

NORKA

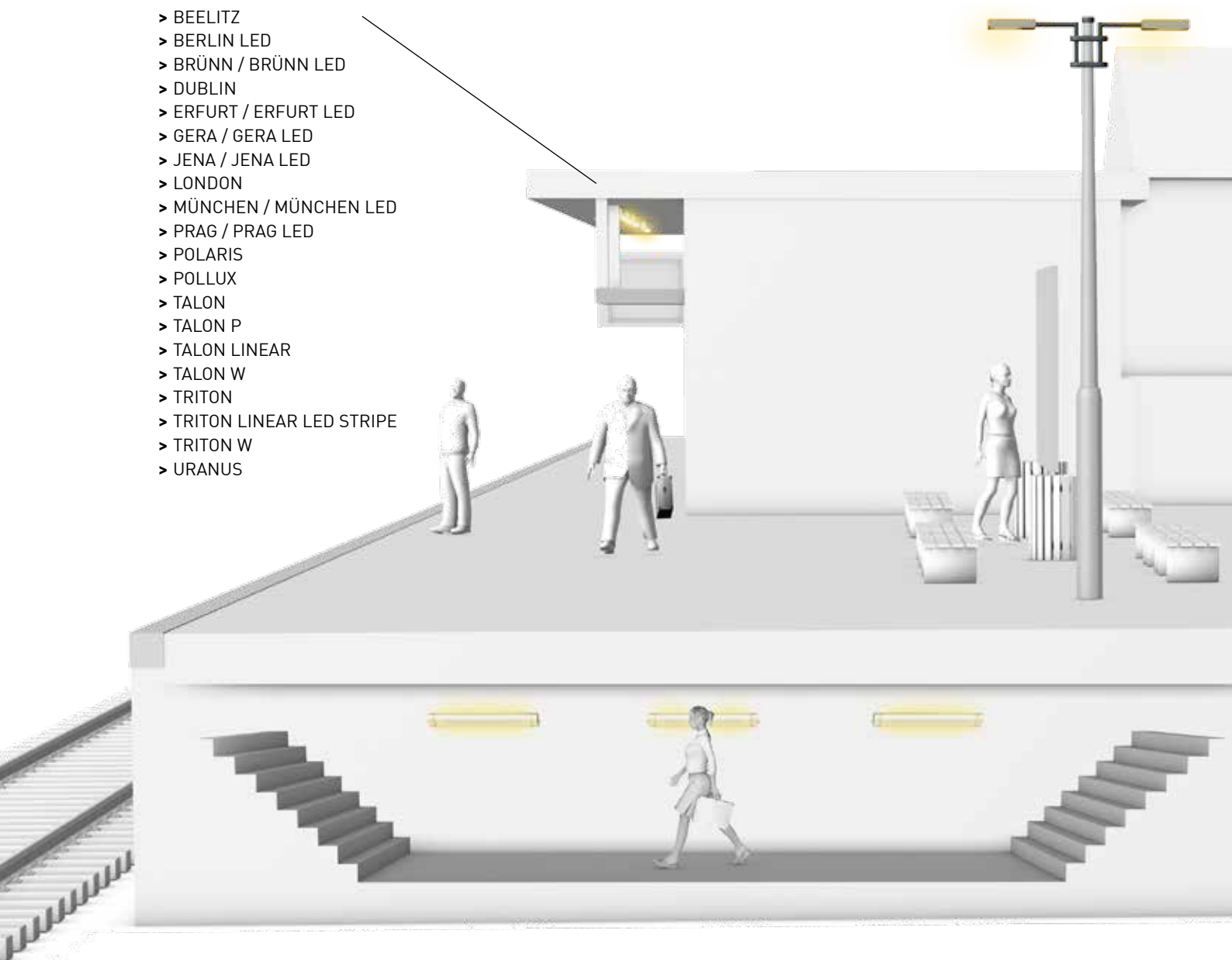
TRACKSIDE LIGHTING

Safety and energy efficient lighting

TRACKSIDE LIGHTING

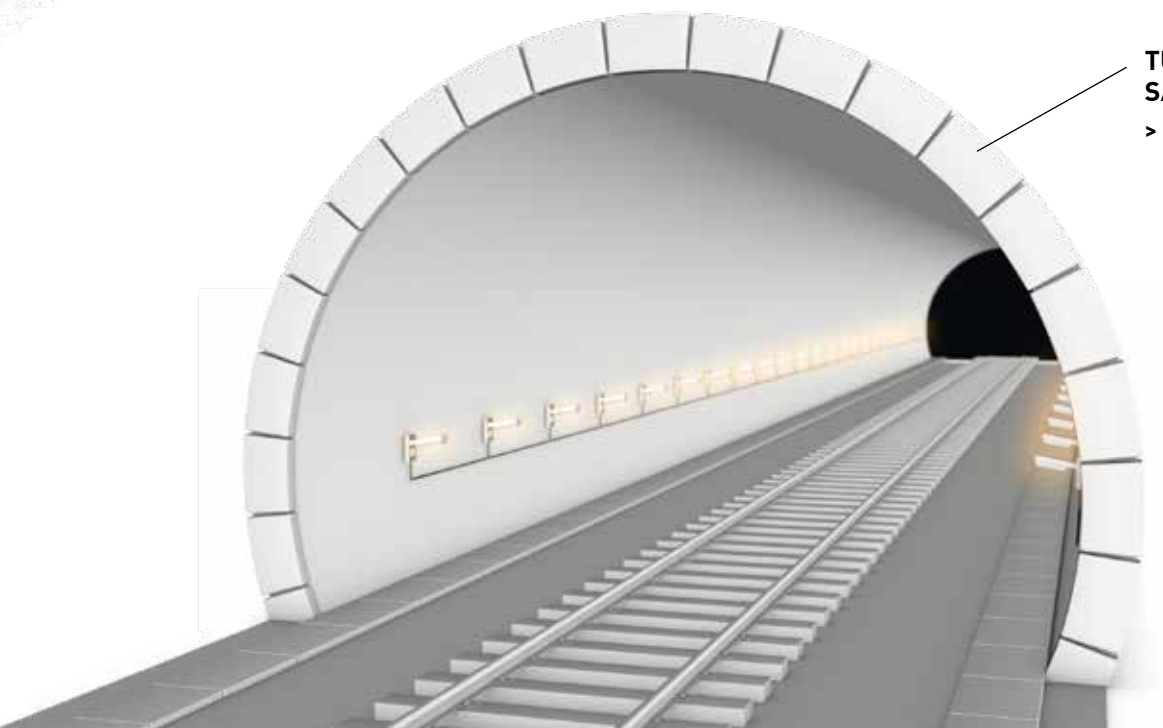
COVERED / OPEN PLATFORMS

- > BEELITZ
- > BERLIN LED
- > BRÜNN / BRÜNN LED
- > DUBLIN
- > ERFURT / ERFURT LED
- > GERA / GERA LED
- > JENA / JENA LED
- > LONDON
- > MÜNCHEN / MÜNCHEN LED
- > PRAG / PRAG LED
- > POLARIS
- > POLLUX
- > TALON
- > TALON P
- > TALON LINEAR
- > TALON W
- > TRITON
- > TRITON LINEAR LED STRIPE
- > TRITON W
- > URANUS



