

# Floodlights



# 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.



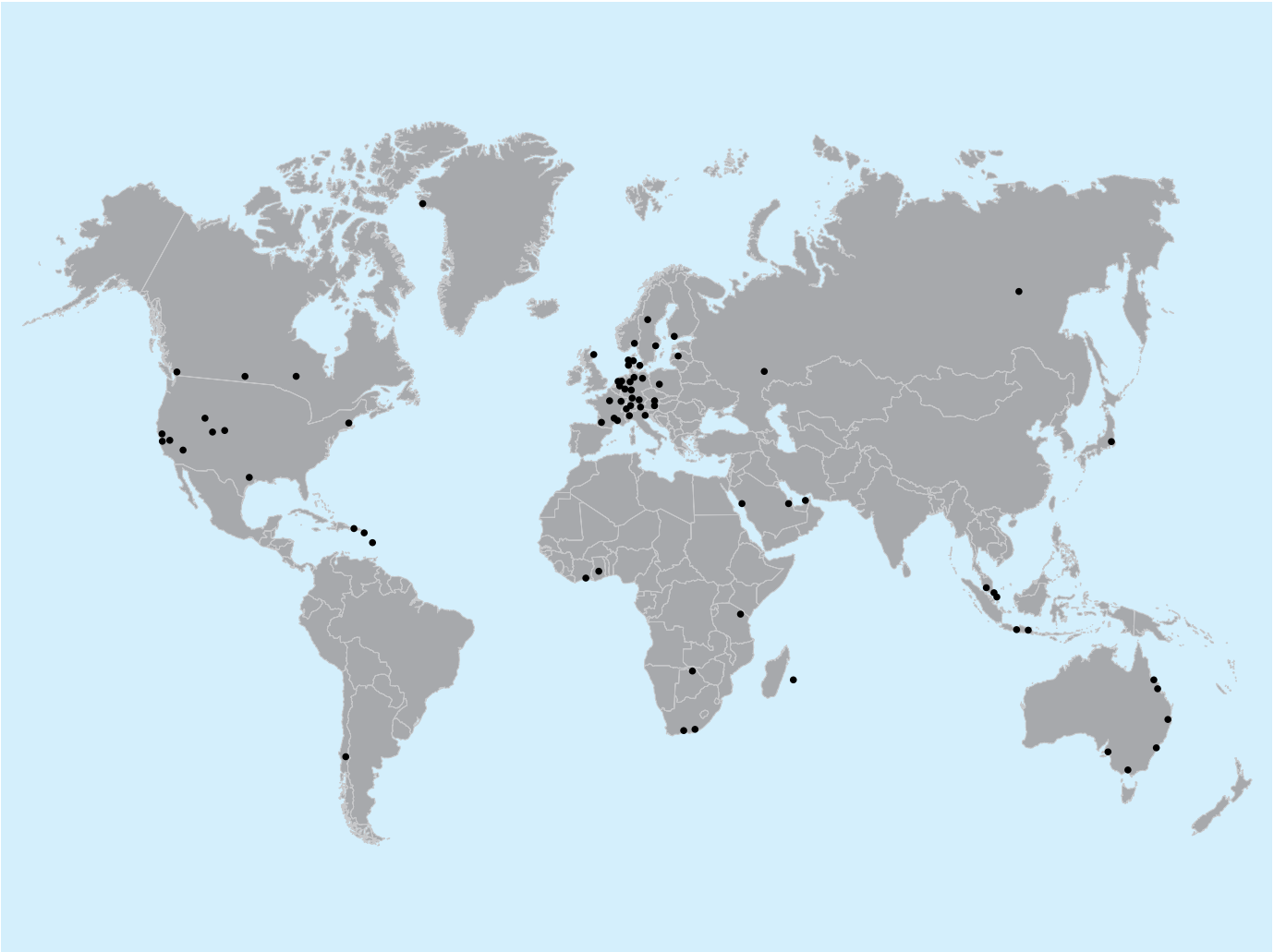


Utilising the full potential of LEDs, for large area illumination.

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	FNI	Aéroport Nîmes-Alès-Camargue-Cévennes	RIX	Riga International Airport
AAR	Aarhus Airport	FRA	Frankfurt Airport	RTM	Rotterdam The Hague Airport
ABJ	Abidjan Airport	GRJ	George Airport	RTW	Saratov Airport
ABZ	Aberdeen Airport	HAI	Hannover-Langenhagen Airport	RUN	Roland Garros Airport (Réunion)
ADL	Adelaide Airport	HAM	Hamburg Airport	SIN	Singapore Changi Airport
ARN	Stockholm Arlanda Airport	HEL	Helsinki-Vantaa Airport	SJC	San José Airport
AUS	Austin-Bergstrom International Airport	HSH	Henderson Executive Airport (Las Vegas)	SLC	Salt Lake City International Airport
BOS	Logan International Airport (Boston)	INN	Innsbruck Airport	STR	Stuttgart Airport
BQN	Rafael Hernández Airport (Puerto Rico)	JED	King Abdulaziz International Airport (Jeddah)	SXF	Berlin-Schönefeld Airport
BRN	Bern Airport	JRO	Kilimanjaro International Airport	SYD	Sydney Airport
BTH	Hang Nadim Airport	KMS	Kumasi International Airport	THU	Thule Air Base (Grönland)
CDG	Paris Charles de Gaulle Airport	KUL	Kuala Lumpur International Airport	TRN	Turin Airport
CPH	Copenhagen Airport	LNZ	Linz Airport	TSV	Townsville International Airport
DEN	Denver International Airport	MEL	Melbourne Airport	TXL	Berlin Tegel Airport
DOH	Hamad International Airport (Doha)	MKY	Mackay Airport	VCE	Venice Marco Polo Airport
DPS	Ngurah Rai International Airport (Denpasar)	MUC	Munich Airport	VFA	Victoria Falls Airport
DUS	Düsseldorf Airport	MST	Maastricht Aachen Airport	VIE	Vienna International Airport
DXB	Dubai International Airport	NRT	Narita International Airport (Tokio)	WRO	Wrocław–Copernicus Airport
EBJ	Esbjerg Airport	OAK	Oakland International Airport	YKS	Yakutsk Airport
EIN	Eindhoven Airport	OOL	Gold Coast Airport	YPL	Pickle Lake Airport
ELS	East London Airport	OSD	Åre Östersund Airport	YQR	Regina International Airport
ETZ	Metz-Nancy-Lothringen Airport	OSL	Oslo Airport	YVR	Vancouver International Airport
EUX	F.D. Roosevelt Airport (St. Eustatius)	PUF	Pau Pyrénées Airport	ZCO	Aeropuerto Maquehue Araucania
FAT	International Airport Fresno Yosemite	RDZ	Rodez Marcillac Airport	ZRH	Zürich Airport
FDF	Martinique Airport	RIL	Rife Garfield County 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 a 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.



