design, it blends seamlessly into the vehicle structure and remains virtually invisible to the naked eye.

#### Key tactical advantages:

- **Optimised camouflage:** The 940 nm wavelength, combined with an integrated IR filter, ensures a minimal signature, ideal for covert operations.
- **Intelligent warning function:** Whilst the tail light enables constant position tracking, the brake light actively warns of deceleration via a rapid flashing light. The brake signal always takes priority.

**Precise distance estimation:** When fitted in pairs, the system enables an exact estimation of the distance within the convoy.

- **Low-profile design:** With a look reminiscent of a PDC sensor, the light remains completely inconspicuous on the vehicle.

#### Technically equipped for the field:

- **Highest protection rating:** Thanks to fully encapsulated electronics, the luminaire is completely waterproof and submersible (IP6K9K / IP68).
- **Simple system integration:** Installation is tool-optimised via a simple 26 mm borehole ('plug-and-push').
- **Extreme reliability:** Equipped with Osram IR LEDs and a wide voltage range from 9 V to 33 V for use in all military vehicle electrical systems.
- **Durable:** Designed for a temperature range of -40 °C to +80 °C using high-strength PA6 housing material.

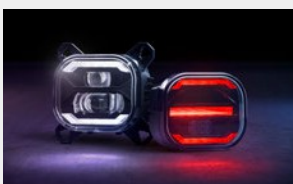
NCC® Starlight IR – See without being seen. The professional choice for tactical convoy security.



## NCC® AVEGO LED dipped and main beam headlights

Exclusive Octagon Edge Light: 8 corners for countless views – the two chamfered light units of the NCC® Avego Edge LED modules shine as the 'roof' and 'foundation' of the futuristic octagon design. At the outer edges, the intense Edge Light stands out in all its sharpness and brilliance. In the dipped-beam module shown here, the striking lower lens also catches the eye, providing a particularly wide beam and combining safety with an aesthetic statement.

- Holistic concept: Unique Edge Light design, perfectly matched for the front and rear.
- Technology leader: State-of-the-art 4th-generation LED technology for maximum light output and longevity.
- Multifunctionality: Low-beam module (up to 3 functions) and high-beam module (up to 3 functions including indicator).
- Clean design: No visible screws after installation for a flawless look.
- Tested quality: Full ECE and EMC approval for worry-free use on the road.



### UNIQUE FROM FRONT TO REAR

Here, everything comes together as it should: the NCC® Avego Edge LED module for the front of the vehicle and the perfectly matching NCC® Avego Edge LED rear light form a harmonious design unit. A special highlight for brand presence: your company logo can also be placed on the rear version, where it is effectively illuminated – your branding in the best light.



## NCC® 90mm 4th Gen LED low-beam and high-beam headlights

### Make way for a unique Edge Light design

The NCC® Nova 90 mm G4 breaks with the familiar design concept of a continuous light ring. Instead, four equally sized light arcs catch the eye. Together, they form a unique Edge-Light ring – each at 90° with a striking gap between the light units.

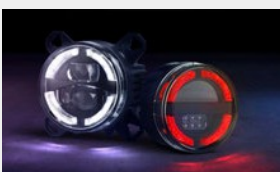
This creates a special sense of spatial depth from which the sharply defined light emerges.

Maximum performance in a classic format: our tried-and-tested 90 mm modules reach a new level in the 4th. They offer maximum light output in a compact design and are the ideal solution for demanding vehicle manufacturers and retrofitting applications.

Whether as dipped beam or main beam – the 4th generation 90mm series impresses with state-of-the-art thermal management systems and further enhanced efficiency. The modules have a modular design and allow flexible integration into almost any vehicle design.