TUNNEL AND SAFETY LIGHTING

- > SPANDAU / SPANDAU LED

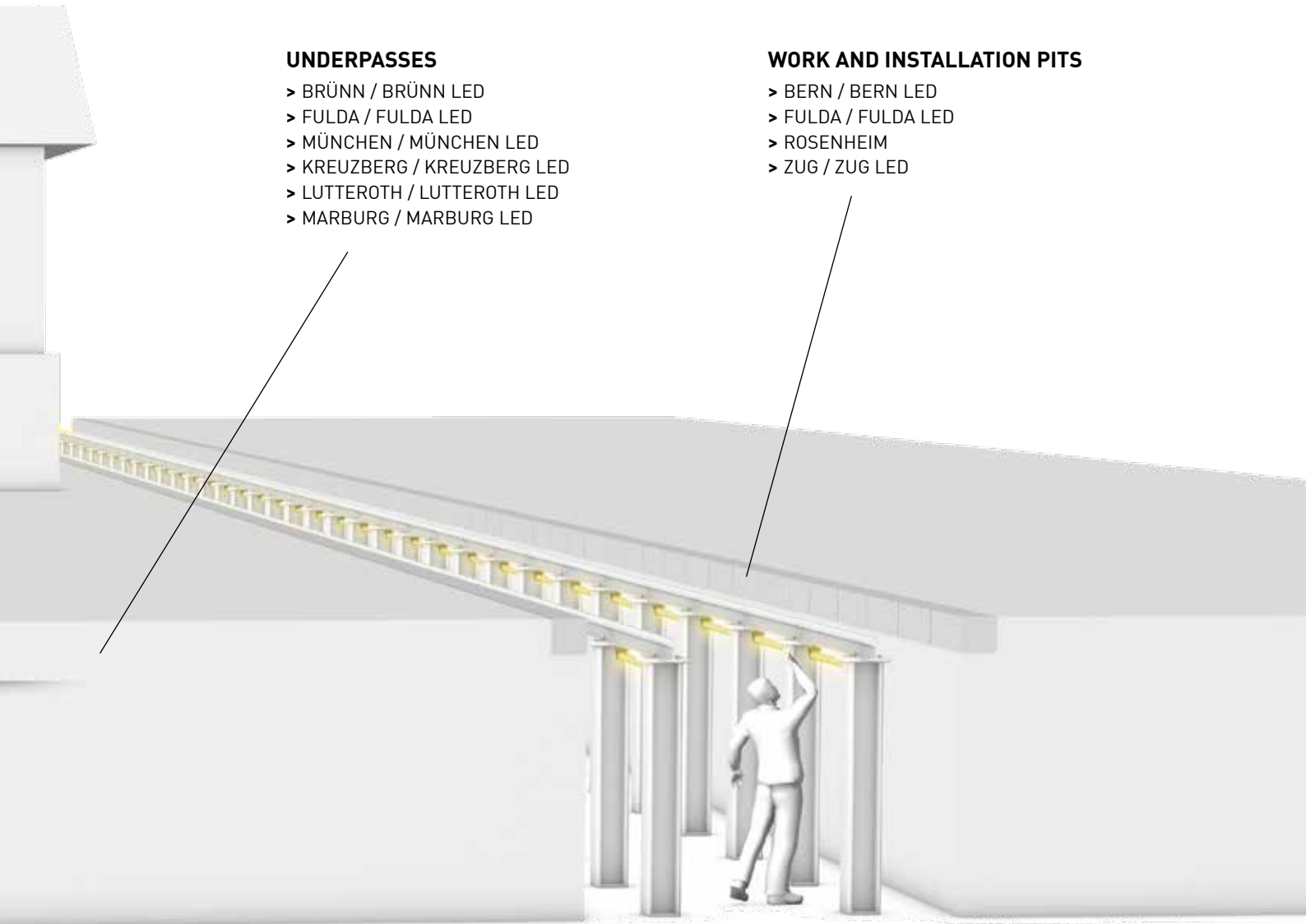


UNDERPASSES

- > BRÜNN / BRÜNN LED
- > FULDA / FULDA LED
- > MÜNCHEN / MÜNCHEN LED
- > KREUZBERG / KREUZBERG LED
- > LUTTEROTH / LUTTEROTH LED
- > MARBURG / MARBURG LED

WORK AND INSTALLATION PITS

- > BERN / BERN LED
- > FULDA / FULDA LED
- > ROSENHEIM
- > ZUG / ZUG LED



DB LISTED SINCE 1953

FOUR SECTORS – ONE SOLUTIONS PROVIDER

For more than 60 years, NORKA has developed and manufactured luminaires for use in extreme conditions. As a competent planning partner, we can look back on decades of supplying public transport operators and Deutsche Bahn with custom lighting solutions that meet high standards of durability and safety.

The operation of train systems poses extreme requirements for the protection against glare, overvoltage, mechanical stress and dirt, e.g. from

very fine brake dust. The housings on NORKA luminaires meet all requirements of the IP 65 rating and higher and comply with protection class SK II. Rapid advances in LED technology have already made standards-compliant illumination of rail facilities a reality. To ensure future-proof operation, NORKA LED luminaires can be used to retrofit existing lighting systems.

Depending on the design of the rail facility, luminaires with conventional

lamps or LEDs can be used, e.g. to resist transient overvoltage of up to 4 kV.

Technical information about our luminaires can be found in the NORKA catalogues “LED Product Range 2014/15” and “Basic Programme 2014/15” as well as at www.norka.de.

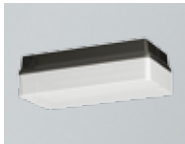


COVERED / OPEN PLATFORMS

NORKA luminaires are used in various ceiling systems as recessed and surface-mounted units or integrated into tube conduit lighting systems. Durable luminaire design and carefully selected lighting components ensure long maintenance intervals while keeping rail operations running safely.

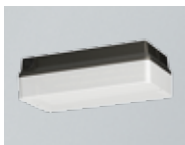
- > Usable in underground and metro stations, pedestrian tunnels, passages, multi-storey car parks, transport areas, under canopies and façades.

