

## Admiral Solutions Warehouse

93% energy saving

### Main results

- 53% reduction in maximum installed load by replacing the luminaires
- 85% further reduction in energy consumed by using Smart controls
- 93% reduction in CO<sub>2</sub> emissions overall

### Admiral Solutions warehouse refurbishment

Admiral Solutions refurbished the lighting in their Luton head office warehouse as part of a carbon reduction programme.

The old 70W switch start surface luminaires were replaced with energy efficient Thorlux Kanby Mirror Smart luminaires each using two 49W T5 lamps having a total load of 106W per luminaire.

The change of luminaires has resulted in a 53% reduction in maximum load with little change to the general lighting level.

The warehouse does not benefit from daylight ingress but will see an average saving of 10% due to maintained illuminance.

Each luminaire has an integral Smart sensor. In this case they are not connected in groups using a two-core Motionline as the client wanted the luminaires to switch on in an individual basis. The presence detection control provided a saving of 83% as previously all luminaires were switched on for the working day.

Admiral Solutions has offset the carbon produced indirectly by the new lighting installations for 3 years by planting 44 trees using the Thorlux Carbon Offsetting Project (warehouse and office combined).



### Method of control/operation

#### Movement Sensing

Any detected movement will switch all the luminaires on. If no movement is detected for a period of 5 minutes the luminaires will dim to a security level. If no movement is detected for a further period of 5 minutes, the luminaires will switch off until a further movement detection is made.

#### Daylight Dimming

Depending upon ambient daylight, each luminaire will brighten or dim independently to maintain a pre-set light level. Should ambient daylight exceed the programmed level for more than 10 minutes the individual luminaires, due to the Thorlux "bright out" functionality, will switch off until ambient light levels drop once more below the pre-set level.

This provides an automatic control regime which is tailored to the activities of the room occupants.

### Genuine energy savings from Smart luminaires

The data displayed to the left demonstrates most effectively how Smart luminaires can provide significant energy savings.

### Programmability

Tremendous flexibility can be achieved by individually programming luminaires to suit local conditions and the requirements of the users.

### Manual override

Smart luminaires can be manually controlled using either a wall switch or a hand-held transmitter.

	OLD	NEW
Luminaires	21 qty 2 x 70W Batten	10 qty 2 x 49W Kanby T5 Mirror Smart
<b>Total maximum load</b>	3.423kW	1.59kW
<b>kWh per annum</b>	11,124	791
<b>Annual electricity cost *</b>	£1,613	£114
<b>Annual CO<sub>2</sub> production</b>	5,896kg	419kg
<b>Reduction in CO<sub>2</sub></b>		5,477kg
<b>No. of trees required per annum (carbon offsetting)</b>	5.9	0.4

\* Based on 14.5p per kWh

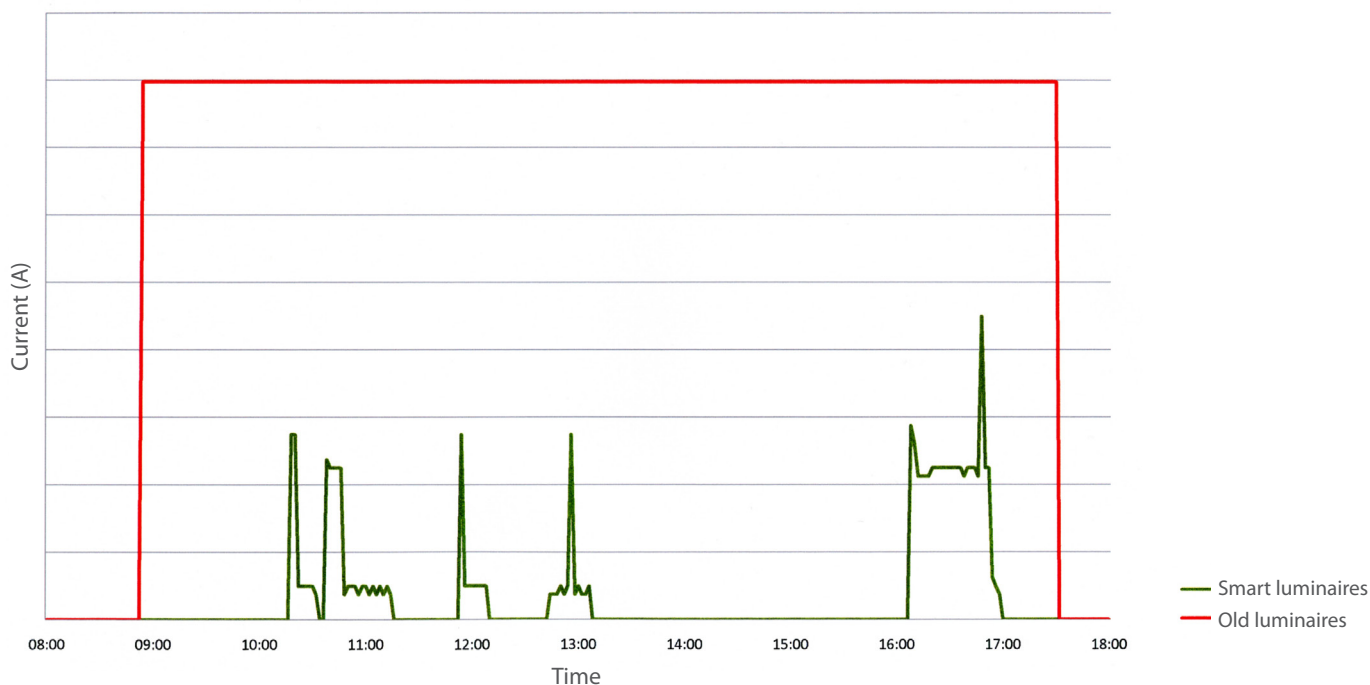
## Data logging

A data logger connected to a CT Clamp was used to monitor the current drawn by the luminaires. Automatic readings were taken at 2 minute intervals to give a precise record of the energy used through the day.

## Energy saved graph

The graph below illustrates the typical energy saved during the monitoring trial.

The red line indicates the energy consumed by the old luminaires whilst the green line shows the actual current consumption following installation of the new Kanby Mirror Smart luminaires.



**Site:** Admiral Solutions Head Office - Luton

**Installed:** Summer 2009

**Luminaires:** 2 x 49W Kanby Mirror Smart

**Monitored:** September 2009