Product R4  
Finish: polyester powder coating



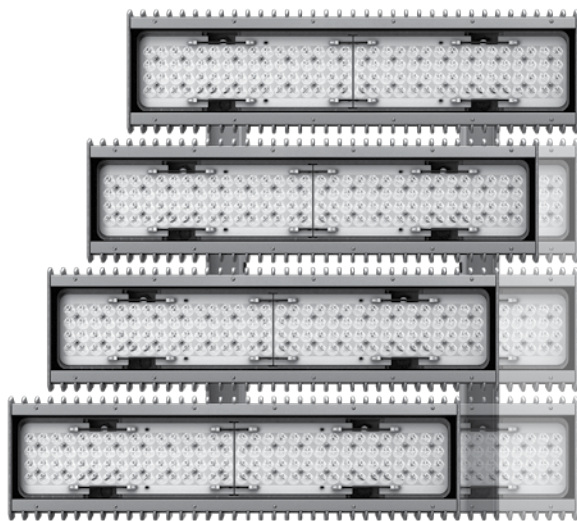
Product R1



Product R2



Product R3



Product variants R1–R4

## 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 aluminum, cover in single-pane safety glass (ESG)
- 9 Bracket made of hot-dip galvanized steel, holder made of aluminum
- 10 Finish: polyester powder coating, silver (RAL 9006/DB 701)