BEELITZ



- > **DB** listed
- > Ceiling recessed-mounted and surface-mounted luminaire with LED
- > Usable in weather shelters and platform access points through robust diffuser (PC IK 10)
- > Suitable for emergency operation with central supply
- > Anti-graffiti coating for lamp diffuser (protects against dirt and paint residue)

BERLIN LED



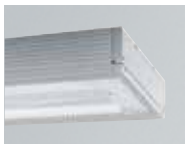
- > Ceiling recessed-mounted and surface-mounted luminaire
- > Usable in technical side rooms, cellars and warehouses (cold-resistant up to -25 °C)
- > Extensive range of installation accessories
- > Different lighting technologies

BRÜNN / BRÜNN LED



- > BRÜNN: **DB** listed
- > Ceiling recessed-mounted and surface-mounted luminaire for trunking systems for railway platforms in covered areas or in underpasses or multi-storey car parks
- > Flat, weather-proof luminaire housing made of fibreglass-reinforced polymer
- > Single or row mounting
- > Suitable for Fischer profile F 08, FB 02, F 08 H and F 08 H corner version

DUBLIN



- > **DB** listed
- > Ceiling recessed-mounted and surface-mounted luminaire made of aluminium with dedicated, optional trunking system, e.g. for installing speakers or dome cameras
- > 185 mm profile width with low installed height
- > Fast maintenance thanks to hinged cover screen tool-free opening

ERFURT / ERFURT LED



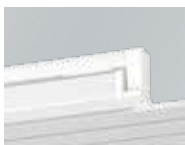
- > ERFURT: **DB** listed
- > Recess-mounted ceiling luminaire for trunking systems for railway platforms in covered areas and underpasses
- > Usable in rooms for building services systems or in multi-storey car parks
- > Suitable for Fischer profile DB 150, DB 175, DB 200, LR D 220 and oval handrail

GERA / GERA LED



- > GERA: **DB** listed
- > Recess-mounted ceiling luminaire matching the railway platform systems "Essen" and "Frankfurt" and suitable for underpasses
- > Recessed ceiling mounting frame (white, like RAL 9010) available for single and row mounting, also for panel ceilings module 100
- > Suitable for Fischer profile DB 400

JENA / JENA LED



- > JENA: **DB** listed
- > Recess-mounted ceiling luminaire matching the railway platform systems "Zwiesel" and "Bodenheim" and suitable for underpasses
- > Recessed ceiling mounting frame (white, like RAL 9010) available for single and row mounting, also for panel ceilings module 100

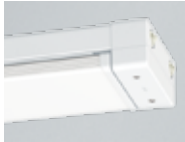
COVERED / OPEN PLATFORMS

LONDON



- > **DB** listed
- > Ceiling recessed-mounted and surface-mounted luminaire made of aluminium with dedicated, optional trunking system, e.g. for installing speakers or dome cameras
- > 285 mm profile width with low installed height
- > Fast maintenance thanks to hinged cover screen tool-free opening

MÜNCHEN / MÜNCHEN LED



- > MÜNCHEN: **DB** listed
- > Ceiling recessed-mounted and surface-mounted luminaire for railway platforms in covered areas or in underpasses or multi-storey car parks
- > Flat, weather-proof luminaire housing made of fibreglass-reinforced polymer
- > Low installation height 80 mm
- > Suitable for Fischer profile DB 94-oval and FLB 94 H

POLARIS



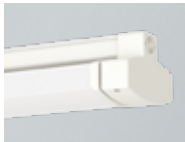
- > Floodlights with LED
- > Usable in maintenance areas and workshops with large mounting heights
- > Robust luminaire housing, made from die-cast aluminium with coated surface
- > Unrestricted outdoor use according to protection rating IP 65
- > Pole attachment mounting optional

POLLUX



- > **DB** listed
- > Floodlight for high-pressure discharge lamps
- > Usable in maintenance areas and workshops with large mounting heights
- > Cold-resistant version suitable for low temperatures up to -30 °C
- > Heat-resistant version suitable for high temperatures up to +60 °C
- > Version with socket for multi-purpose light and emergency light, integrated locking relay optional

PRAG / PRAG LED



- > PRAG: **DB** listed
- > Recess-mounted ceiling luminaire for trunking systems for railway platforms in covered areas or underpasses
- > Suitable for older railway platform roofs with narrow longitudinal beams
- > Slender basic structure for easy mounting on narrow roof beams
- > Version with perforated mirror for ceiling illumination optional
- > Suitable for Fischer profile DB 1

TALON



- > Ceiling surface-mounted luminaire with LED
- > Usable in underpasses or covered areas
- > With dedicated, optional trunking system, e.g. for installing speakers or dome cameras
- > Single or row mounting, or optionally on NORKA 285 trunking system
- > Quick maintenance and replacement of the optics thanks to hinged cover screen with tool-free opening

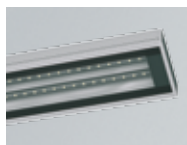
TALON P



- > Pole attachment luminaire with LED
- > Usable on open railway platforms in underground and metro stations, car parks and roads with slow-speed traffic
- > Pole height approx. 4-6 m
- > Single clamp fixing for pole top Ø 60-76 mm

