

El Dorado Airport – Bogotá



The busiest airport in South America in terms of cargo and the 2nd busiest when it comes to passenger numbers, El Dorado is a hub for the Colombian flag-carrier Avianca and several cargo companies.

Owned by the Government of Colombia, it's operated by Operadora Aeroportuaria Internacional (OPAIN) – a consortium of Colombian construction and engineering firms, and Flughafen Zürich AG that operates Zurich International Airport.

El Dorado has been named the best airport in South America by World Airport Awards. The airport received four-star certification and its staff was rated the best in South America by Skytrax. It has also been ranked by Skytrax as number 42 in its list of the Top 100 Airports – beating renowned airports such as London Gatwick (51st place) and New York JFK (63rd).

At a glance

Sector: Aviation

Customer: El Dorado Airport – Bogotá

Number of passengers: 31,000,000

Cargo: 674,201 Tonnes

Runways: 1

Stands: 80+



The challenge

El Dorado presented us with two very different challenges:

- Firstly, and most importantly, it wasn't meeting the latest ICAO requirements – such as being able to provide vertical light levels from two directions perpendicular to the aircraft fuselage. This had to be addressed as soon as was possible.
- Secondly, the airport was looking to cut its carbon footprint to help it comply with recognized international standards such as the Equator Principles and to satisfy the goals established by the UNFCCC - COP21. So, it was looking to make the large energy savings LED floodlighting would give.

Ideally, the airport also wanted us to meet these two challenges without the need for any infrastructure changes at all.

Our solution

Two years before this project, following a competitive tender, El Dorado had appointed us to provide the floodlighting for a new area they were building at the airport. So, they knew how we worked, our products, and the results we could achieve. They were so impressed with our work for that development, they asked us to take on this project without the need to compete in a new tender.

Following a comprehensive review of the airport's current lighting and infrastructure, our Design and Engineering teams decided our Titan Series – see below for more details – would be the perfect solution for the job.

Project date: 2021
LED floodlights installed: 232
Type: Titan 560 and 420

Lux average values: 20+ Lux
Uniformity: 0.4+
Energy Savings: 68%

Thanks to the highly asymmetric lighting it provides, a combination of the 560 and 420 luminaires in the Series would be more than enough to meet all ICAO regulations. They would make sure any potential issues associated with glare would be vastly reduced too.

The Series' low weight and versatile bracketing system also meant, coupled with our proprietary optics, we could provide a solution that required far fewer luminaires than were already in place. So, the energy savings the new system provided would be very high – 68% as it turned out. The fewer luminaires needed in turn meant we could complete the project without the need for any adjustments, new parts, or additions to the airport's current masts. The lighter load on the masts would also help extend their service life.

As with all our products, the need for any maintenance would be greatly reduced. So, the airport would also have to spend a lot less on replacement parts, equipment needed to fit them, and any associated downtime cost would be minimised.

This project covered only the passenger transport areas of the airport. We're already working with El Dorado on upgrading its cargo handling areas. This should be completed at the end of 2021 or early 2022.

Before and after technical comparison

	BEFORE	LED
Number of projectors	375	232
Nominal power for single appliance	600/1000 kW	455/575 kW
Absorbed power (measured data)	333	107
Total power absorbed	430.5	256.62
Energy consumption per year	1,431,900 kWh	460,000 kWh
Colour Temperature	2000K	5000K
Colour Rendering Index	25	70
Average Light Level	20 Lux	25 Lux+
Uniformity	0.25	0.4
Energy Saving	/	68%

Titan Series:

Applications: Aviation and Maritime. One of our flagship products, the Titan Series has been tried, tested, and endorsed by some of the world's biggest and busiest airports and seaports.

Features and benefits of the Titan Series:

- It's manufactured with a stainless steel construction that improves structural integrity and life of the product.
- An in-house designed extruded heat sink allows for highly efficient heat dissipation due to its large surface area, compared with a die-cast product. This keeps lumen degradation to a minimum, extending luminaire's life and performance.
- Its proprietary optic lenses provide the highest level of asymmetric distribution in the market. This allows clients to achieve required light levels with less power, fewer luminaires, and minimum glare.
- The Series is designed as standard with an integrated two-step surge protection up to 15kA/20kV. This protects the luminaire against power surges, giving more reliability and longer performance.
- It comes as standard with DALI controls for plug and play capability.
- A uniquely designed bracket and cable retractor make it perfect for both retrofit and new build projects.
- All its components are individually IP66 certified.
- The Series is certified to ENEC and CB requirements.