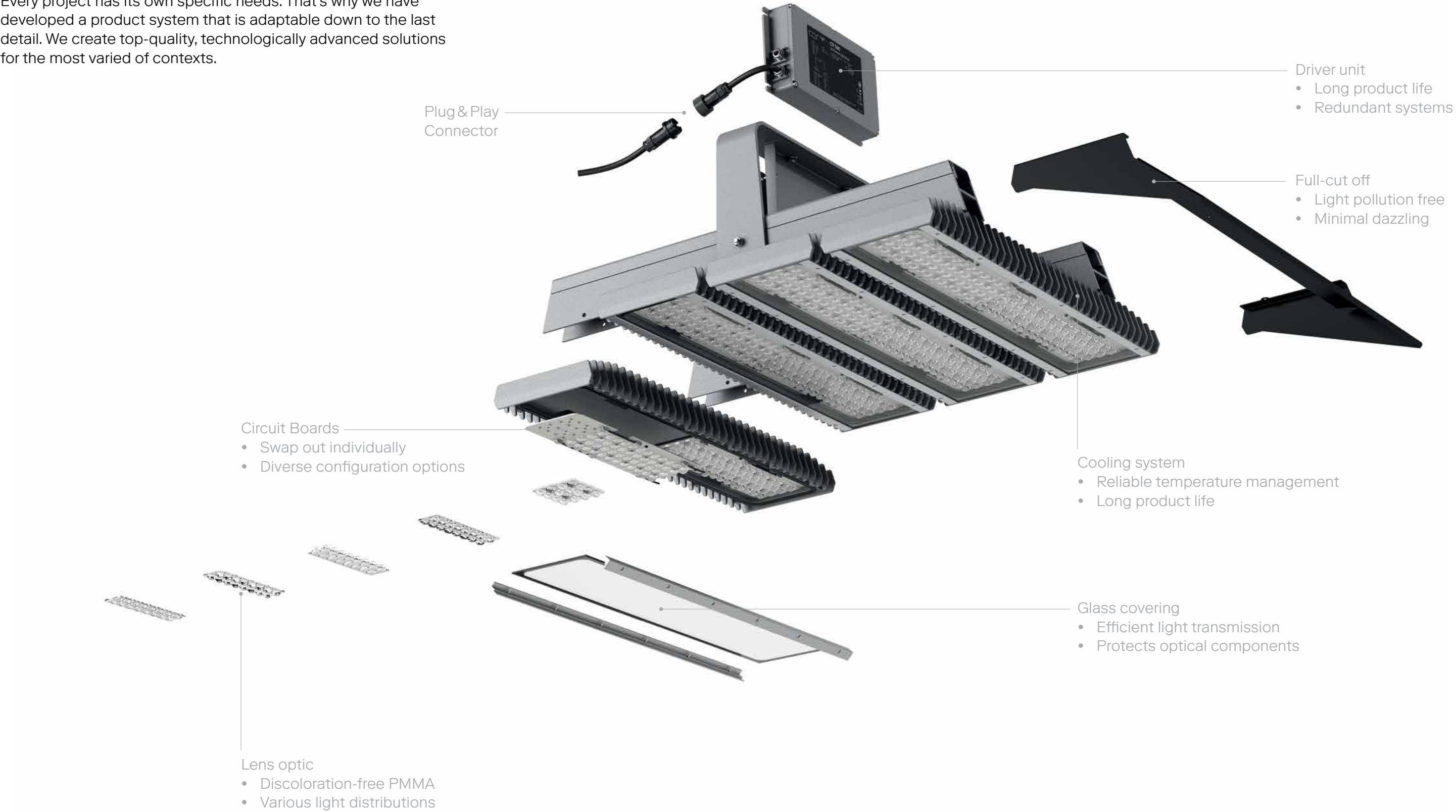
⏚ CE IP66 RoHS IK08



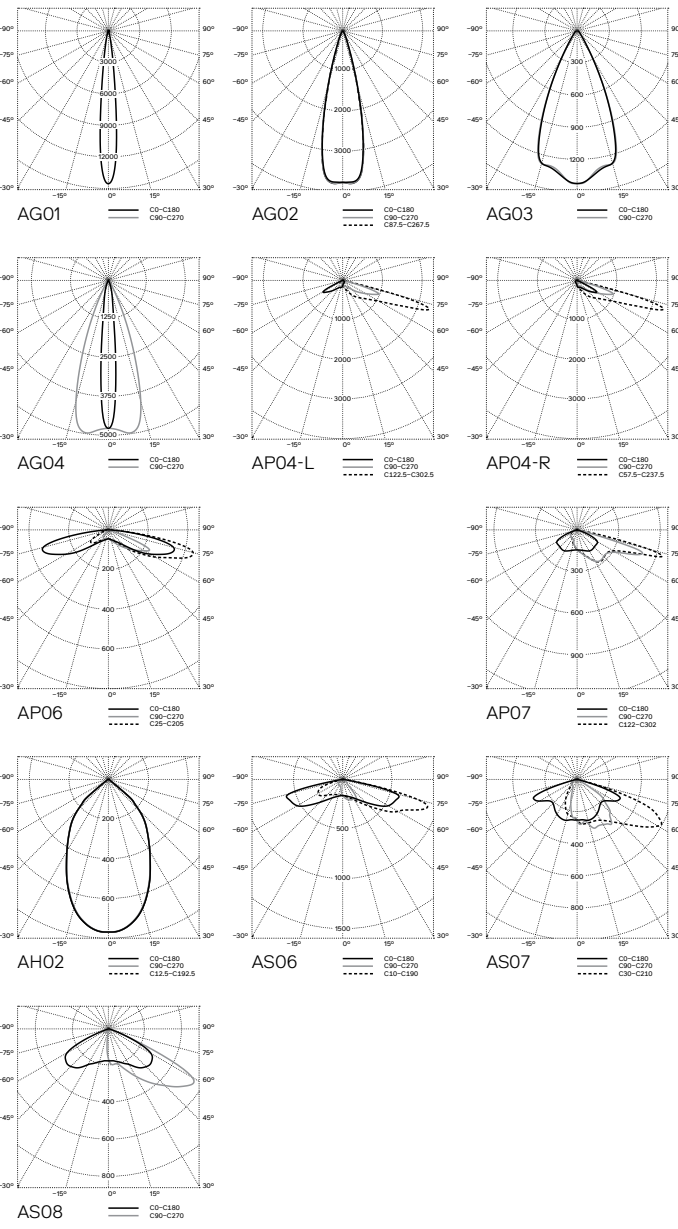


# Modular Design, Highly Flexible Solutions

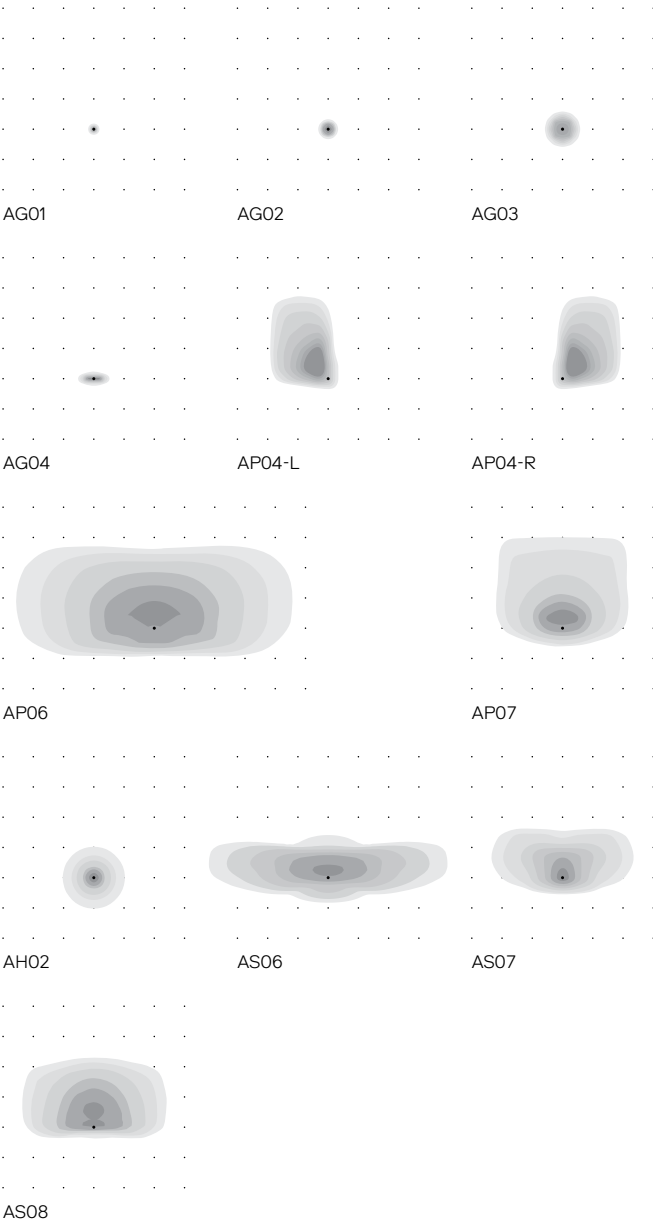
Every project has its own specific needs. That's why we have developed a product system that is adaptable down to the last detail. We create top-quality, technologically advanced solutions for the most varied of contexts.