COVERED / OPEN PLATFORMS

TALON LINEAR



- > Ceiling recessed-mounted and surface-mounted luminaire made of aluminium with LED, usable on railway platforms, passages, multi-storey car parks and underpasses.
- > With dedicated, optional trunking system, e.g. for installing speakers or dome cameras
- > Different lighting technologies
- > Can be combined with other aluminium profile luminaires
- > 285 mm profile width with low installed height

TALON W



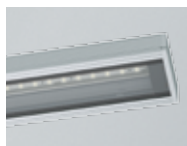
- > Wall surface-mounted luminaire with LED
- > Quick maintenance thanks to hinged cover screen with tool-free opening
- > Installation height approx. 4-6 m
- > Optionally dimmable version, night setback, half-peak mode, or lock against unauthorised opening

TRITON



- > Ceiling surface-mounted luminaire with LED
- > With dedicated, optional trunking system, e.g. for installing speakers or dome cameras
- > Single or row mounting, or optionally on NORKA 185 trunking system
- > Quick maintenance and replacement of the optics thanks to hinged cover screen with tool-free opening

TRITON LINEAR LED STRIPE



- > Ceiling recessed-mounted and surface-mounted luminaire made of aluminium with LED, usable on railway platforms, passages, multi-storey car parks and underpasses.
- > With dedicated, optional trunking system, e.g. for installing speakers or dome cameras
- > Different lighting technologies
- > Can be combined with other aluminium profile luminaires
- > 185 mm profile width with low installed height

TRITON W



- > Wall surface-mounted luminaire with LED
- > Quick maintenance thanks to hinged cover screen with tool-free opening
- > Optionally dimmable version, night setback, half-peak mode, or lock against unauthorised opening
- > Installation height approx. 4-6 m

URANUS



- > Floodlight with LED
- > Pole attachment mounting
- > Usable for different mounting heights
- > Suitable for illuminating façades and advertising spaces
- > Luminaire housing made from weatherproof, fibreglass-reinforced polymer
- > Reflector housing made from die-cast aluminium, can be swivelled continuously and locked in any position



WORK AND INSTALLATION PITS

NORKA has been committed to meeting the requirements for work and installation pits for many years. We only use high-quality polymers that are long-term resistant to embrittlement and cracking.

The specially selected materials are resistant to heat and chemicals and always highly insulating even in case of humidity. Other materials used are durable and corrosion-resistant.

NORKA work pit luminaires meet all requirements made for them for fault-free and maintenance-friendly illumination even under difficult operating conditions.

- > Protected against dust and water jets
- > Dirt repellent
- > Resistant to impact and corrosion
- > Resistant to acid, lye and fuel
- > Oil-resistant
- > Resistant to pressurised water

BERN / BERN LED



- > BERN: **DB** listed
- > Tubular luminaire Ø 60 mm
- > Small space requirement for very tight situations
- > IP 69K version protected against hot water high-pressure cleaner and suitable for cadaver pits
- > Secured against unauthorised opening using a stainless steel hexagon socket screw
- > Easy opening through eccentric locking technology with collapsible handle

FULDA / FULDA LED



- > FULDA: **DB** listed
- > Polymer luminaire for wall and ceiling recesses with low ceiling heights
- > IP 69K version protected against hot water high-pressure cleaner
- > Version with perforated mirror for floor/ceiling illumination optional
- > Protective PC varnish for lamp diffuser to protect against dirt and paint residue optional

ROSENHEIM



- > **DB** listed
- > Reflector tube that can be swivelled made from PMMA Transopal® (impact strengthened)
- > Pivoting and lockable reflector tube
- > Protective PC varnish for lamp diffuser to protect against dirt and paint residue optional

ZUG / ZUG LED



- > ZUG: **DB** listed
- > Tubular luminaire Ø 75 mm
- > Secured against unauthorised opening using a stainless steel hexagon socket screw
- > Easy opening through eccentric locking technology with collapsible handle



TUNNEL AND SAFETY LIGHTING

The wall surface-mounted luminaires with corrosion-resistant and weather-proof luminaire housings made from polymer and the stainless steel wall bracket are suitable for unrestricted use for indoor and outdoor areas according to IP 65.

Together with the sealing system made of age resistant, form retaining silicone/synthetic rubber this ensures a high safety standard in tunnels under extreme strain.

