NOLDEN
cars & concepts

SPECIAL FORCES, SECURITY & DEFENCE

LIGHTING TECHNOLOGY

INFRARED AND WHITE LIGHT

YOUR VISION IS OUR MISSION

CONTENTS

Infrared, spotlight and light programme

Illustration shows a mobile worklight of type 115 in battery operation

We do what we can
And we can do what we do

NOLDEN cars & concepts

Namely uncompromisingly high quality. And this has been the case for over 20 years. For so long

NOLDEN CARS & CONCEPTS is dedicated to the demanding field of vehicle accessories in general. And technically high-quality lighting solutions in particular. We develop and market LED headlights and lights that make the difference on every vehicle.
We also have halogen headlights and lights in our programme.

Because NOLDEN CARS & CONCEPTS does not focus on quantity. But on class, modernity and high quality.
We have a premium claim that we consistently enforce in all facets of our business and in every detail of our products. What we deliver is premium. Anything else is out of the question for us.

For us, it is essential that not only the technology is state of the art. Also with the

We are breaking new ground in the design of our products and assemblies. Innovation is not just a buzzword for us, it is the daily practice of a modern company.

Finally, we have another advantage: the ideal size of NOLDEN CARS & CONCEPTS. We are large enough to develop and market high-quality product groups independently.
But not too big, so that we can react quickly and flexibly to our customers' every wish.

That makes us confident. And gives you the certainty of receiving first-class lighting solutions in terms of technology and style.

Innovation in customised suits instead of "off-the-peg" clothing. Time for new ways!

OUR CLAIM

We offer first-class products in series

We at NOLDEN CARS & CONCEPTS make it easy for ourselves. We simply accept only one quality: the best. The best ideas, the best construction, the best design, the best components, the best manufacturing. We offer all of this as standard, in every o n e of our products without exception.

To give you the certainty that you are only getting first-class products from NOLDEN CARS & CONCEPTS, we also apply the strictest standards to the finished product. With tough tests and extensive inspections, we provide engineers and end customers with the certainty of receiving an absolutely safe and high-quality lighting solution.

But that's not all. We also prioritise the highest quality when working with manufacturers, developers and customers. Because for us, quality doesn't end with service, it really begins with it. After all, we want to retain your trust for many years to come.

NOLDEN CARS & CONCEPTS: Quality - quite simply.

You can rely on this

LIFETIME

This can take some time: We will give you the theoretical service life of the LED as determined by us. For NCC® floodlights 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.

PROTECTION CLASS

NCC® lights and luminaires have to withstand a lot. For example, the highest protection class IP6K9K or IP67. And that means, for example, resistance to the jet of a high-pressure cleaner directed at a floodlight and absolute impermeability to dust and submersion.

RADIO INTERFERENCE

Electronics can be found everywhere in modern vehicles. Naturally, these components must not be subject to electromagnetic interference or disturbance. However, the highest possible standard according to CISPR25 is only the minimum standard for us - NCC® headlights and lights fulfil far higher requirements in terms of freedom from interference.

ENVIRONMENTAL TESTS

The SAE standardisation organisation has been around since 1905. However, its regulations are current and modern - such as the SAE J2139 standard, which defines the standard for environmental tests of lighting components for commercial vehicles, among other things. All our products have to undergo these practical tests. And of course they pass them.

APPROVAL

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

WARRANTY

Everyone has two years. That's how long t h e statutory warranty lasts. However, NCC® headlights and lights are proven and tested quality products. That's why we voluntarily give a three-year guarantee on them without restriction. So you can rest assured.

Military Standard (MIL)

Some NOLDEN headlights and lights are tested in accordance with 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.

