

Abu Dhabi Presidential Flight (AUH)



Located at Abu Dhabi International Airport, Presidential Flight is an area dedicated to and responsible for the air transport of the government of Abu Dhabi and other dignitaries.

Its mission is to operate VVIP and VIP flights safely and securely and to be recognised as the international benchmark for Head of State flight operations.

The challenge:

This project covered only the Presidential Flight area of Abu Dhabi International Airport, as the issues this area had didn't apply to the airport as a whole.

The Presidential Flight now services small private jets, civil aircraft, and helicopters. So, it needed to make sure its lighting levels met ICAO levels for them. This was especially true for the larger planes, such as the Airbus A380, now landing there. The area for ICAO compliant light coverage, therefore, needed to increase from 40x40m to 80x80m.

Also, as it acts as a showcase for politicians, royalty, and other very important visitors to the region, Presidential Flight wanted to exceed the 20 Lux lighting level actually required. So we were asked to deliver 30 Lux across the entire area – including the service road which isn't usually needed as part of an airport project.

At a glance

Sector: Aviation
Customer: Abu Dhabi Presidential Flight
Runways: 2 (entire Abu Dhabi Int Airport)

Stands: 13 (including 5 x Code F, A380 Aprons)
Project date: 2019

LED floodlights installed: 88
Type: Titan 720 & 560
Lux average values: 30 Lux

Uniformity: >0.4



Another highly challenging aspect we faced was the environment. The temperatures in the region can vary from over 40 to around 20. Being close to the sea, the atmosphere can contain a lot of highly corrosive salt too. Both of these factors can cause major problems for non-LED and LED systems not specifically designed to cope with them – unlike our Titan Series.

As this was a total retrofit project, with mast heights ranging from 40m to 20m, the weight, positioning, and counterbalancing aspect of our luminaires would also have to be considered very carefully.

The possibility of ground staff and pilot glare was another thing we were requested to pay particular attention to. We were asked to prove both in our designs and with in-situ tests this would not be an issue.

All airports have very high-security protocols. However, given the AAA+ status of passengers using Presidential Flight facilities this meant we had to allow for even stricter levels needed.

Our solution

After carefully examining the area's current layout and the Presidential Flight's objectives, our Lighting Design and Engineering teams decided a combination of our 720 and 560 Titan Series luminaires would provide the perfect solution.

The Titan Series is one of our flagship products and the go-to solution for both airports and maritime terminals all over the world.

It's a highly asymmetric floodlighting system and thanks to our propriety optics it delivers maximum light levels on very precise applications and designated areas. So we were more than able to reach the high-level, high-quality lighting required across the larger area needed – with fewer luminaires. Titan lenses also reflect a portion of the light they produce back into the luminaire itself. This light was able to be directed onto the service road at the same time. So two challenges could be met with just the one system.

An in-house designed extruded heat sink allows for highly efficient heat dissipation due to its large surface area, when compared with a die-cast product. This allows it to perform excellently in high-heat environments and keeps lumen degradation to an absolute minimum, extending the life and performance of the luminaires.

It's also manufactured with a stainless steel construction that improves the structural integrity and life of the product. This is a critical need when used in challenging salt-rich atmospheric environments such as Abu Dhabi.

Both the 720 and 560 luminaires are very low weight compared to other LED and non-LED luminaires. They both also have a uniquely designed bracket and cable retractor which allow for flexible and easy installation for both retrofit and new build projects. This meant we could create a lighting layout to allow for the various heights of the masts and the counterbalancing needed.

When it comes to glare, as the Series was initially designed for airports and seaports any glare produced is extremely low. We proved this in our designs and by human observation onsite, testing at heights of 1.5, 3.5, and 5m – the heights ground staff and pilots in various

aircraft would experience it.

As for the extremely tight security around the area, we've also worked on some of the most sensitive military airbases around the world. So this wasn't a problem for us.



Additional features and benefits of the Titan Series:

- It's been designed with an integrated two-step surge protection up to 15kA/20kV which protects the luminaire against power surges. This guarantees more reliability and longer performance.
- The Series is manufactured in the UK to provide the highest level of quality control.
- DALI controls for plug and play capability come as standard.
- All components are individually IP66 certified.
- As with all our products, it's certified to ENEC and CB requirements.

	BEFORE	AFTER WITH LED
Number of projectors	40 x 1000W 48 x 2000W 6 x 400W	82 x 698W 06 x 563W
Total power absorbed	159.08 kW	60.614 kW
Energy consumption per year	696770.4 kWh	265489.32 kWh
Colour temperature	Mix of HPS and MH	5000K
Colour rendering index	30	70
Average light level	/	>30 Lux
Uniformity	/	>0.4
Energy savings	/	61.8%