

## The different types of LED tube

There are three main types of LED tube on the market today:

- Those that work on direct mains supply
- Those that work on switch start ballasts or chokes
- Those that work on electronic or high frequency ballasts

The easiest way to tell whether a luminaire is switch start or not is if it has a starter. If it has a starter, it is switch start. If not, it is high frequency!



### Direct mains supply

This is the most efficient version of LED tube. This is because you will experience now power loss through control gear. It is also the most 'future-proof' as there is no control gear to fail in future which would cause the luminaire to fail. However, you will need a qualified electrician to take the control gear out of the luminaire and do a direct supply to the lampholders. This can be costly and time-consuming.

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| ✓ <b>Most efficient</b>                    | ✗ <b>Needs an electrician to perform</b> |
| ✓ <b>No control gear to fail in future</b> | ✗ <b>Costly &amp; time consuming</b>     |

### Switch start ballast retrofit

This is less efficient losing up to 20% of efficiency through the switch start ballast. However, it is much easier to replace the LED tube and can be done by anyone. Simply remove the fluorescent tube and existing starter, insert the 'fuselink' starter sent with the LED tube and insert the LED tube into the lampholders. This is very quick to do.

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|--------------------------------|---|
| ✓ <b>Can be done by anyone</b> | ✗ <b>Up to 20% energy loss</b>                        |
| ✓ <b>Very quick to do</b>      | ✗ <b>Control gear failure means luminaire failure</b> |

### Electronic ballast retrofit

This is more efficient than those working on switch start but not as efficient as direct mains supply. With this option, it is even easier to just swap the fluorescent tube for the LED tube giving an instant energy saving and again this can be done by anyone.

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|--------------------------------|---|
| ✓ <b>Can be done by anyone</b> | ✗ <b>Up to 10% energy loss</b>                        |
| ✓ <b>Very quick to do</b>      | ✗ <b>Control gear failure means luminaire failure</b> |