Large Area Lighting

Few sectors require as much attention to security and precision as air traffic. Efficient, functional apron lighting can substantially enhance security, meeting all necessary standards with reliability and durability.

ewo is the forerunner in the use of LED technology for large areas and the company’s work represents the highest standard in airport and logistics lighting. Our products are installed in varying environments, from large global hubs to small regional airports, proving themselves robust enough for a Siberian winter and reliable enough for Arabian heat. LED technology reduces the need for maintenance, with ewo modular construction substantially simplifying repair process. On-site workers report that ewo LED lighting is perceptively brighter than traditional systems, and its higher color rendering index improves legibility of workplace documents. Precise custom lighting design avoids dazzling, thereby reducing workplace stress and tension, aiding productivity, increasing safety and supporting general airport security.
We have focussed on high mast large area illumination systems for over 15 years. ewo gained important experience in the field of secondary reflector systems, and we were pioneers in the industrywide conversion to LED technology. Our innovation was to use one LED lighting unit as the building block for large area lighting—this supplies performance comparable to floodlight systems, while using up to 70 percent less energy, requiring less maintenance than traditional systems.

The modular nature of the technology and its diverse configuration options make it possible for us to fine-tune production techniques precisely to the task at hand. With thorough planning, we create the right solutions for every project. Our systems meet major challenges, such as precise light directionality and reliable temperature management, using high quality components.
Reference Projects: Airport

- AAL Aalborg Airport
- AAR Aarhus Airport
- ABJ Abidjan Airport
- ABZ Aberdeen Airport
- ADL Adelaide Airport
- ARN Stockholm Arlanda Airport
- AJS Austin-Bergstrom International Airport
- BOS Logan International Airport (Boston)
- BQN Rafael Hernández Airport (Puerto Rico)
- BRN Bern Airport
- BTH Hang Nadim Airport
- CDG Paris Charles de Gaulle Airport
- CPH Copenhagen Airport
- DEN Denver International Airport
- DUS Düsseldorf Airport
- DXB Dubai International Airport
- EIN Eindhoven Airport
- ETZ Metz-Nancy-Lorraine Airport
- FAT International Airport Fresno Yosemite
- FDF Martigny Airport
- FNI Aéroport Nîmes-Alès-Camargue-Cévennes
- FRA Frankfurt Airport
- GRR George Airport
- HAJ Hannover-Langenhagen Airport
- HAM Hamburg Airport
- HEL Helsinki-Vantaa Airport
- IAD Washington Dulles International Airport
- INN Innsbruck Airport
- JFK John F. Kennedy International Airport
- KLM King Abdulaziz International Airport
- KUL Kuala Lumpur International Airport
- LAX Los Angeles Airport
- LMA L astronaut Airport
- LIN Linz Airport
- LUX Luxembourg Airport
- MAL Male Airport
- MUC Munich Airport
- MFR Maastricht Aachen Airport
- NRT Narita International Airport (Tokyo)
- OAK Oakland International Airport
- OSL Oslo Airport
- OSL Pau-Pyrenees Airport
- OSD Roscoff-Morlaix-Brest Airport
- ORY Roissy Charles de Gaulle Airport
- PIN Rio Gallegos Airport
- PRI Rio Grande do Sul Airport
- RFL Rome Fiumicino Airport
- SFO San Francisco International Airport
- SSB Singapore Airport
- SFO San Francisco International Airport
- STN Stansted Airport
- STT St. Thomas Airport
- SYD Sydney Airport
- TXL Berlin-Brandenburg Airport
- VAP Vienna Airport
- VIE Vienna International Airport
- YYC Calgary Airport
- ZRH Zürich Airport
- ZUR Zurich Airport
- ZUR Zürich Airport
The R-System provides flexible and long-lasting high performance lighting.

The modular construction of the R-System floodlight family consists of individual panels, grouped by performance capability (R1–R4) depending on the required output. Each panel can be tilted, and consists of 128 high-performance LEDs. The glass cover of the panels offers additional protection for the lens optics and makes simplified cleaning possible.

The panels are manufactured in die-cast aluminium, available in untreated aluminium and polyester powder coated finishes. The powder-coated variant offers additional protection for use in demanding environments where corrosion is a risk, such as seaside scenarios.

Our variety of lens optics allows flexibility for all manner of applications. In addition to large area lighting and custom distributions for airport apron and production hall areas, spot optics are also available for a narrower, more targeted illumination.

Our tried and true multilayer concept forms the basis for this development: each optical surface illuminates the entire assessment field, and the lighting intensity on a given surface is achieved through layered light distribution from each LED. Even if one fails, evenness is maintained.