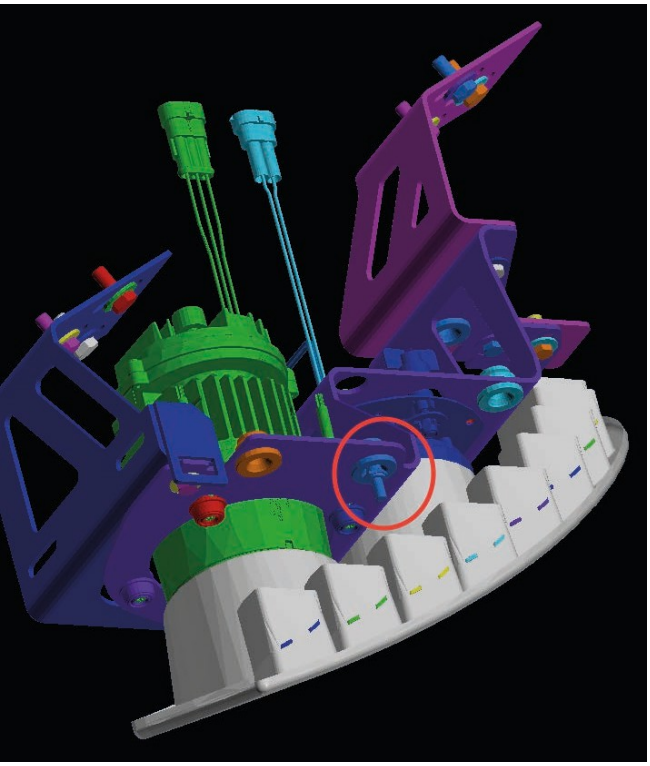
We will not let you down

Develop and manufacture a product, offer it, deliver it - done. Really finished? Does a customer really get the complete package that satisfies them if we simply manufacture and provide products?

We at NOLDEN CARS & CONCEPTS have asked ourselves these and many other questions. And have come to a realisation: No, simply supplying a specific product is not enough for us. We want more - namely a holistic solution that ensures maximum satisfaction on all sides.

This led us to the new philosophy of NOLDEN CARS & CONCEPTS: we supply complete solutions, developed together with the customer on request and produced ready for installation. And we have learnt that we have met exactly the right demand, not least from smaller manufacturers.

CAD engineering provides manufacturers with customised solutions



What can a collaboration between a manufacturer and NOLDEN CARS & CONCEPTS look like? For example: Our experienced engineers and CAD designers design the new development of a headlight to the manufacturer's requirements. Naturally, we work together with the manufacturer's own or external designers.

For military vehicles, complete and self-contained headlights are the preferred choice. However, solutions based on our innovative NCC® modules also allow a great deal of design freedom and scope to stand out from the competition with customised design and state-of-the-art technology.

That is why we are also happy to offer complete packaging in comparatively small quantities. And this includes everything that is required for production: headlamps and lights, covers and brackets, wiring harnesses and light failure monitoring systems. If required, everything can also be delivered to the customer in customised packaging units.

One thing is clear: for NOLDEN CARS & CONCEPTS, every order comes from a major customer.

SNAPLOC® from BÖLLHOFF: SNAPLOC® is a two-part system - ball stud and coupling - for quick installation. The coupling is installed on the component to be mounted in the mounting geometry provided for this purpose and held in place with a positive fit. The ball stud is mounted on the mating component. Connecting by pushing on and releasing by pulling off - an optimum fit with quick assembly is guaranteed.

Security by day and night

The European standard rightly shows no mercy here. If a vehicle wants to be driven on public roads in Europe and receive the ECE approval mark, it must have a failure check for the lighting on board, among other things. This means a system that monitors the headlights and indicators and warns the driver unmistakably in the event of a failure - by means of a warning tone and a corresponding visual message in the cockpit.

So far so good and correct. However, the fact that the on-board electronics and diagnostic systems of most vehicle models are designed for conventional lights makes it a little problematic.

For example, halogen indicators or xenon headlights. However, modern LED units are true marvels - which have the advantage of consuming far less energy, among other things. The on-board electronics system now classifies this lower LED load as a "fault", as it regards the lower power values as an indication of a defect.

Good advice is not expensive here - but it is also not expedient. You could install resistors in the cable harnesses. At best, this would lead to unnecessary power being wasted. The savings effect of an LED solution would be lost. And in the worst case, resistors could even cause smouldering fires. That is why this emergency solution is rightly banned.

NOLDEN CARS & CONCEPTS has found a state-of-the-art solution to this dilemma: **NCC® LMS**.

