



Pioneering Light

# Why Drive Hub?



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# Lighting comparison for a typical large restaurant

(based on replacing ~1000 tungsten halogen 50W fixtures)

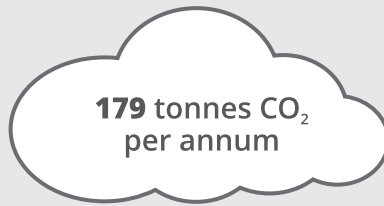
## Tungsten halogen

8% efficiency



92% waste

179 tonnes CO<sub>2</sub> per annum



Efficiency savings in your lighting systems directly equate to...

...sizeable reductions in CO<sub>2</sub> emissions and...

...greatly reduced operating costs.

## Standard LED

65% efficiency



35% waste

52 tonnes CO<sub>2</sub> per annum



## Drive Hub LED

94% efficiency



6% waste

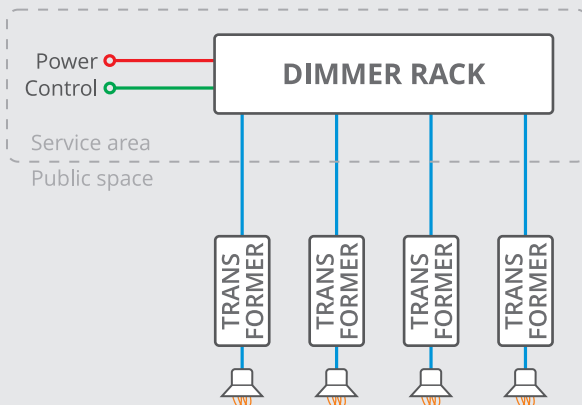
35 tonnes CO<sub>2</sub> per annum



# Lighting comparison for a typical large restaurant

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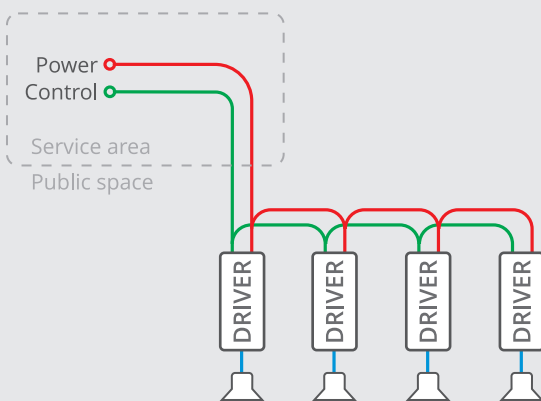
## Tungsten halogen



- Very low efficiency
- Transformers located in the public space alongside the fixtures
- Lamp and transformer failures are common

The advantages of moving from tungsten halogen to LED have been obvious for years...

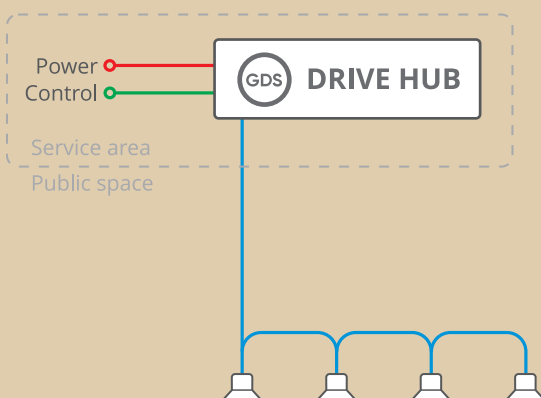
## Standard LED



- Improved efficiency
- Key components unreachable without access equipment and customer disruption
- Driver failures are common
- More complicated cabling to the fixtures

...The advantages of progressing to **GDS Drive Hub** may not at first be so apparent.

## Drive Hub LED



- Increased efficiency and carbon reductions
- All key components located in the service area
- Simplified cabling to fixtures
- Highly intuitive reporting
- Hot swap PSUs and drivers