The R-System provides a higher lumen output with significantly less electrical consumption. The product also offers efficient heat management. Heat dissipation takes place by means of cooling fins, which, as a result of their special arrangement, avoid detritus build-up, therefore guaranteeing long term functionality.

Compact construction and form corresponds exactly to the size of conventional floodlights, making a one-to-one retrofitting of existing systems possible. Two mounting variants are available, a mounting bracket and an adapter for cable hanging. The R-System can be controlled by means of DALI, but it also allows for wireless radio control. The high-performance lamp control gear, developed specially for this product, allows partial switching and dimming of individual panels.

Technical Details

1. Housing accommodates up to 4 panels, each panel 1 DALI address
2. Current feed: 400 mA (19,800 lm, 155 W)–800 mA (139,350 lm, 1,250 W) depending on ambient temperature (R-System UL max. 700 mA)
3. Electronic operating device with DALI interface or 1–10 V
4. Allowed ambient temperature range –40 to +55 °C
5. Various light distributions for large area, high bay or street lighting
6. AG01, AG02, AG03, AG04, AH02, AP04-L, AP04-R, AP04-L/R, AP05, AP07, AS06, AS07, AS08 (also available in satiné version, spot optics excluded)
7. Lens made from PMMA
8. Lamp housing in die-cast aluminium, cover in single-pane safety glass (ESG)
9. Bracket made of hot-dip galvanized steel, holder made of aluminium
10. Finish: polyester powder coating, silver (RAL 9006/DB 701)
Modular Design, Highly Flexible Solutions

Every project has its own specific needs. That’s why we have developed a product system that is adaptable down to the last detail. We create top-quality, technologically advanced solutions for the most varied of contexts.

Lens optic
• Discoloration-free PMMA
• Various light distributions

Circuit Boards
• Swap out individually
• Diverse configuration options

Cooling system
• Reliable temperature management
• Long product life

Plug & Play Connector

Driver unit
• Long product life
• Redundant systems

Full-cut off
• Light pollution free
• Minimal dazzling

Glass covering
• Efficient light transmission
• Protects optical components

Polar diagram

Light distributions

Colour temperature

5,700 K
4,500 K
4,000 K
3,500 K
3,000 K
2,500 K
R-System

<table>
<thead>
<tr>
<th>R1</th>
<th>7.5 kg</th>
<th>3 kg Driver</th>
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Color temperature
4,000 K / 5,700 K

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<th>Luminous flux* [lm]</th>
<th>Power [W]</th>
<th>Luminous efficacy [lm/W]</th>
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All values refer to the lens AP04.
The UL version of the R-System may be found on our website: ewo.com
* Luminous flux tolerance ±7%
** Upon request
Efficient, Sustainable Spare Parts Management

The R-System is easy to upgrade, repair and adjust. Central components of the lighting system, including LED circuit boards, are easy to swap out, thanks to the intelligent design of our modular system. Maintenance and repair costs are kept to a minimum, while quality standards remain consistent.

Samples of easily swappable parts include:

- Ventilator element
- Lens head screw M4 × 8 Torx
- Cable feedthrough
- PCB circuit board
- Gasket
- Glass covering
- Lens optic
- Clamp
- CP590 driver

Support for Integrated Solutions

Alongside its apron floodlights, ewo equips airport customers with a complete lighting package including design and planning support. Our experienced lighting engineers work closely with leading airfield lighting designers worldwide, providing fully compliant designs in accordance with the most common international standards including ICAO, EASA, MOS and ISNEA. In addition to lighting design, we offer on-site support and detailed pole mounting and installation instructions.
Radio and light control

Our products may be fitted with a system to allow for wireless data communication within your networks. Two-way communication between floodlights and control software enables full control and monitoring of the lights, for more cost-effective, responsive usage and maintenance.

Greater control and efficiency

Our system harnesses the full potential of LED technology with an intelligent wireless floodlight control system. A single dynamic apron dimming scale creates further energy savings (up to an additional 50 percent) and increases LED product life.
Munich airport is a wonderful showcase project for energy-efficient apron lighting systems: Two existing high mast systems were fitted with six high-performance LED floodlights, which reduced energy consumption of each system by 46 percent. The typology and geometrics of this system are based on tried and tested established standards, so that existing masts can easily be converted and equipped with the new, energy-efficient LED technology. The connection to light management systems provides further energy savings. Simple light source controls enable the creation of numerous lighting scenarios to suit required specifications perfectly. In addition to substantial energy reduction, the LED solution provides a significantly reduced maintenance need, alongside a service life of more than 50,000 h, making an important contribution toward a more sustainable operation of the lighting system.
Technological Comparison