NCC®LMS: The patented luminaire failure monitoring system

Technical innovations and state-of-the-art solutions have long been a hallmark of NOLDEN CARS & CONCEPTS. A successful example of this is NCC® LMS - the load monitoring system for **failure control** of LED lights and LED spotlights. Developed by NOLDEN CARS & CONCEPTS for LED modules - patented and versatile.

Thanks to NCC® LMS, the vehicle's **light failure control** system no longer has any problems coping with modern LED solutions on headlights, combination rearlights or indicators. The vehicle's legally required failure control system functions smoothly.

In general, the system is remarkably undemanding. After all, it is compact and robust, with a dustproof and waterproof housing and excellent electrical properties. Even a harsh environment or demanding operating conditions leave NCC® LMS quite cold.

WORKLIGHTS

NCC® 115-4500: LED worklight (white light)

The NCC® LED worklight 115-4500 is a compact, modern and powerful LED worklight with 16 LEDs. The floodlight has been developed for professional heavy-duty work applications.

A high-strength aluminium housing, a hardened and impact-resistant polycarbonate lens and a solid stainless steel holder ensure maximum reliability. Its innovative design allows both the LED board and the front screen as well as the connection cable to be replaced. Changing from close-range to wide-range illumination is possible at any time by replacing the front screen. A combined cover lens (close-range and wide-range illumination) is available as an option.

Optional accessories round off the programme for the new NCC® 115-4500. A heavy-duty stainless steel bracket, a handle and a black front frame are available. Detailed technical information on this spotlight is available separately.

Technical data

- Dimensions: 115x145x88mm
- Powerful high-end LED worklight
- 12 V and 24 V voltage
- 45 W output power
- Extremely long service life with over 30,000 hours for electronics and LEDs
- Electronic temperature monitoring
- Shock and vibration resistant up to 40 g
- Water and dust resistant to IP6K9K and IP68
- Also works up to 9 V at low voltage for additional safety in an emergency
- High flexibility. Change from close-range to wide-range illumination or to a combination of close-range and wide-range illumination by simply changing the disc
- Various mounting options and brackets available
- All main components can be serviced and replaced
- Daylight-like illumination with 3,900 lm (acc.) and 6,300° K (acc.)
- Solid aluminium housing, hardened and impact-resistant polycarbonate front lens and stainless steel brackets
- EMC-tested and approved, protection against radio interference and mixed polarity
- also available MIL-STD tested
- Universally applicable for any type of vehicle
- Mobile version available

NCC® 115IR: LED infrared worklight

The NCC® LED worklight family in accordance with MIL-STD is the logical further development of the tried-and-tested 115/4500 worklight for military/police applications. The typical work application:

- Ambient lighting on the vehicle
- Additional driving light
- Worklights
- Illumination of weapon stations, etc.

The spotlight can be supplied in multiple versions:

- White light only, switchable in 2 stages and with up to 5000 lm
- IR only, but switchable in 2 stages and also possible in 850 nm and 940 nm mix
- Combination of white light and IR, IR with 850 nm or 940 nm
- Combination of IR and green
- Further versions on request

The spotlight comes with an inconspicuous black housing, a black front panel and a black heavy-duty stainless steel mounting bracket. The shielded cable is protected by a PG screw connection from the headlight. Customised connectors are of course always possible.

Technical data

- Dimensions: 115x145x88mm
- 12 V and 24 V voltage
- Very long service life with up to 30,000 hours for electronics and LEDs
- Shock and vibration resistant up to 40 g
- Water and dust resistant to IP6K9K and IP68
- Also works up to 9 V at low voltage for additional safety in an emergency
- High flexibility. Change from close-range to wide-range illumination or to a combination of close-range and wide-range illumination by simply changing the lens
- Various mounting options and brackets available
- All main components can be serviced and replaced
- Solid aluminium housing, hardened and impact-resistant polycarbonate front lens and stainless steel brackets
- EMC-tested and approved, protection against radio interference and mixed polarity
- Tested according to MIL standard 461 and 1275
- Universally applicable for any type of vehicle
- Mobile version available