### Features

- Unique Edge-Light design for front and rear
- State-of-the-art 4th generation LED technology
- Low-beam module with up to three light functions (low beam, daytime running light, position light)
- Main beam module with up to three lighting functions (main beam, position light, indicator)
- Rear light module with up to four lighting functions (tail light, brake light, indicator and, optionally, rear fog light or reversing light)
- ECE and EMC approval



### Distinctive for front and rear

What looks even better than NCC® Nova 90 mm G4 at the front of the vehicle? The combination with the perfectly matching NCC® Nova 90 mm LED rear lights. In the same distinctive Edge Light design and with a stylish 3D effect. Bringing together what belongs together.



## NCC® 2nd Gen 90mm BiLED low-beam and high-beam headlights

### The benchmark for the toughest military requirements

When the mission allows for no compromises, the **NCC® 90 mm Bi-LED 2nd generation** is the technically validated solution. This headlamp has been specifically developed for environments where civilian standards fall short. Its key advantage for procurers and vehicle manufacturers: comprehensive **MIL testing** that guarantees maximum resilience under combat conditions.



### Why decision-makers choose the 2nd generation:

- **MIL certification:** Meets the stringent requirements for military components – an essential criterion for approval in defence projects.
- **Extreme shock and vibration resistance:** Specially hardened for use on tracked and heavy wheeled vehicles, where conventional LED systems would suffer structural damage.
- **Integrated anti-flicker solution:** Thanks to the 'Terminal 30' connection and halogen-free cable fitted as standard, the module offers stable performance in complex military vehicle electrical systems.
- **Proven reliability in series production:** Tested for years in successful series production by renowned vehicle manufacturers worldwide.

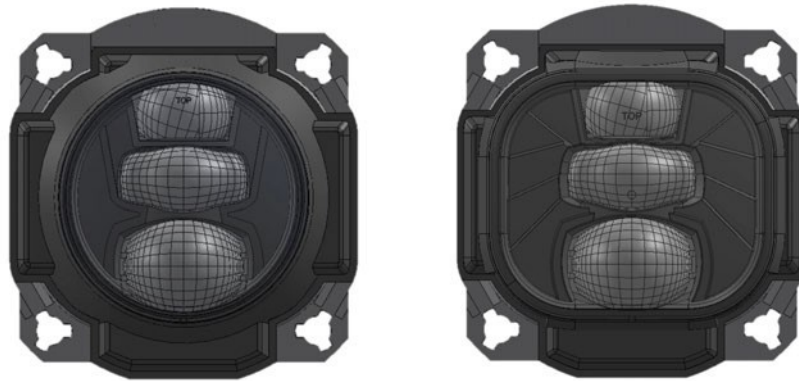
### Maximum flexibility in use

- **Full compatibility:** The intelligent modular design enables the seamless replacement or addition to existing 90 mm LED or halogen systems.
- **All-in-one solution:** The control unit is fully integrated into the compact housing, which simplifies installation and eliminates additional sources of error in the vehicle.

### Technical data & support for engineers

We support your system integration right from the initial planning phase. 2D drawings, 3D CAD data and detailed test reports for MIL certification are available on request.

**NCC® 90 mm G2 – Certified toughness for the applications that matter.**



## NCC® 3rd Gen 90mm BiLED low-beam and high-beam headlights

### Maximum operational readiness for defence and special operations

In tactical environments, light is a crucial factor for situational awareness and safety. The NCC® 90 mm Bi-LED G3 has been developed to withstand the toughest conditions worldwide. With its combination of reduced installation depth, extreme shock resistance and superior light output, it sets the new standard for military vehicle platforms.

### Tactical superiority through technical precision

- **Field illumination:** The new lens geometry enables a seamless transition between dipped and main beam. This ensures uninterrupted visibility at both close and long ranges – critical for obstacle detection in rough terrain.
- **Camouflage & Signature:** The matt black inner baffle minimises unwanted reflections from the headlamp when switched off, thereby helping to reduce the optical signature.



### Built for the extreme

- **Protection class IP6K9K & IPx8:** Completely dustproof and waterproof, even when submerged or cleaned with high-pressure steam jets.
- **Climatic endurance:** Operational in a temperature range of -40 °C to +70 °C. The dual Nitto Denko system ensures active pressure equalisation and prevents the optics from fogging up during rapid temperature changes.
- **EMC:** Certified to **CISPR25 Class 4** and **ISO 7637-2**. This guarantees that the headlights do not cause interference in sensitive radio or positioning systems and are even immune to electrical system pulses.