The fully assembled luminaire with external connection ensures easy installation and short installation times. Ideally adapted light distribution, extreme wide beam, for illuminating escape and emergency routes in tunnel systems. Meets the requirements for emergency luminaires in line with DIN EN 1838, EN 60598-2-22 (VDE 0711-2-22) and tunnel safety lighting in line with the Railway Directive 954.9107.

SPANDAU, angled



- > **DB** listed
- > Optimised tunnel safety luminaire
- > Tested and certified for a tunnel passing velocity of 350 km/h
- > Easy mounting and maintenance
- > Hinged lamp diffuser made from PC clear (fracture proof)

SPANDAU, flat



- > **DB** listed
- > Tunnel luminaire with internal mirror finish reflector for optimised lighting efficiency
- > Low installation height 100 mm
- > Ceiling and wall mounting in rescue galleries possible
- > Suitable for narrow tunnel profiles (older tunnels)

SPANDAU LED, angled



- > Optimised tunnel safety luminaire
- > Tested and certified for a tunnel passing velocity of 350 km/h
- > Easy mounting and maintenance
- > Hinged lamp diffuser made from PC Tropol® (fracture proof)
- > Batwing light distribution optimised for wide spacing in tunnels, extreme wide beam



UNDERPASSES

NORKA specialises in solutions for the lighting of public areas. The luminaires installed in these areas are sometimes at risk of deliberate or negligent destruction. Infrastructure passages with very low ceiling heights can be

equipped with modern lighting technology using luminaires with a low installation height. Flat luminaires are mounted below the ceiling or in ceiling recesses individually or in rows and illuminate the traffic areas evenly.

BRÜNN / BRÜNN LED



- > BRÜNN: **DB** listed
- > Ceiling recessed-mounted and surface-mounted luminaire for low ceiling heights
- > Low installation height 85 mm
- > Flat, weather-proof luminaire housing made of fibreglass-reinforced polymer

FULDA / FULDA LED



- > FULDA: **DB** listed
- > Polymer luminaire for wall and ceiling recesses with low ceiling heights
- > IP 69K version protected against hot water jet cleaning
- > Graffiti coating for lamp diffuser to protect against dirt and paint residue optional
- > Version with perforated mirror for floor/ceiling illumination optional

MÜNCHEN / MÜNCHEN LED

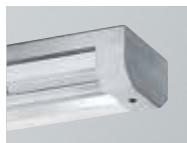


- > MÜNCHEN: **DB** listed
- > Ceiling recessed-mounted and surface-mounted luminaire for underpasses and covered railway platforms
- > Flat, weather-proof luminaire housing made of fibreglass-reinforced polymer
- > Low installation height 80 mm
- > Suitable for Fischer profile DB 94-oval and FLB 94 H

In addition to strongly frequented underpasses which are partially under CCTV surveillance, underpasses with a small number of pedestrians are subject to a substantially higher risk of vandalism. High mechanical impact forces can destroy conventional luminaire housings. Vandalism-proof luminaires from NORKA are equipped with a design protection that goes far beyond simple impact resistance classes.

The luminaire housing consists of high-grade stainless steel and an impact-resistant polymer cover and has therefore been tested for impact energy up to 150 Joule (IK 10++). Visible connections are equipped with special screws and are therefore protected against theft. The anti-graffiti coating makes cleaning easier and therefore protects against visual deterioration.

KREUZBERG / KREUZBERG LED



- > KREUZBERG: **DB** listed
- > Extremely impact-resistant surface-mounted luminaire, vandalism-proof up to 150 Joule (tested in line with IK 10++)
- > Covered cable entry and covered cable duct
- > Available with vandalism-proof trunking system
- > Also usable at hand level
- > Suitable for Fischer profile FK 02

LUTTEROTH / LUTTEROTH LED



- > LUTTEROTH: **DB** listed
- > Extremely impact-resistant recessed luminaire, vandalism-proof up to 150 Joule (tested in line with IK 10++)
- > Protected cable entry
- > Available with vandalism-proof trunking system
- > Also usable at hand level

MARBURG / MARBURG LED



- > MARBURG: **DB** listed
- > Extremely impact-resistant surface-mounted luminaire, vandalism-proof up to 150 Joule (tested in line with IK 10++)
- > Suitable for Fischer profile F 02 and square handrail