MOBILE WORKLIGHTS

NCC® 115-4500: Mobile LED worklight

The NCC® 115-4500 mobile worklight is ideal for use in rescue, firefighting, repair and maintenance work as well as military operations. The mobile NCC® 115-4500 is compact and easy to transport and is quickly ready for use thanks to its short set-up time. The precise illumination supports the user on site in any situation. The extremely robust design and universal mounting, e.g. using magnets directly on the vehicle or the base plate, which can be adapted to the ground conditions, allow precise and targeted illumination at the site. Power can be supplied by rechargeable batteries, the vehicle electrical system or fuel cells. An optional remote control for switching on and off rounds off the overall package.

Various backpacks from Lindnerhof and MIL-TEC are a v a i l a b l e , as well as interchangeable front frames for close-range illumination. Alternatively, the system is also available as a version with a mobile LED infrared worklight or with green light. Please contact us separately for detailed technical information.

The familiar BB-2590 battery type can be used in the "Professional Light" version. In the "Military" version, a battery holder for the types P3-350, P3 14/25, BB2013 and BT-70884BE is available. The battery types mentioned are not included in the scope of delivery, but can be obtained from our partners.







INFRARED LED MODULES

NCC® 70mm LED infrared low beam and high beam headlights

Thanks to specially developed optics, the dipped beam headlamp is undetectable to the human eye even without the use of expensive IR filters and under typical operating conditions. A sharp upward cut-off line prevents dazzling of the traffic ahead in the convoy. Furthermore, the use of 940 nm significantly reduces the recognisability of the headlamp (the typical glow of previous

IR spotlight is not available) and its illumination for old Generation I night vision devices.

Detectability with smartphones, tablets or digital cameras is made considerably more difficult. The spotlight is available in both 850 nm and 940 nm.

nm available. Detailed

VN: NSN5855-12-401-4672

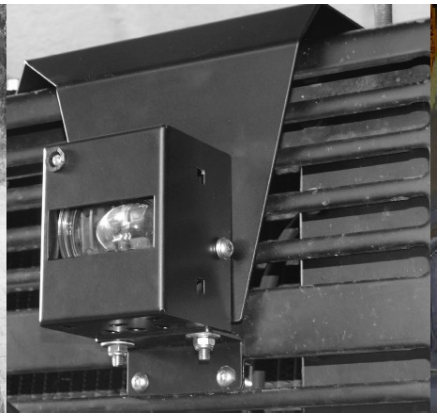
- OSRAM High Power LED
- Die-cast aluminium housing
- Hardened headlight glass
- Resistant to high-pressure cleaners (IP6K9K/IP68)
- 850 nm or 940 nm
- 30,000 hours service life (LED and electronics)
- 480 h salt spray test
- VG 95370, GWK 1/2
- CISPR 25 Level 5 (highest radio interference immunity)

The users call it revolutionary, we call it a consistent development in co-operation with the users. The NCC® 70mm LED infrared low beam and high beam headlamp is a completely new development and is based on years of development in the field of infrared technology.

The new 70mm infrared headlamp combines a low beam and high beam headlamp in the smallest of spaces. With the latest OSRAM LED technology and a low power consumption of 4W (low beam) and 8W (high beam), the infrared headlamp is up to date for the future.

Variants and accessories

- 70mm Bi-LED infrared headlights (low beam and high beam)
- 70mm mono-LED infrared headlights (dipped beam)
- Universal bracket for pipe mounting



HEADLIGHT MODULES

NCC® 70 and 90mm LED floodlight modules (white light)

NOLDEN is a pioneer and one of the first suppliers of LED dipped beam and auxiliary headlights for retrofitting on the automotive market. With the 90mm LED module series, an innovative product has been developed for the market, which is based on a standard size that has been available for many years.

NOLDEN was the first supplier to include 70 mm headlight modules in its programme more than 15 years ago. Many tens of thousands of versions for various applications prove that we meet the tastes of customers and the requirements of manufacturers. For military use, all headlights and lights are available in matt black.

Naturally with ECE and SAE approval in accordance with the highest standards in terms of radio interference suppression.