### Logistical flexibility

- **Global:** As it is available in **ECE (LHD & RHD)** and **SAE (FMVSS108)** versions, the module can be used in international fleets worldwide without modification.
- **Heavy-duty connection:** The **DEUTSCH DT socket** integrated into the housing ensures a vibration-resistant and vibration-proof electrical connection that remains stable even under extreme shock loads (tested to SAE J575).
- **Multivolt system:** Supports vehicle electrical systems from **9 V to 33 V** and is therefore compatible with light tactical vehicles (12 V) as well as heavy logistics and combat vehicles (24 V).

**NCC® 90 mm G3 – When reliability determines the success of the mission.**



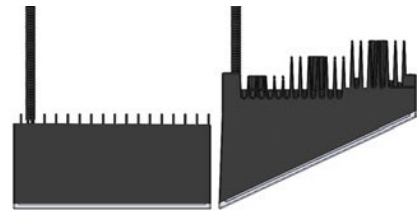
## NCC® ARTON – Form follows function, performance follows the mission

**Progressive. Modular. Superior.**

The NCC® ARTON series redefines the visual identity of modern military vehicles. Moving away from the classic round design towards a striking, rectangular design, specifically developed for integration into highly complex vehicle fronts and modular protective armour. The ARTON combines state-of-the-art lighting performance with the robustness critical to the defence sector.

### Tactical advantages for the defence sector

- **Compact design for maximum armour:** The rectangular design of the ARTON allows for optimised placement in the vehicle front. This enables smaller cut-outs in the armour, thereby maximising crew protection without compromising light output.
- **Cutting-edge lighting functions:** The ARTON series is designed as a bi-LED system (dipped and main beam) and offers light output that ensures superior situational awareness even under the most challenging off-road visibility conditions.



### Robust technology for tough conditions

- **Maximum visual signature control:** Available in deep black to minimise the vehicle's visual signature when switched off.
- **Extreme durability:** Like all NCC® High-Performance systems, the ARTON is designed for use in extreme climates. The high-quality lens materials and optimised housing design withstand shock, vibration and harsh environmental conditions such as sand, salt and moisture.
- **EMC & electronic safety:** The ARTON series is designed for interference-free integration into highly sensitive vehicle electrical systems with extensive radio and sensor technology.

### Integration & Adaptability

- **Modular design:** The ARTON can be combined perfectly with other modules from the NCC® family to create a uniform and functional lighting concept for entire





## NCC® 90 mm multifunction module: One module – up to 5 lighting functions

We are proud to present this innovative addition to our 90 mm series. This module sets new standards by combining powerful white light and infrared technology in a single housing. With **up to five** integrated lighting functions, this module eliminates the need for additional lights on the vehicle.

The system features daytime running lights and position lights utilising state-of-the-art LED light guide technology. As both the fog light and indicator functions are already fully integrated, this module offers an unprecedented density of functions in a very compact space.

### The tactical advantage: infrared dipped beam

This 90 mm module becomes an absolutely universal operational tool thanks to the additional infrared dipped beam. In combination with our proven 90 mm Bi-LED main headlamp (dipped/main beam), all MIL-standard requirements are fully met. This synergy of visible and invisible light makes the module the ultimate equipment for professional emergency services.



### Available versions

	5-in-1 module	4-in-1 module
MIL standard	✓	✓
Matt black finish	✓	✓
Daytime running lights	✓	✓
Parking lights	✓	✓
Indicator	✓	✓
Fog lights	✓	✓
IR dipped beam	✓	

	4-in-1 ECE module	3-in-1 module ECE
ECE standard	✓	✓
Available in matt black or chrome	✓	✓
Daytime running lights	✓	✓
Parking lights	✓	✓
Indicator	✓	✓
Fog lights	✓	
IR dipped beam		



## NCC® 7" Bi-LED G2: The original. Legendary. Indestructible.

The 2nd generation NCC® 7" Bi-LED is more than just a headlamp – it is a legacy. The first generation already made history as original equipment in the final production of the legendary Land Rover Defender. The current G2 series continues this tradition, combining state-of-the-art LED technology with the ruggedness essential for the toughest off-road applications and military requirements.