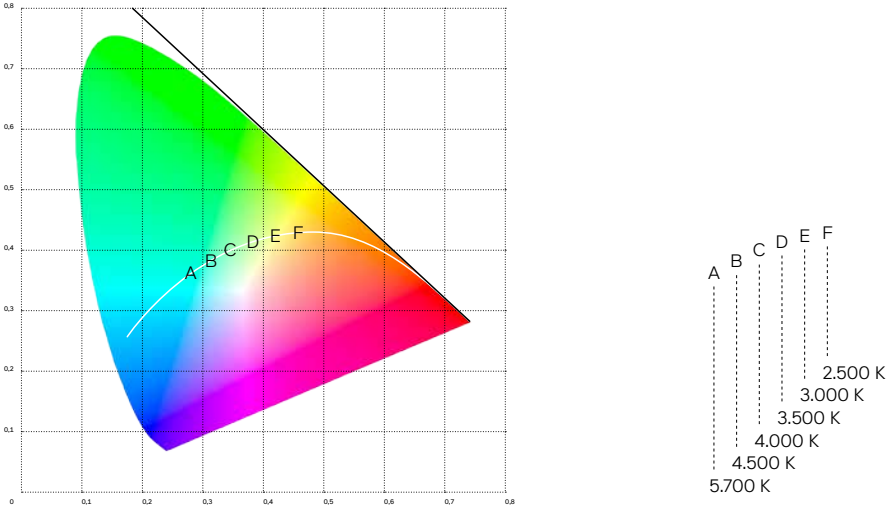
Polar diagram



Light distributions



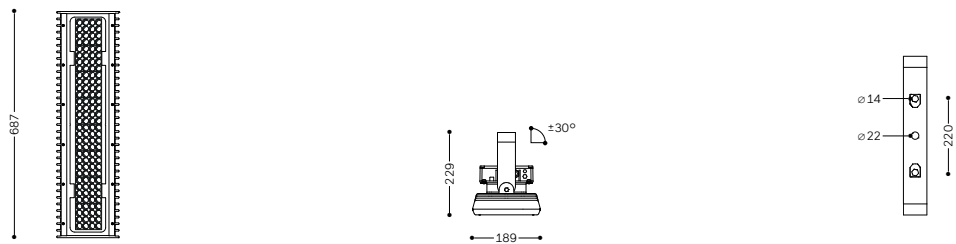
Colour temperature



R-System

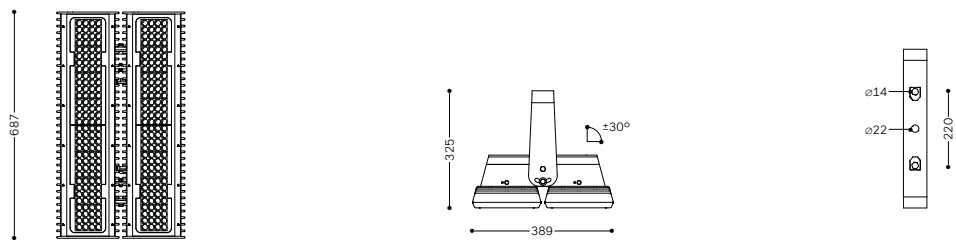
R1

7.5 kg  
3 kg Driver



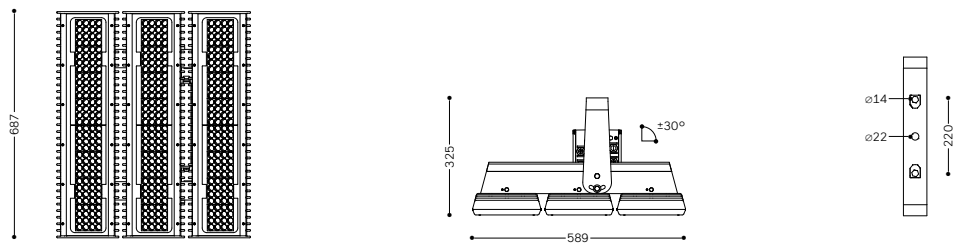
R2

20 kg  
3 kg Driver



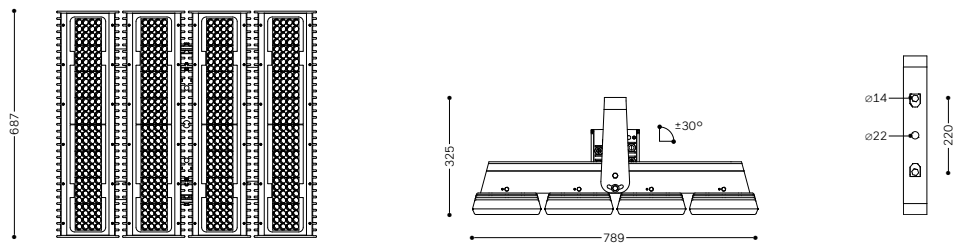
R3

27 kg  
5 kg Driver



R4

34 kg  
5 kg Driver



Color temperature

4,000 K / 5,700 K

Current [mA]	Luminous flux* [lm]	Power [W]	Luminous efficacy [lm/W]
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R1

500 mA	25,770	194	133.1
600 mA	29,938	233	128.4
700 mA	33,961	273	124.6
800 mA**	37,176	313	118.9

R2

500 mA	51,540	387	133.1
600 mA	59,876	466	128.4
700 mA	67,921	545	124.6
800 mA**	74,352	625	118.9

R3

500 mA	77,310	581	133.1
600 mA	89,814	699	128.4
700 mA	101,882	818	124.6
800 mA**	111,529	938	118.9

R4

500 mA	103,080	775	133.1
600 mA	119,753	932	128.4
700 mA	135,842	1091	124.6
800 mA**	148,705	1250	118.9

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:



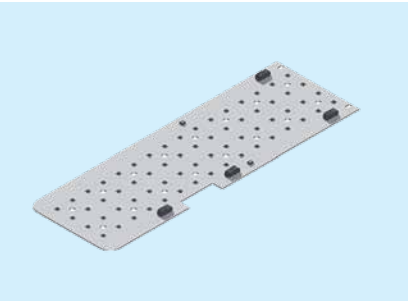
Ventilator element



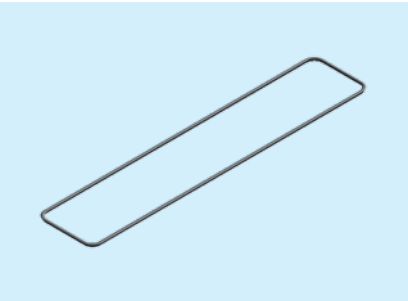
Lens head screw M4 x 8 Torx



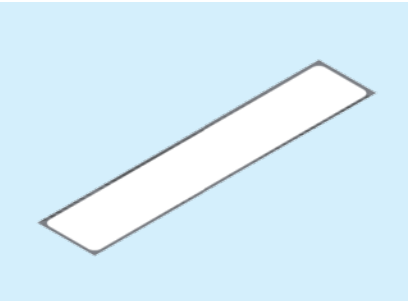
Cable feedthrough



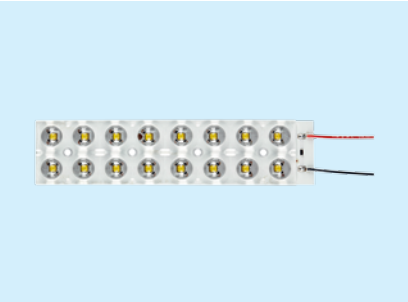
PCB circuit board



Gasket



Glass covering



Lens optic



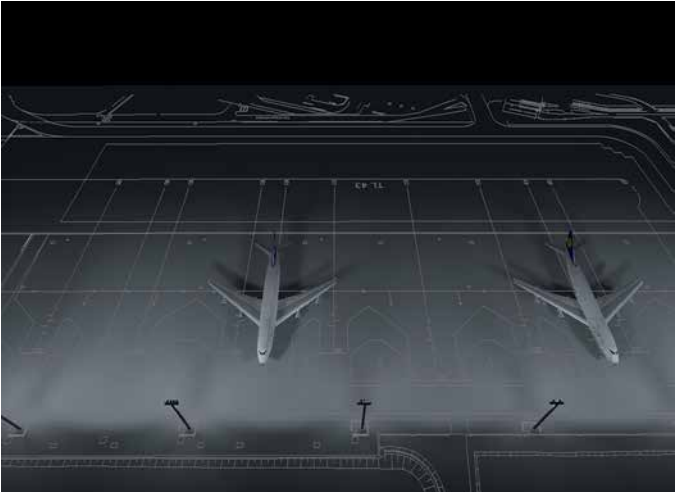
Clamp



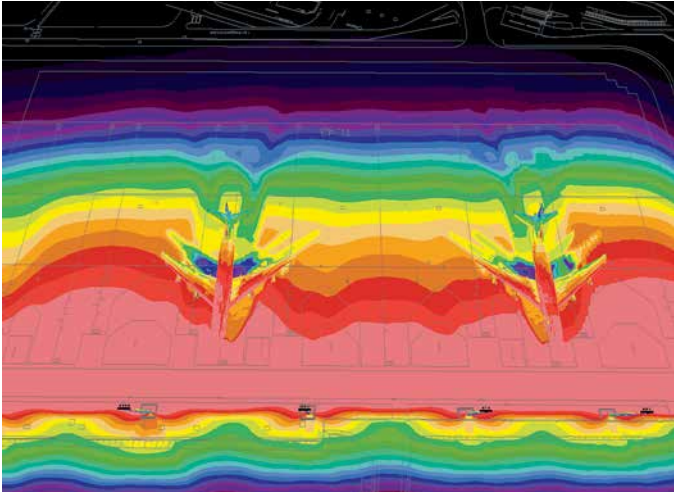
CP590 driver

# Support for Integrated Solutions

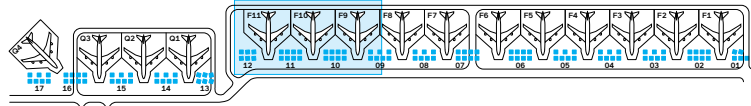
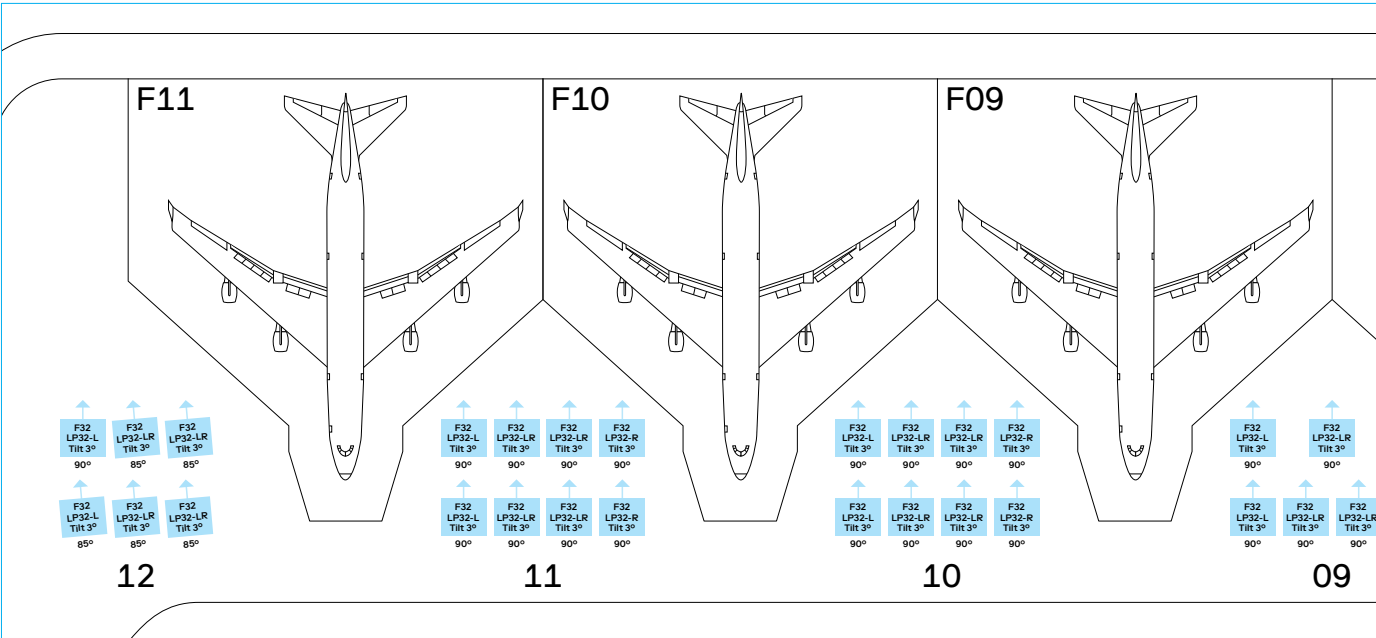
Alongside its apron floodlights, ewo equips airport customers with a complete lighting package including design and planning support. Our experienced lighting engineers work closely with leading airfield lighting designers worldwide, providing fully compliant designs in accordance with the most common 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.