Variants for 2025

90mm NOVA G4
Low-beam headlamp
Daytime running light
Position light

90mm NOVA G4
High beam indicator
Position light

90mm Bi-LED G3
Low beam headlights
High beam headlights

White light 70mm low beam headlamp Daytime running light Position light Indicator light Fog light

Infrared 70mm
Low beam
Bi-LED (low beam + high beam)

HEADLIGHT MODULES

NCC® AVEGO (white light)

"Stylish"

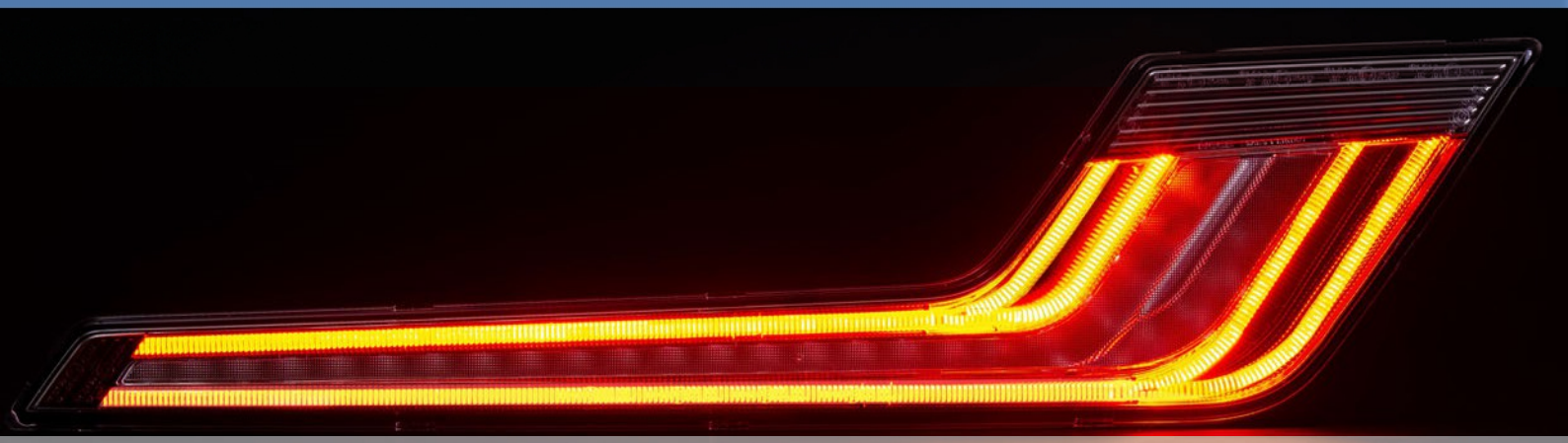
The NCC® **AVEGO** LED headlights in the two versions "U" and "O" offer unimagined new design possibilities for your vehicles. The daytime running light, position light and indicator function is performed by a fibre optic cable. The new NCC® **AVEGO Edge** series utilises Edge Light technology and ensures an unmistakable design.

The latest LED technology is included and a sensationally small installation dimension helps even in difficult installation conditions. Ex works with DEUTSCH plug in the housing; adapters to other plug configurations are of course possible. Versions for ECE LHD and ECE RHD as well as for SAE are available. Inner cover only in

Also a technological highlight:

The high beam headlamp of the NCC® AVEGO and NCC® AVEGO Edge can be ordered in versions with an integrated resistor for indicator failure control or ISO pulse. An "anti-flicker function" is already integrated in all versions of the low beam and high beam headlamps for use in vehicles with PWM vehicle electrical systems.

TAILLIGHTS



NCC® TL1 (white light)

Why make compromises?

Let your creativity run free. Modern technology without compromise - and with great design freedom. The NCC® TL1 allows maximum design and styling freedom. A striking appearance during the day and an unmistakable design at night thanks to state-of-the-art fibre optic technology make this combination rearlight unique. The combination with our patented NCC® LMS luminaire failure monitoring system can of course also be realised.

Modernity without compromise, which has been protected by a corresponding patent.