### Technical excellence

- **Maximum illumination:** The intelligent switching of the high beam to the low beam creates an extremely homogeneous and long-range illumination. Obstacles are detected earlier, which significantly increases safety during night-time manoeuvres.
- **4-in-1 lighting system:** Integrates dipped beam, main beam, daytime running lights and position lights in a compact housing. The daytime running lights and position lights are designed as highly efficient light guides.
- **Optimised signature control:** Available in the 'Stealth' version with a completely matt black inner bezel
- **Plug-and-play integration:** The tried-and-tested **H4 connector** enables existing vehicle fleets to be retrofitted quickly without the need for complex rewiring.
- **Global readiness:** Available for left-hand and right-hand drive (LHD/RHD) to ensure international interoperability.

Designed for use in environments where material failure is not an option. The G2 series offers maximum luminous efficacy in the smallest of spaces and withstands extreme vibrations and climatic stresses.



The 5.75" Bi-LED headlamp with LED dipped and main beam headlights, as well as LED daytime running and position lights using light guide technology, is the 'little twin' of the 7" Bi-LED headlamp. Its compact dimensions also open up a wide range of applications. The 5.75" headlamp is also available in matt black; you can choose between versions for left-hand or right-hand traffic, and a symmetrical version is also available.

Infrared Version on request.



## NCC® Short Line 3: 360° flexibility for almost all vehicle fronts

The **NCC® Short Line 3 LED multifunction light** is a field-proven, high-strength lighting solution specifically developed for the extreme demands of military and law enforcement special-purpose vehicles. Thanks to its ultra-compact design, it is the perfect answer to the challenges of modern, highly protected vehicle architectures.

### Tactical highlights and integration benefits:

- **360° rotation:** The groundbreaking, fully rotatable housing design allows for completely flexible and protected integration even into the most complex front grilles and armoured structures.
- **State-of-the-art light guidance:** Equipped with the latest generation of vibration-resistant LED light guide technology, the light withstands even massive mechanical shocks in rough terrain.
- **Modular configuration:** The system can be tailored precisely to the requirements of the respective platform – either as a combined daytime running light and position light or as a tactical direction indicator (indicator).
- **Active signature management:** To consistently prevent unwanted reflections during field operations, the inner bezel is available as standard in a matt black finish (**Black Bezel**) in addition to the classic chrome version.

**NCC® Short Line 3 – Compact multifunctionality for maximum protection and flexibility in the field.**



Position light



Daytime running light



Indicator



## NCC® HD Taillight: The new multifunctional package for tactical mobility

With the **NCC® HD Taillight**, we are redefining rear lighting for professional use. This state-of-the-art 5-in-1 system combines all relevant lighting functions in an extremely flat and robust housing, which has been specially developed to meet the tough demands of the battlefield and heavy-duty applications.

### Key features

- **Ultimate stealth design:** The light impresses with a completely inconspicuous appearance, with no visible reflectors or coloured elements when switched off.
- **EMC resilience:** The control units are EMC-optimised to ensure a minimal interference signature whilst offering maximum immunity to radiated interference.
- **Compact design:** With extremely flat dimensions of just **192 x 41 x 25 mm**, the system can be integrated even in the most challenging spaces.
- **Material quality:** A solid die-cast aluminium housing ensures structural integrity.
- **Maximum protection:** The PC front panel features a durable hard coating to automotive standards.
- **Reliable cabling:** Sheathed cables with professional PG screw connections protect the electronics from adverse environmental influences.
- **One-size-fits-all principle:** Thanks to the **180° rotatable design**, only one housing type is required for both sides of the vehicle – significantly reducing spare parts inventory.
- **Interfaces:** Standard connection via 6-pin DT connectors, with customised solutions available at any time.