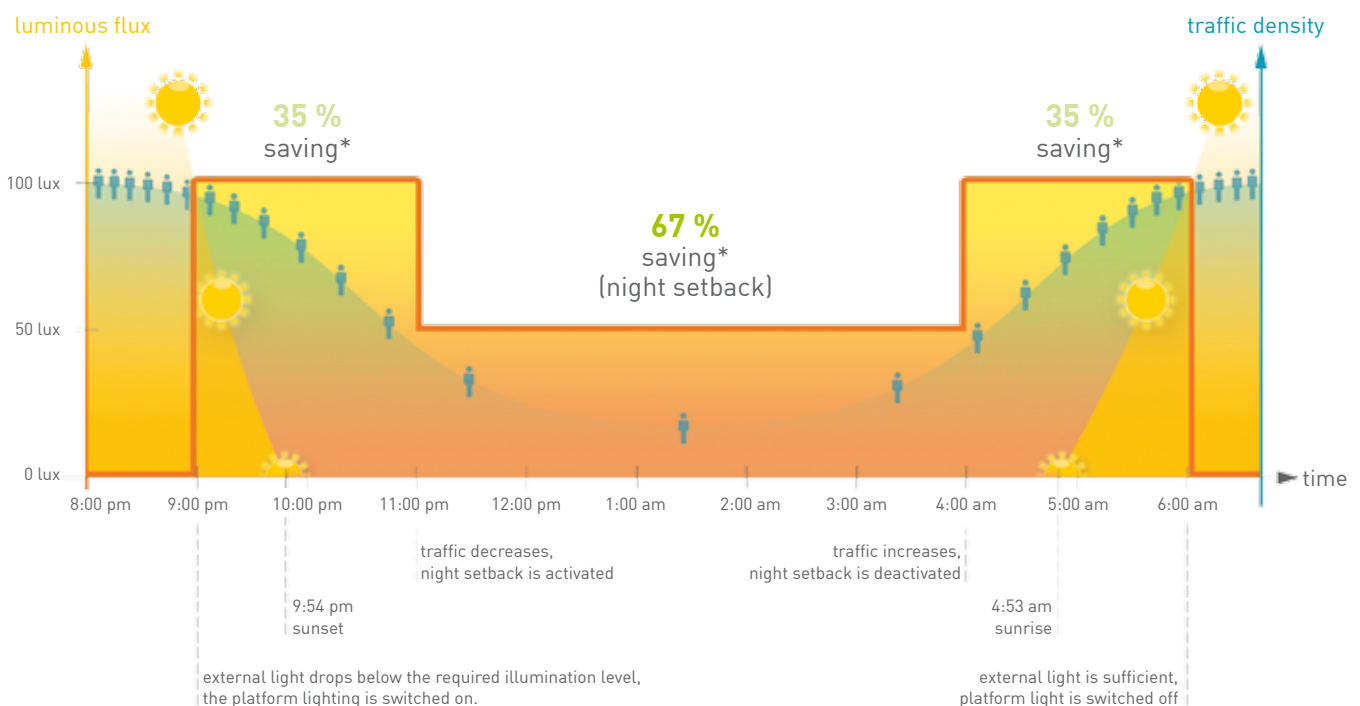
UP TO 67 % ENERGY SAVING WITH LED LUMINAIRES AND INTELLIGENT TIMER

In 2013 Deutsche Bahn approached NORKA with a special requirement:

An existing covered railway platform was to be equipped with energy-saving LED luminaires in a like-for-like replacement. Additionally, a night setback had to be possible during times with little traffic **without having to install an additional new control line** on site. This was a challenge where the details matter.

The solution was in the development of a flexible, adaptive control within each individual luminaire: the “intelligent timer” from NORKA.

Within a few days, the system continuously adapts throughout the year to the gradual transition from summer to winter time. **The individual luminaires require no continuous power supply for this and no permanent complicated maintenance.**



New scenarios can be prepared on a PC and retrofitted at any time. Even multi-level night setbacks with different luminous fluxes can be implemented on request. The project was implemented in the 1st quarter of 2014 and already saves 35 % energy compared to the old system in regular operation.

It is activated from the outside as soon as the sunlight has dropped to a low level, always ensuring safe traffic on the platform.

In times of low traffic, the intelligent timer from NORKA switches the operating mode to night setback. This mode can even save up to 67 % energy compared to the old system.