Light distribution simulated in 3D



False color rendering demonstrating product illuminance

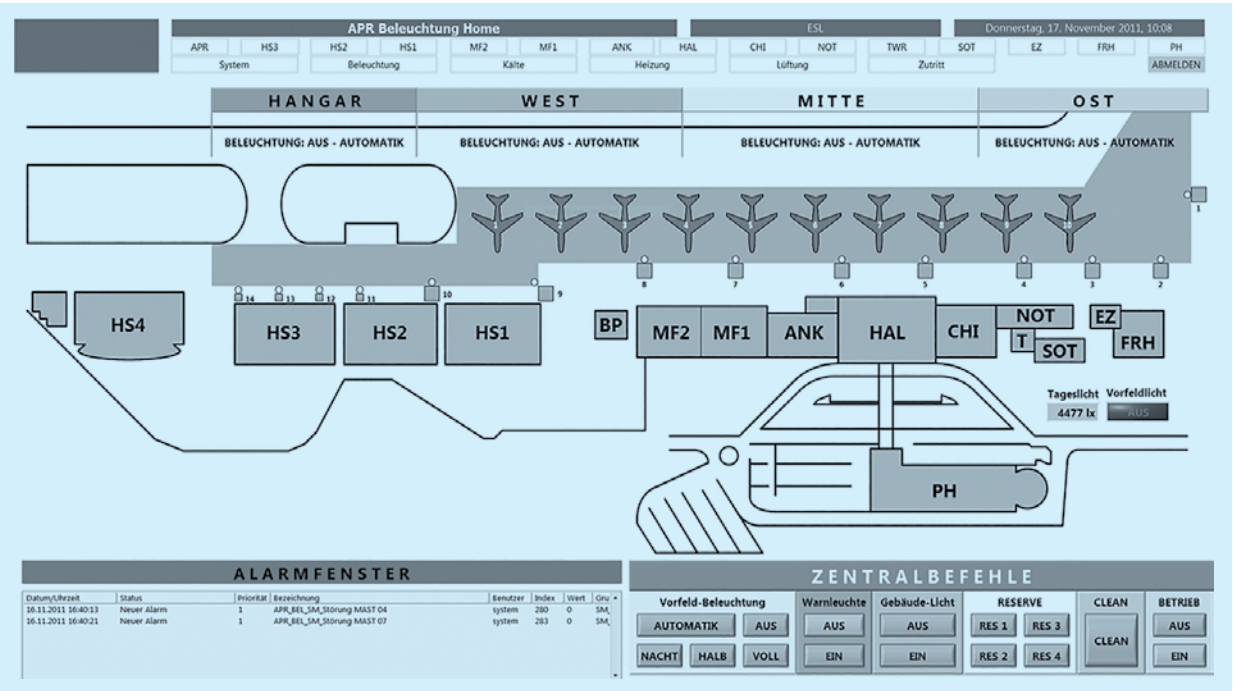
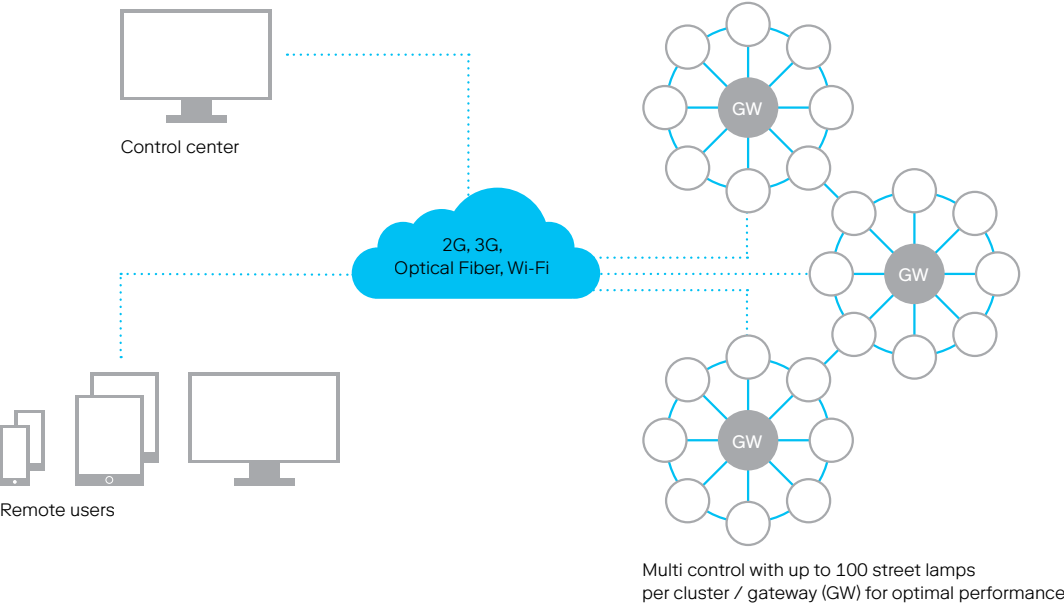


Light positioning schematic



# Radio and light control

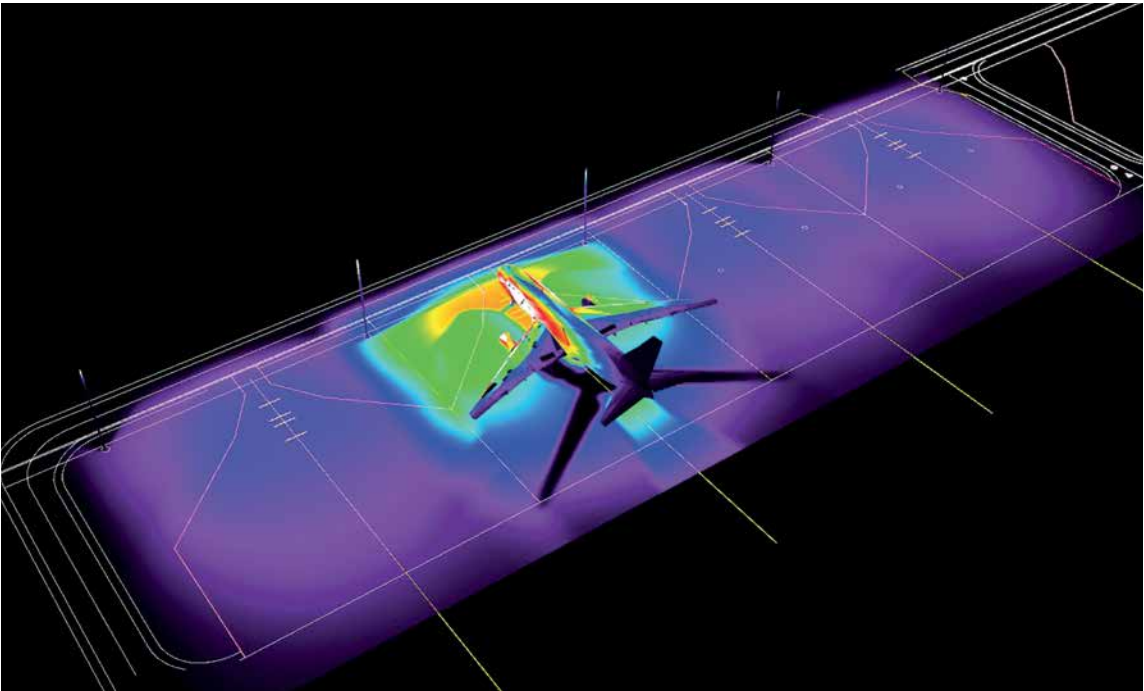
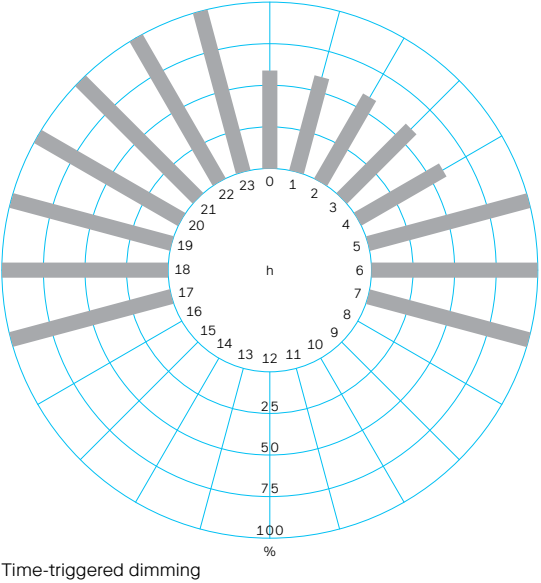
Our products may be fitted with a system to allow for wireless data communication within your networks. Two-way communication between floodlights and control software enables full control and monitoring of the lights, for more cost-effective, responsive usage and maintenance.



User interface

# 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.



False color rendering demonstrating product dimming capabilities





## Munich Airport Terminal 1, P185

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.



