

## Direct Drive: Queen's Award-winning LED Technology Innovation

### What is Direct Drive?

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Direct Drive® is a pioneering LED lighting technology designed by INDO to significantly improve luminaire reliability and lifetime... ensuring the promise of 25-year product lifetimes actually delivers.

Typical LED assemblies use a separate "LED driver" that are proven to fail or degrade early and require scheduled and costly LED driver-changes after every 5-7 years of operation. This is long before the LEDs have reached the end of their serviceable life.



**We have eliminated the need for a driver in the fitting by; a) employing a particular LED system configuration, and b) innovative control circuitry incorporated onto the LED module. It is this advanced electronics engineering that carefully regulates LED current directly from mains voltage.**

A proudly British innovation, this was developed exclusively by our Product Engineering team, who took a more strategic approach to luminaire design. They developed an LED system from the ground up, rather than simply replicating the traditional HID luminaire manufacturing

process. Their aim was to better meet customer needs by matching the lifetime of ALL parts of the luminaire electronics to that of the LEDs themselves.

This has been achieved whilst ensuring equal or improved luminaire reliability, performance and functionality.

## But why do drivers fail?

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Wet electrolytic capacitors are inherent wear-out components within all LED drivers, often deployed in two parts of the driver circuit.

They comprise a liquid electrolyte which evaporates over time, (incidentally at a quicker rate in higher temperatures) altering the component properties. When this happens, the driver abruptly ceases to operate, causing luminaire failure.



## Direct Drive internal advantages

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So, Direct Drive addresses the problem of driver failure by designing out the components found in an LED driver and taking a more holistic approach to system design. On top of the obvious cost and maintenance benefits, since an LED driver is both bulky and a significant heat source (around 30-40° hotter than the ambient temperature), removing it allows for other improvements.



1. Being able to mount all the LEDs and electronic circuitry together onto the heat sink means our circuitry can monitor and react to the operating temperature of all system parts in a more integrated way, ensuring everything works within its limits.

2. Thermal management can be singly focused on transferring heat away from the LEDs. The end result is a system under much less stress, thus exponentially improving both lifetime and reliability
3. With no 'end of life' failure mode and fewer components on board, the circuit is more stable
4. Absence of the driver allows for a more robust, streamlined and lightweight product form with space for additional integrations
5. Improved power factors close to unity

## Customer Benefits

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Being able to “identify, eliminate and control foreseeable risks that could arise at any time during the lifetime of a highway scheme” is one of the foremost reasons why our Direct Drive innovation is so beneficial to the public lighting sector.

### **Additional advantages offered by the technology are far reaching:**

- Maintenance requirements reduced to a simple clean and electrical test schedule
- Better whole-life management of health and safety risk
- Significant energy and capital cost savings
- Quicker payback periods
- Quick and simple for a single operative to both install and wire in
- Reduced column loading
- Fewer public complaints and civil claims
- Improved reliability and public safety
- Confidence the system will achieve and sustain the maintenance factor used in initial designs
- Equal or improved product specifications
- High quality electrical performance enabling better CMS response and control
- Low inrush current reduces stress on the power network
- Excellent lumen maintenance, enhanced by CLO
- Eliminate issues around driver replacements, rewiring, onward driver and surge protection compatibility
- Everything traditional LED fittings can achieve, and more



- One warranty covers the entire luminaire
- Designed and made in the UK with high quality-controlled manufacturing
- Public procurement that provides taxpayers with demonstrably better value for money

## A Growing Trend

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Direct Drive first came to market in 2010 within the company's retrofit lamp products (the T5s and PLs we designed specifically for highway bollards and sign lights). Since then, the technology has been scaled up and developed for use in our complete street lighting luminaire range, decorative lanterns and retrofit gear trays.

New product development continues apace as we expand the Direct Drive product range across street lighting and into other applications, such as Rail and Horticulture.



**The benefits our technology has brought to the lighting industry was recognised in 2017, when we were granted the prestigious Queens Award for Innovation.**

To date, we now have over 200,000 Direct Drive units installed across the UK and Europe. And the business is expanding rapidly year on year.

We've been increasingly successful in getting the Direct Drive product range onto public sector procurement frameworks and continue to

win many LED lighting upgrade contracts supplying thousands of products to clients across the country; from the Scottish Highlands and Cumbria through to Wales, Milton Keynes and Essex.

*INDO has become one of the UK's leading brands in the public lighting sector and the 'go-to' for genuine long life, driverless LED commercial lighting products. We continue to lead the way in advanced technology solutions for street lighting and other specialist lighting applications where access to the fittings and product reliability are mission-critical factors.*

[www.indolighting.com/telegraph](http://www.indolighting.com/telegraph)