* Compared to the old system with KARLSRUHE luminaire

PILOT PROJECT MAINZ STATION

COMPARATIVE CALCULATION FOR LIKE-FOR-LIKE REPLACEMENT / COMMISSIONING 1ST QUARTER 2014

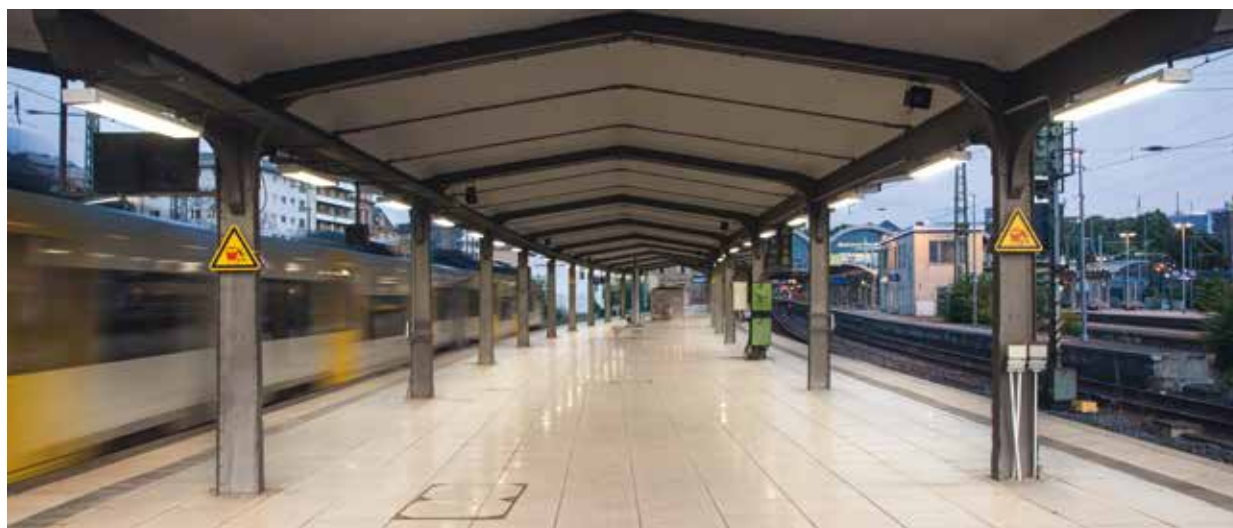
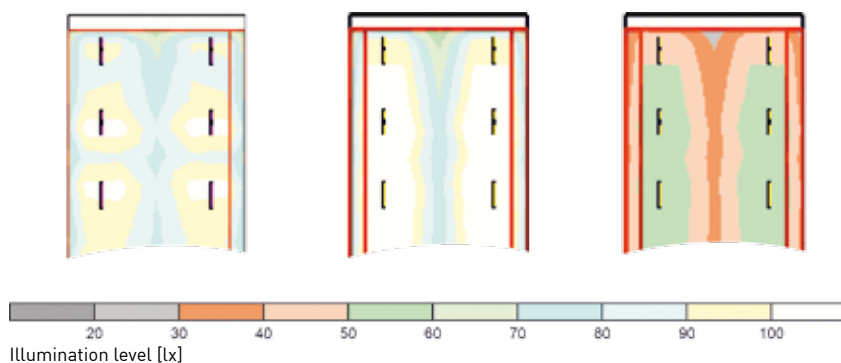
		KARLSRUHE	MÜNCHEN LED	MÜNCHEN LED with night setback
Manufacturer		NORKA	NORKA	NORKA
Quantity		40 units	40 units	40 units
Version		KARLSRUHE, lamp diffuser PC clear, with cross louvre, wide beam	MÜNCHEN LED m1500, 4800 lm lamp diffuser PMMA Transopal®, medium beam	MÜNCHEN LED m1500, 4800 lm lamp diffuser PMMA Transopal®, medium beam, with intelligent timer
Article number		415 620 01 - 500 136	455 680 34 21 - 4800 lm	455 680 34 21 - 4800 lm
Configuration		1 x T8 58 W / 5200 lm	1 x LED m1500 / 4800 lm	1 x LED m1500 / 4800 lm
System power		66 W	43 W	21.5 W
Computing algorithm used		Direct uplighting	Direct uplighting	Direct uplighting
Height of reference surface		0.00 m	0.00 m	0.00 m
Mounting height		3.80 m	3.80 m	3.80 m
Maintenance factor		0.79	0.79	0.79
Total luminous flux of all luminaires		208000 lm	192000 lm	96000 lm
Total power		2640 W	1720 W	840 W
Total power per surface (1102.00 m²)		2.40 W/m²	1.56 W/m²	0.76 W/m²
Average illuminance Em		93 lx	100 lx	50 lx
Minimum illumination level Emin		67 lx	56 lx	28 lx
Maximum illumination level Emax		107 lx	114 lx	57 lx
Uniformity g1 Emin/Em		1:1.39 [0.72]	1:1.79 [0.56]	1:1.79 [0.56]
Uniformity g2 Emin/Emax		1:1.61 [0.62]	1:2.05 [0.49]	1:2.05 [0.49]

Energy saving compared
to the old system

0 %

35 %

67 %



> Mainz railway station today with NORKA luminaire MÜNCHEN LED and intelligent timer control

NORKA

Norddeutsche Kunststoff-
und Elektrogesellschaft
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