### The ideal retrofit solution

The NCC® HD Taillight is the perfect modernisation option for existing fleets. Using a special adapter plate, the module can be seamlessly integrated into the existing metal housings of classic multi-chamber halogen lights (e.g. standard Bundeswehr rear light BW 6220-12-151-4411).

Examples of successful retrofits include platforms such as the Boxer, Eagle IV, M113 and the Unimog.



## NCC® AVEGO Micro: Maximum impact with minimal signature

In modern operational scenarios, weight savings and low visibility are often crucial. The NCC® AVEGO Micro LED family has been developed to offer maximum functionality in the smallest of spaces. Weighing just 75 g and with extremely compact dimensions (55 x 48.5 mm), it is the ideal solution for covert installations, unmanned systems (UAV/UGV) or specialised tactical vehicles.

### The tactical USPs for defence and special forces:

- **Minimal optical signature:** Thanks to the matt black inner bezel, the light remains virtually invisible when switched off and minimises distracting reflections.
- **Extreme integration capability:** The shallow installation depth of just **36 mm** allows placement in locations inaccessible to standard lights – ideal for integration into flat armour panels.
- **Multifunctionality in the smallest of spaces:** Each module offers up to two lighting functions (e.g. tail/brake light). This reduces the number of cut-outs required in the vehicle body and enhances structural integrity.

### Superior durability for the field:

- **IP6K9K & IPx8 certification:** Completely dustproof and waterproof when submerged. The Micro series withstands the toughest cleaning regimes and extreme environmental conditions.
- **Climatic resilience:** Operational from -40 °C to +60 °C. The integrated Nitto Denko® membrane ensures permanent pressure equalisation and prevents the lens from fogging up during extreme weather changes.
- **EMC:** Tested to **ISO 7637-2** and **CISPR25 Class 3**. This guarantees interference-free operation with sensitive radio and communication equipment on board.

### Technical details:

- **Voltage range:** Full multivolt capability (**9–33 V**) for use in all military vehicle electrical systems.
- **Connection:** Robust DEUTSCH DT connectors guarantee a vibration-resistant and reliable electrical connection under shock loads.
- **Material:** High-strength polycarbonate (PC) housing for maximum impact resistance.



## NCC® Nova 90 mm G4 LED rear light: The stage is set for a unique Edge Light design

### Advantages of the Nova series:

- **Segmented light signature:** The division into four light arcs ensures a sharply defined light edge, enabling clear identification of the vehicle's rear even in dust, rain or fog.
- **Holistic design system:** The rear lights are perfectly matched to the NCC® Nova front headlights to ensure a continuous, professional vehicle signature from front to rear.
- **Maximum reliability:** Thanks to state-of-the-art 4th-generation LED technology, the module offers exceptional service life and vibration resistance – essential for long-term use in rough terrain.
- **Compact integration:** The standardised 90 mm dimension allows for seamless integration into existing housing structures or modular bumper systems.
- **Multi-voltage capability:** Can be used without issue in 12 V and 24 V vehicle electrical systems for maximum flexibility within the fleet.

NCC® Nova 90 mm G4 – Sharply defined safety for an unmistakable presence.



### UNIQUE FROM FRONT TO REAR

Here, what belongs together comes together: the NCC® Avego Edge LED module for the vehicle front and the perfectly matching NCC® Avego Edge LED rear light form a harmonious design unit. A special highlight for brand presence: your company logo can also be placed on the rear version, where it is effectively illuminated – your branding in the best light.



## NCC® Avego Edge LED rear light

The NCC® Avego Edge LED rear light is the logical counterpart to the front lighting and completes the circle of a well-thought-out vehicle design. With its striking, futuristic octagonal design and unique 3D effect, it creates an unmistakable light signature that combines aesthetics with uncompromising functionality.