# 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.

## 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\*

59.5 %

- 512,682.00 kWh/year
- 307,609.00 kg CO<sup>2</sup>/year
- 76,000.00 €/year

\* CO<sup>2</sup> 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,  $E_m = 30 \text{ lux}$ ,  $U = 0.25$

Area illuminated: 120,000 m<sup>2</sup>

Power consumption/area: 0.49 W/m<sup>2</sup>

Power consumption in total: 59.82 kW

### Lighting system

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

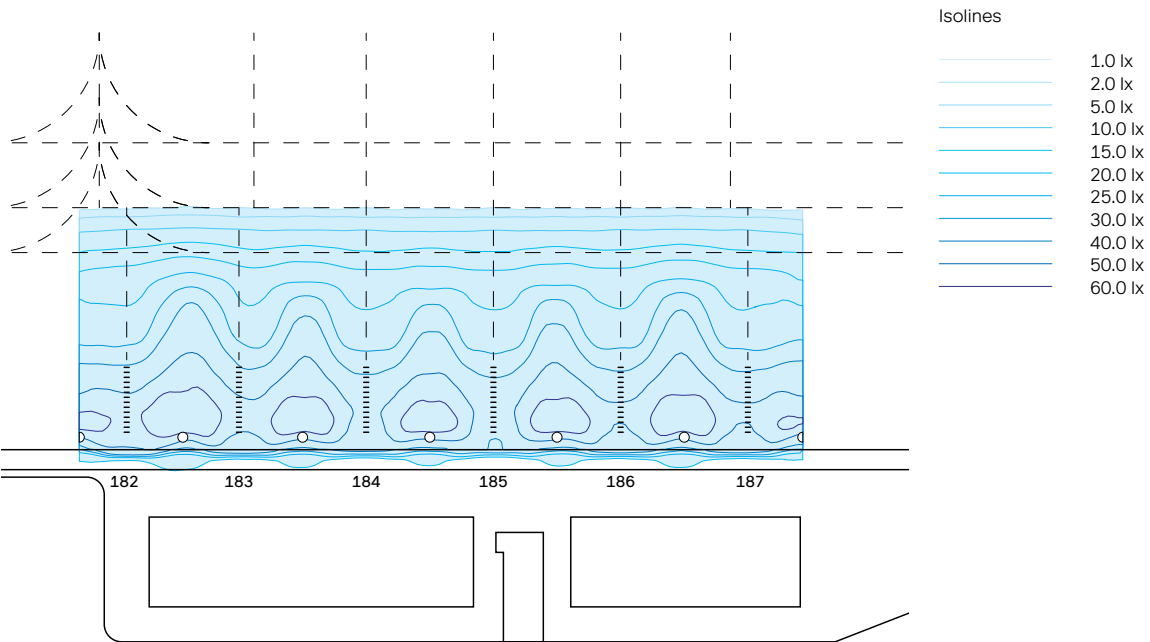
### Lighting technology

- 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

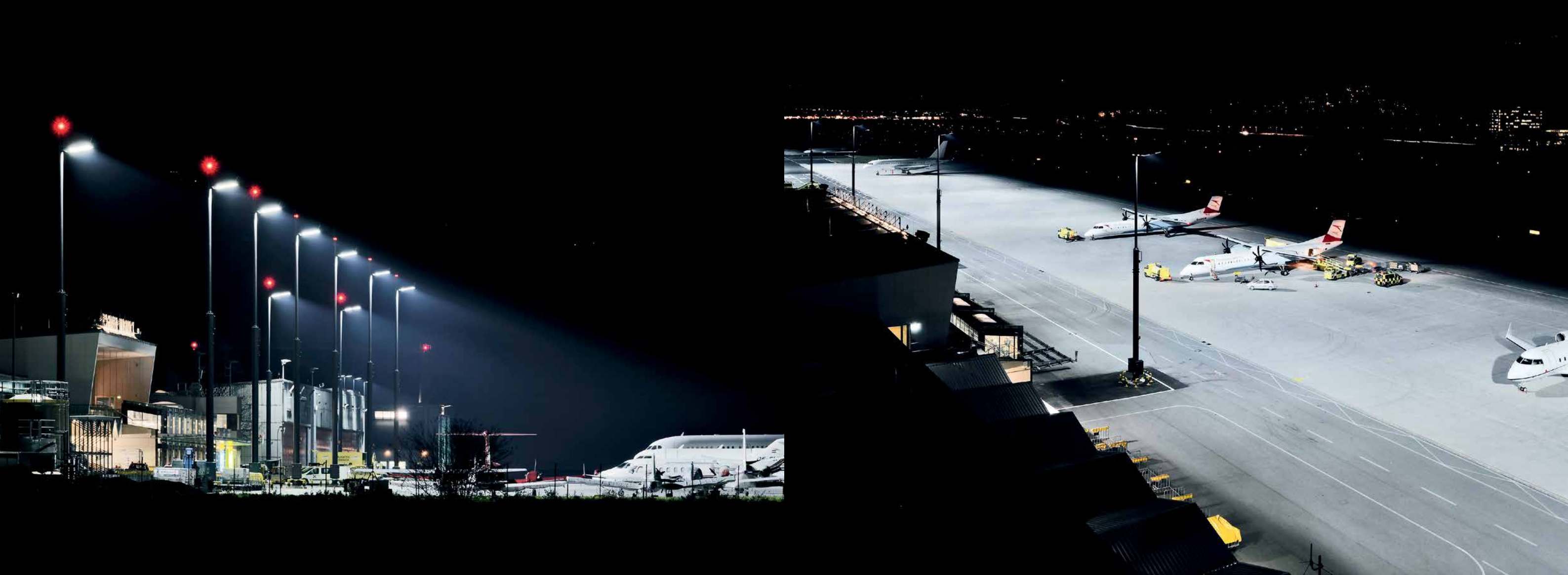
#### Light control over DALI

- Constant light output regulation
- Automatic lowered night-time lighting (50 %)
- Remote maintenance