Special product features

- 360° rotation of the rear light possible in 90° steps
  Rear light with fibre optic technology
- Stop light with fibre optic technology
- Horizontal and vertical installation possible
- Sequential flashing light (SIC technology)

Technical data

- 12 V and 24 V
- ECE approval
  EMC approval
- SAE J2139
- Temperature Application range: -40 °C - +80°C

- ROHS & REACH compliant
- Suitable for: Automotive, motorhome,
  bus, special vehicle construction

NCC® AVEGO Edge - Exclusive Octagon Edge Light (white light)

8 corners for countless views - the two sharp-edged luminaires 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, creating a particularly wide beam.

Bringing together what belongs together: the NCC® AVEGO Edge LED module for the front of the vehicle and the perfectly matching NCC® AVEGO Edge LED combination rearlight. In the same unique edge light design and with a stylish 3D effect. A company logo can also be placed on the rear version, which is illuminated through. Only available as white light headlight.

Available from 2025 and only exclusively from NOLDEN

TAILLIGHTS

Ring free for unique edge light design

NCC® Nova 90 mm G4 breaks with the familiar design concept of a continuous ring of light. Instead, four equally sized light arcs attract attention. Together, they form a unique edge light ring - each at 90° with a striking gap between the luminaires. This creates a special spatial depth from which the sharply defined light emerges

Unmistakable 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 the same unmistakable edge-light design and with a stylish 3D effect. Bringing together what belongs together. Only available as white light headlight.

Available from 2025 and only exclusively from NOLDEN

NCC® 5.75" Bi-LED main headlights (infrared white light)

This new infrared main headlamp is based on the new 5.75" LED main headlamp. The fibre optic technology for the position light significantly increases visibility in road traffic. The military version is equipped with an additional, integrated infrared low beam and high beam headlamp.

This means that the headlamp has all the lighting functions required for a military vehicle:

- Low beam headlights (white light)
- Spotlight (white light)
- Position light Fibre optic technology (white light)
- IR dipped beam headlights (infrared)
- IR remote spotlight (infrared)

A civilian version in chrome and with additional LED daytime running light (then without IR light functions) in fibre optic technology is also available.

All you need to complete the bike is an indicator light. For a low signature, all non-reflective surfaces are painted in an unobtrusive matt black. Variants for right-hand and left-hand traffic are also available in the range. The headlamp generally fits all standard vehicles with original 5.75" halogen headlamp inserts. The infrared headlamp is available in **850 nm** and **940 nm.**

This main headlamp enables simple and cost-effective regeneration of existing vehicles to the latest LED lighting technology. The integration of the latest IR lighting is already included. You are welcome to request detailed technical information from us separately. This article is only available on request and is not available from stock.

Accessories

- Universal mounting kits available
- Connection cable for daytime running position light optionally available

Technical data

- LED and electronics have a service life of over 30,000 hours
- LED position light with fibre optic technology
- Black die-cast aluminium housing
- H4 connections for plug & play
- PAR46 mounting
- Low installation depth
- Die-cast aluminium housing
- 720 h salt spray test
- Available in black matt
- Approvals according to ECE (SAE available as an option)
- Tested according to MIL standard

HEADLIGHTS

NCC® 7" Bi-LED main headlights (infrared white light)

The 7" Bi-LED headlamp from NOLDEN is the conceptual fusion of four headlamp systems. As a full-LED headlamp for the civilian sector, LEDs fulfil the following lighting functions:

-Dipped beam headlights
-Remote spotlight
-Daytime running light and position light with fibre optic technology

The military version is equipped with an additional, integrated infrared low beam and high beam headlamp. This version does not have a light guide. The headlamp contains all the lighting functions required for a military vehicle:

- Low beam headlights (white light)
- Spotlight (white light)
- Position light (white light)
- IR dipped beam headlights (infrared)
- IR remote spotlight (infrared)

A black matt IR version and a black "stealth" civil version is available for an unobtrusive vehicle design. Various headlight types are also available in the range for right-hand and left-hand traffic. The headlamp generally fits all standard vehicles with original 7" halogen headlamp inserts, e.g. Mercedes G-model, Jeep Wrangler, Land Rover Defender and Hummer. Detailed technical information on this headlight is available separately.