Distinctive Edge Light design and stylish 3D effect. Bringing together what belongs together. Available only as a white light headlamp.

### Superiority at the rear:

- **Multifunctional integration:** A single module combines up to **four** key lighting functions: rear lights, brake lights and indicators are optionally complemented by a rear fog light or a reversing light.
- **Custom branding option:** Unique on the market, the rear variant offers the option of placing a company or unit logo directly within the light housing. Thanks to targeted illumination, your brand or identification is effectively highlighted even at night.
- **Robust housing design:** Like the entire Avego Edge series, the rear light is designed without visible screws, which not only enables a 'clean design' but also minimises the surface area susceptible to dirt and corrosion.
- **Cutting-edge lighting technology:** Equipped with state-of-the-art 4th-generation LED technology for maximum light output with minimum energy consumption.
- **Fully certified:** With ECE and EMC approval, the rear light is suitable for worldwide use in



### UNIQUE FROM FRONT TO REAR

Here, everything that belongs together comes together: the NCC® Avego Edge LED module for the vehicle front and the perfectly matching NCC® Avego Edge LED rear light form a harmonious design unit. A special highlight for brand presence: your company logo can also be placed on the rear version, where it is effectively illuminated – your branding in the best light.



## NCC® Impulse TL1: Dynamism and safety for the field of operation

### Next-generation light guide technology

The **NCC® Impulse TL1** sets new standards for the rear signature of modern special-purpose and military vehicles. Inspired by automotive engineering, it brings an exclusive lighting design to the defence sector that combines aesthetics with functional superiority. Thanks to state-of-the-art light guide technology, a distinctive night-time design is created.

### Features and system benefits:

- **Maximum design freedom:** The horizontal and vertical mounting options allow for flexible and customised positioning of the rear light.
- **Patented safety:** The TL1 is fully compatible with the patented **NCC® LMS** light failure monitoring system, which guarantees seamless functional monitoring during operation.
- **Dynamic signalling:** Available with dynamic flashing light
- **Expandable modular system:** The base unit can be seamlessly supplemented with specific modules for reversing lights and rear fog lights.



### Outlook: The evolution begins

We are not resting on the success of the TL1 Impulse series. Performance is about to reach a new level. Coming soon: the **NCC® TL1 EVO**.

A logical evolution featuring state-of-the-art light graphics. Look forward to a modern design, increased efficiency and an even more robust construction.



## NCC® LED worklight family (MIL-STD)

### Maximum illumination. Tactical flexibility.

The NCC® LED worklight family, compliant with MIL-STD, is the logical evolution of the battle-tried 115/6000 worklight. Specially designed for the extreme demands of military and police applications, this series offers unrivalled versatility in light control and housing robustness.

### Applications on the battlefield:

- Ambient lighting: Optimal safety and visibility around the emergency vehicle.
- Additional driving light: Assistance in poor visibility conditions and off-road.
- Precision lighting: Ideal light source for working on the vehicle or illuminating weapon stations.

### Configuration options:

Choose from a wide range of lighting combinations to precisely meet the requirements of your mission:

- Pure white light: Switchable in two stages with an impressive output of up to 5,000 lm.
- Pure infrared (IR) solution: Also switchable in two stages. Unique: A mix of 850 nm and 940 nm is available for maximum stealth requirements.
- Hybrid systems: Combination of white light and infrared (optionally 850 nm or 940 nm).
- We are happy to produce further customised versions on request.

### Built for the front:

- Stealth design: Supplied in a discreet, matt black housing including a black front bezel for minimal visual signature.
- Heavy-duty mounting: A robust bracket made of black stainless steel guarantees a secure hold even under severe shock and vibration loads.
- Professional connection: The shielded cable is routed out of the spotlight via a high-quality PG cable gland. Customised connectors can be fitted at any time.

**NCC® LED work lights – Tactical lighting in every situation. Reliable under MIL conditions.**

**NOLDEN**  
DEFENCE

EDURO



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