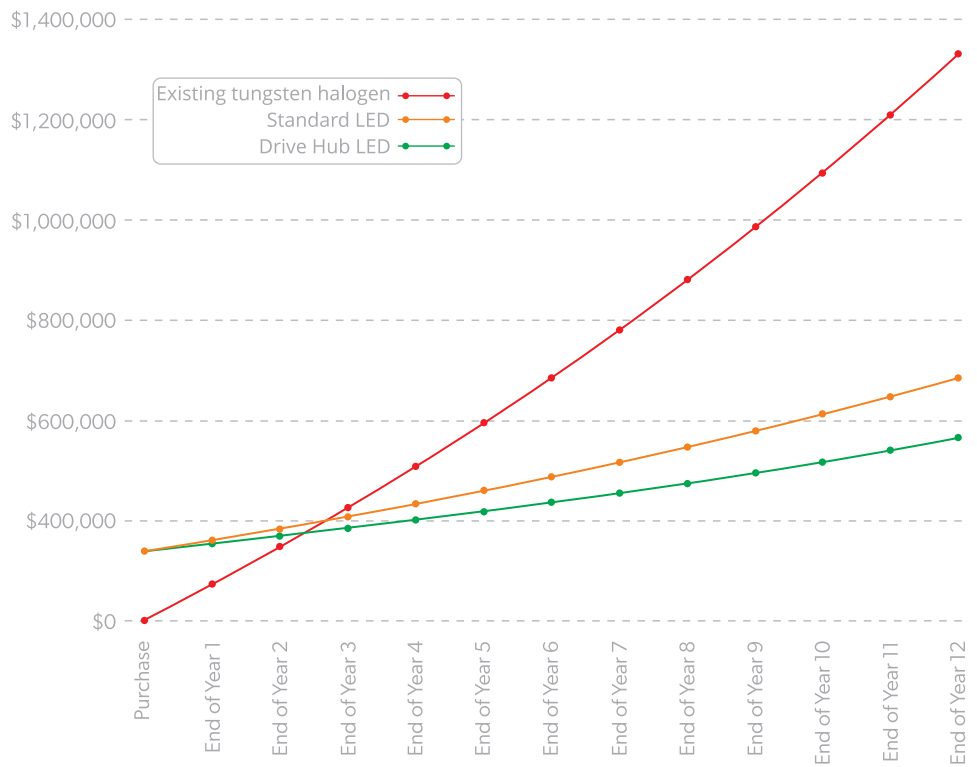
(see explanations overleaf)

## Comparative running costs

When converting from tungsten halogen to LED, the most immediate impact on running costs is delivered by the inherent efficiency of LED fixtures.

The next most important area concerns the efficiency of each power supply and is carefully addressed by the GDS Drive Hub system. Our class leading power supplies achieve an impressive **Power Factor rating of 0.99**. Put simply, that means that for every 1000W supplied to them, 990W is efficiently converted to low voltage power for the LED fixtures.

Located alongside the power supplies are our hot-swappable driver cards. These provide further savings through efficient design and a significant reduction in the duplicated components that would otherwise be found across the separate drivers within a standard LED installation.



## Drive Hub advantages explained

- **Increased efficiency and carbon reductions**

*Drive Hub installations enhance the natural efficiencies of LED fixtures by:*

- » using high efficiency (98%+) hot swap PSUs to provide all power. Our power supplies deliver a class-leading **Power Factor of 0.99**
- » using multi-channel drivers, which greatly reduce duplication of the basic components.

- **All key components conveniently located in the service area**

*Many LED installations require critical infrastructure to be positioned close to the fixtures, often within inaccessible locations. This can result in faulty drivers and their fixtures being abandoned until the end of a voyage. Drive Hub places all key components within the service area for easy maintenance access at any time.*

- **Simplified cabling to fixtures**

*Thanks to the centralised location of the drivers, cabling to the fixtures is greatly simplified. GDS also offers solutions to send multiple control channels plus power through legacy 2-core mains cabling.*

- **Highly intuitive reporting**

*Every Drive Hub chassis monitors the condition of all its power supplies and driver cards. This allows the system to adjust parameters to optimise performance whilst providing highly intuitive reporting to engineering staff.*

- **Hot swap power supplies and drivers**

*Due to unavoidable electromagnetic stresses, power supplies and drivers will always be the pinch point of any LED installation over the long term. Drive Hub systems address this issue by placing all of those components within the service area where they can be correctly cooled and hot swapped if necessary. When required, auto fail-over redundancy can also be implemented for critical areas.*

## Comparative maintenance costs

In addition to running costs, maintenance presents a sizeable ongoing investment over the life of any installation. While the MTBF (*Mean Time Between Failures*) figure for a well-designed and properly cooled LED fixture far outstrips any tungsten halogen equivalent, the associated power supplies and drivers continue to present issues over the long term.

A Drive Hub installation aims to place all vulnerable components within the service area where they are accessible and replaceable at all times, even while circuits are live. Drive Hub installations have been proven to deliver long term reliability together with much easier access. Both of which are of great importance to any maintenance crew.