Before
High mast systems:
- High-pressure sodium lamp:
  4 × SAP – 1,000 W per pole
  2 × SAP – 400 W per pole
- Electromagnetic ballast, $\eta = 90\%$
- Power consumption in total: 147.84 kW
- Upward Flux Ratio: 3%

After
High mast systems:
- LED Lighting units:
  5 × F32 5,700 K, 388 W per pole
  1 × F16 5,700 K, 166 W per pole
- Electronical driver, $\eta = 92\%$
- Power consumption in total: 59.82 kW
- Upward Flux Ratio: 0%

Savings*
- 512,682.00 kWh/year
- 307,609.00 kg CO²/year
- 76,000.00 €/year

* CO² calculation at an energy mix of 600 g/kWh, saving at <0.15 €/kWh and 4,500 hours in service per year

Technical Data

Classification in compliance with 12464-2: ICAO Annex 14
Illuminance, $E_m = 30$ lux, $U = 0.25$
Area illuminated: 120,000 m²
Power consumption/area: 0.49 W/m²
Power consumption in total: 59.82 kW

Lighting system
- Lighting units: High mast systems
  5 × F32 (350 mA)
  1 × F16 (300 mA)
- Mounting height: 34.0 m

Lighting technology
- Lighting unit in operation: LP32
- LED: Luxeon M, 159 lm/W
- Light colour: Cool white, 5,700 K
- Number of LEDs: 3 × 1 Multichip
- Current feed: 350 mA
- Connected power: 388 W

Lighting management
- Light control over DALI
  - Constant light output regulation
  - Automatic lowered night-time lighting (50 %)
  - Remote maintenance

Munich Airport
Terminal 1, P185

The LED floodlight is mounted onto the existing holder.

White light has a considerably higher color-rendering value than NAV lamps, creating a clear yet relaxed sense of vision.

Each panel is fitted with 152 lighting units from the DP31 product line.

In direct comparison with the existing NAV system, LED technology consumes 46 percent less energy, while maintaining compliance with all specifications.

Due to the use of various optical lenses, both the apron and the taxiway can be provided with the optimum level of light in compliance with the respectively applied specifications.
Innsbruck Airport, Austria, 2011
The realization that LED technology provides improved light quality with lower costs while protecting the climate and the night sky was the deciding factor: the Innsbruck Airport, as the first one in the entire world, engaged ewo to switch over the entire apron illumination to LED.
Stuttgart Airport, Germany, 2015
In a multistage project, ewo supplied the airport with over 60 F-32 floodlights. This showed, once again, the effectiveness and sustainability of switching from existing conventional lighting systems to LED. The new, intelligently-controlled apron lighting dims automatically when the apron is not in use—cutting costs and reducing environmental impact.
Melbourne Airport, Australia, 2014–15

With 50 floodlights of the F32 model on six high mast systems, the first Australian airport is switching over to LED lighting. The functioning method of the system has been coordinated with the high ambient temperatures.
For 20 years, ewo has illuminated picturesque walking trails, urban gathering points, streets, buildings, cultural venues, and airports, in addition to other transport-related and industrial settings. Our expertise comes from harnessing the current state of technology in order to create the best custom-tailored solutions.

At our facility in South Tyrol, we develop and craft high-quality products for distributing, controlling and regulating illumination in public spaces. Our innovation revolves around a modular LED lighting unit. It is the starting point for precise and sustainable global lighting scenarios, deliverable on any scale.

We bring passion and curiosity to every individual challenge, be it a specific lighting effect, a special design requirement, the color and material of our luminaires, durability for extreme settings, or precise technical requirements. We also place great importance on cultural and artistic issues, as well as on experimental interaction with architecture, art, and design.

ewo is a family business. We value clear communication—not only with each other, but also with our clients, project partners, and suppliers. Our solutions emerge out of an environment of mutual exchange, with a creative and open mindset. These values have turned us, together with our products, into a pioneering force in the industry.
We understand that special locations require light to be dealt with in a special way. That is why we consider direct dialogue with you so important. It serves as the basis for our developing a lighting system that fulfills your individual needs.

We are always happy to advise you, simply give us a call.

ewo srl/GmbH
Via dell’Adige / Etschweg 15
IT–39040 Cortaccia / Kurtatsch (BZ)
Tel +39 0471 62 30 87
Fax +39 0471 62 37 69
mail@ewo.com
ewo.com

ewo Deutschland GmbH
Gotzinger Straße 8
DE–81371 München
Tel +49 (0)89 52 03 07 29
Fax +49 (0)89 52 03 07 80
germany@ewo.com

ewo Austria GmbH
Grabenweg 3a
AT–6020 Innsbruck
Tel +43 (0)650 3064 799
austria@ewo.com

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