

The Lux guide to high-mast lighting

Large area lighting using high masts isn't always easy. But LED technology is helping. Here's are the five things you need to know to get it right.

Get the light in the right place

The key thing for large area lighting isn't just how much light you get, but where it goes. There's no point having a big lumen package if half the light goes into the sky.

Lukas Dusini, who heads up sales and project design at Italian manufacturer Ewo, says LEDs offer big advantages when it comes to light distribution. 'Before, when the light sources were quite big, we were forced to use reflectors. Now with LEDs, we are able to use lenses.'

LEDs can also minimise glare. With traditional setups, you might have to tilt your high-mast fitting to get the light where it was needed. Problem is, this increased the amount of glare from the light source. The latest LED light sources and optics offer a way around this problem.

LEDs are already more than capable of providing the light output needed for large area applications such as car parks and industrial sites, and they're even beginning to rival traditional sources for sports lighting, which requires high lux levels and very low flicker for the benefit of TV cameras.

Holophane's latest high-mast product uses new optical technology developed for the company's Lux Award-winning Haloprism high bay luminaire, with LEDs placed behind prismatic glass lenses. Product manager Aroon Varma says: 'One of the key benefits is you've got zero uplight, and you get that prism glow effect instead of being able to see individual LEDs.'

'If you're using it in a port environment with large vehicles, fork lifts, trucks, you don't want the light to be glary, and if there are residential buildings nearby, you want to make sure you're not bothering residents.'

'A lot of people when they're lighting LEDs, focus on the light on the plane on the floor. But in high-mast applications you also have to look at horizontal light. If you've got a port or somewhere where you've got things stacked up high, you want that horizontal light.'

Consider colours

Colour is the next important consideration – traditional SON and SOX lamps give you an orangey glow, making it harder to recognise the colours of cars, containers and so on. White light from HID or LED sources feels more natural.

Do as little maintenance as possible

Nobody wants to change lamps if they don't have to, especially if their mounted on a high mast in the middle of a port or airport.

Dusini of Ewo reckons that maintenance accounts for about two thirds of the savings his customers get from switching high-mast lighting at airports to LED, compared to conventional systems where the lamps need to be changed more often.

‘We try to keep it maintenance free,’ says Dusini. ‘The only maintenance is when you have to clean a cover. You can count on 50,000 hours life – and that doesn’t mean it breaks after 50,000 hours, it means after 50,000 hours the lumen output has fallen by 20 per cent.’

Holophane’s product uses glass optics and air ventilation to create a ‘self cleaning’ system to minimise maintenance and keep the light output as high as possible. ‘These things are mounted at up to 35 metres high, if you have to bring them down every year to wash them, then that costs, whereas if it’s self-cleaning then that cleaning cycles don’t have to be as frequent,’ says Holophane’s Aroon Varma. They also feature surge protection to protect against damage from lightning strikes.

Get things under control

Amid all the fuss about LED lighting, sometimes we forget how much energy you can save just by turning lights off when they’re not needed. Or dimming them. With LEDs, this is way easier than it used to be, particularly for the kind of high-powered lights you need for large areas. Gone are the days of floodlights that take 15 minutes to warm up and should the power fail (heaven forbid) you have to wait for them to cool down again before you can even switch them back on. LEDs are happy with being switched on and off whenever you like, and you can dim them too.

Ewo’s high-mast lights can be placed between two aircraft aprons, with the light on each side controlled separately. So you can save energy by only lighting the one that’s being used at any one time.

Holophane’s products are also Dali-enabled as standard, and feature photocells and sensors so they can be dimmed to 10 per cent.

Retrofit and save energy

If you already have high-mast lighting installed and you want to upgrade it, LED luminaires can easily be retrofitted to existing poles. Ewo’s luminaires weigh slightly more than the conventional ones they replace, but their wind load is significantly lower because of their flat shape.

Holophane’s Aroon Varma says one of the advantages of LED optics is that you can spread the weight of luminaires evenly on a mast, while relying on lenses to send the light in a particular direction.

In the past this would have meant mounting luminaires on the side where the light needed to go – creating an uneven load.