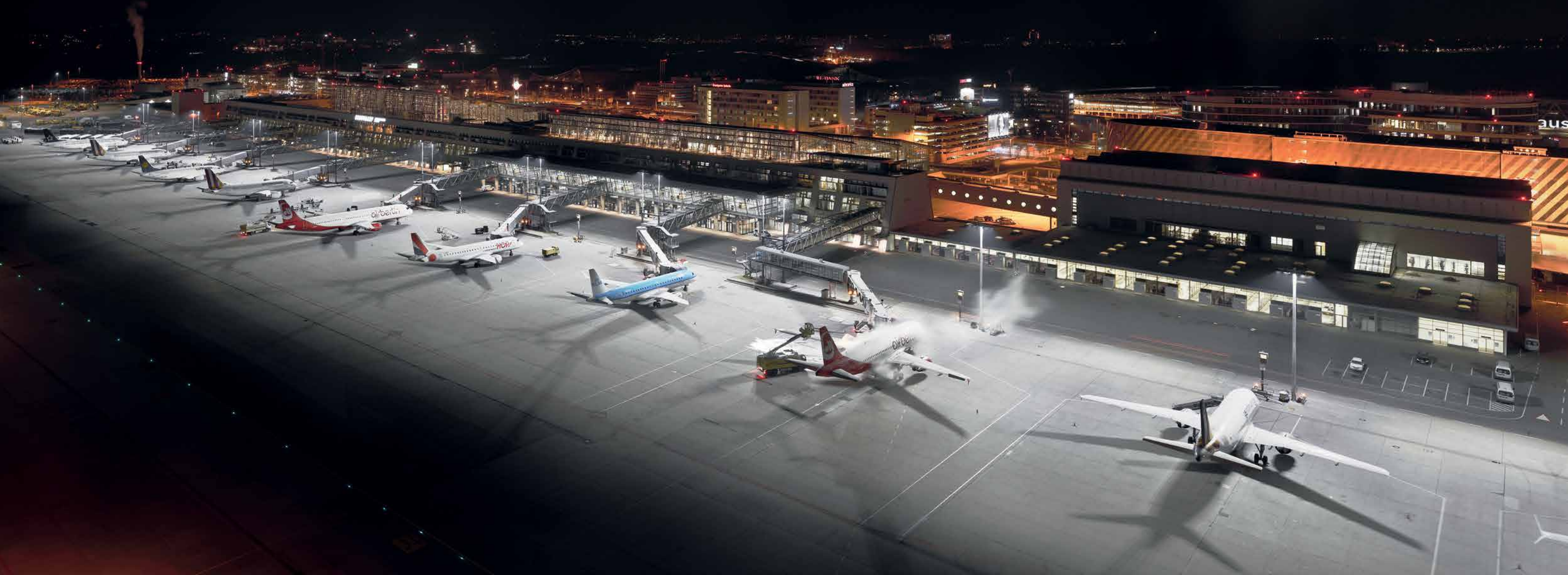
Due to the use of various optical lenses, both the apron and the taxiway can be provided with the optimum level of light in compliance with the respectively applied specifications.



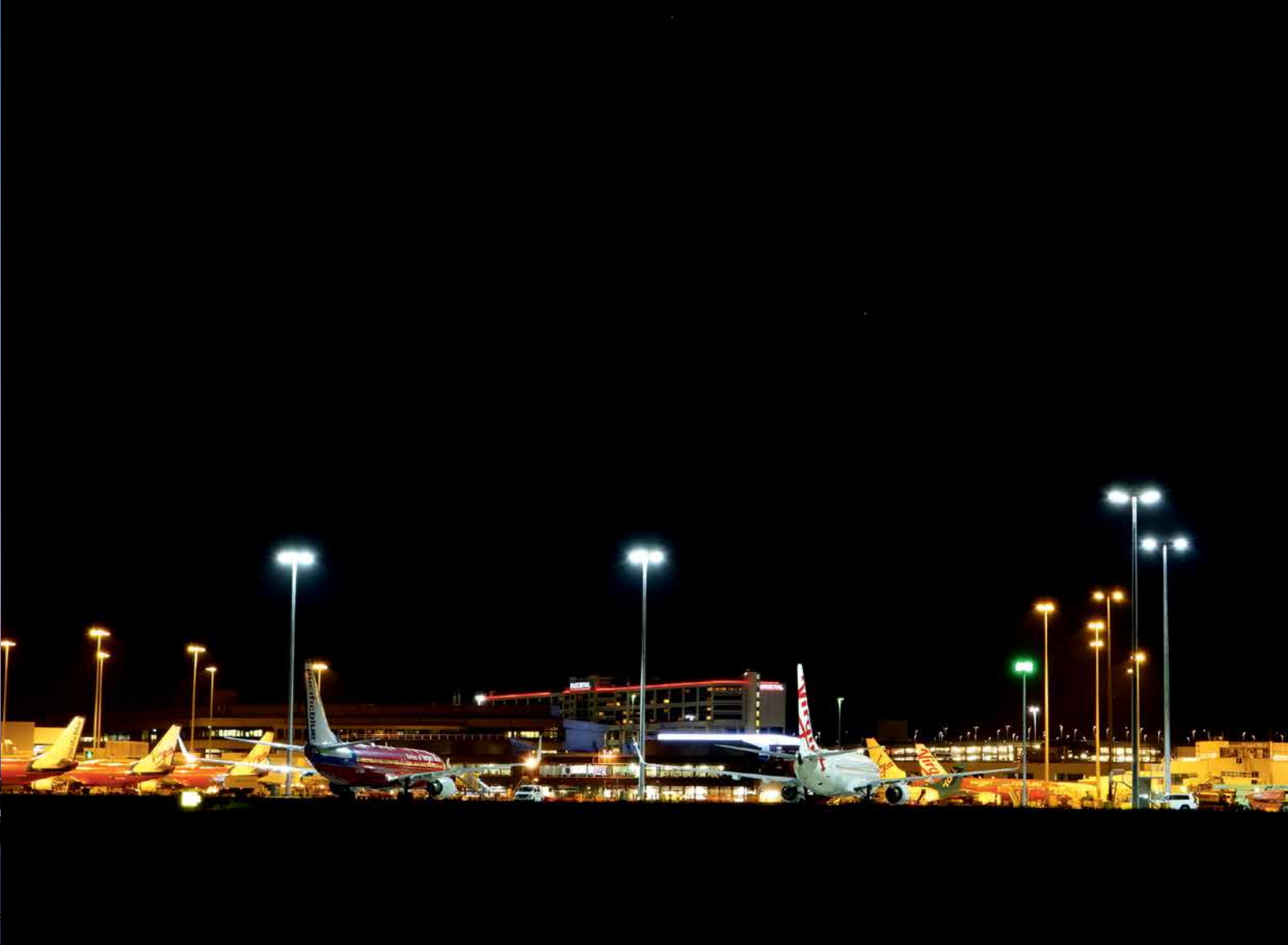


Innsbruck Airport, Austria, 2011  
 The realization that LED technology provides improved light quality with lower costs while protecting the climate and the night sky was the deciding factor: the Innsbruck Airport, as the first one in the entire world, engaged ewo to switch over the entire apron illumination 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.



# Additional Usage Options

Roads and traffic



Logistics



Harbor



Container terminal



## ewo

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.



## Contact

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.

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