Technical data

- LED service life of over 30,000 hours
- Additional LED daytime running light in fibre optic technology with 8 W output
- White street lighting
- H4 connections for plug & play
- Standard 7" mounting (PAR56)
- Low installation depth
- Die-cast aluminium housing
- 480 h salt spray test
- Available in chrome, black chrome and black matt
- Approvals according to ECE and SAE
- Tested according to MIL standard

Accessories

- Mounting kit Mercedes G-model
- Universal mounting kits available
- Connection cable for daytime running position light optionally available

INFRARED LED MODULES

NCC® 30mm mono LED infrared spotlight

Size and weight are sometimes crucial. Based on our experience in the infrared light sector, w e are able to present our new 30 mm mono LED infrared spotlight.

The compact dimensions with a standard diameter of 30 mm and the powerful and homogeneous illumination make this infrared spotlight a small marvel.
An adjustable illumination angle from spotlight to floodlight, various wavelengths (850 nm 940 nm) and optional dimming guarantee the best illumination on site. An integrated IR filter reduces the ability to provide illumination. The floodlight is multi-voltage capable from 9-30V.

The 30mm infrared spotlight is tough: a completely waterproof encapsulated and black anodised aluminium housing ensures that it can be used without failure.

Variants and accessories

- Customised plugs possible
- Various mounting options (e.g. Picatinny rail)
- 850 nm wavelength
- 940 nm wavelength

INFRARED TORCH

NCC® Mini infrared torch (CTL)

Small and powerful

Our new mini infrared torch CTL (Concealed Torch Light) has been specially developed for light mounting.
However, it can also be concealed inside clothing, on robots or equipment.

The infrared torch is extremely light at 50 g and very compact at 64x32x30 mm. The powerful LED provides perfect illumination up to 60 m at 850 nm. T h e 940 nm version cannot be seen with the naked eye from a distance of 3 metres.

The operating time with a CR123 battery is between 3-100 hours, depending on the power level. The integrated magnets allow universal and quick attachment. A special highlight is the milled aluminium housing, which is waterproof and submersible and protects the electronics. The image quality of digital cameras is significantly better with
the use of the RAZOR and thus contributes to the reconnaissance and analysis of areas of application.

- Dimension: 64x32x30
- Weight: approx. 50 g incl. battery
- Various power levels selectable (low, high, medium)
- Operating time at the highest level: approx. 3 hours
- Operating time at lowest level: approx. **100 hours**
- Digital control for constant brightness
- All functions selectable via 1-button operation
- Only 1 CR123 battery required
- Robust aluminium housing
- IPX-8 protection class
- submersible up to approx. 10 m

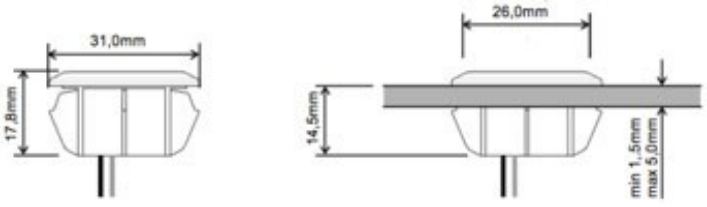
CONVOY INFRARED TAILLIGHT

NCC® Konvoi infrared tail light "Starlight"

Perfectly camouflaged

Enables safe driving in convoys with night vision goggles as IR tail light and brake light:

- Recognising the vehicle position
- Warning when the vehicle brakes, by rapid flashing light
- Distance estimation when 2 lights are installed
- Very compact dimensions
- Simple installation
- Unobtrusive design and appearance like a PDC sensor
- Waterproof, watertight with encapsulated electronics
- Osram IR LED
- Integrated IR filter to reduce the signature
- Wavelength 940 nm for covert operations
- Voltage range 9 V - 33 V
- Housing material PA6



- 940nm
- 31x18mm
- Current consumption max. 50mA @ 12V
- Art. No. 0847
- 9-33V
- Cable 3x0.5qmm, approx. 160mm open cable ends
- Use between -40° and +80°C
- 30,000 hours service life

LIGHT DECIDES

NCC® LED worklights

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