

Introducing i-Site Intelligent Site Lighting

Blakley Electrics introduces i-Site, our new 110V site lighting system, which minimises running costs and CO₂ emissions by monitoring movement in the immediate vicinity of each luminaire. If no movement is detected, the light level drops after a defined period and is extinguished after a further defined period. It is simple to install and can be fed from a standard 110V site transformer via Flori-67/3P (our plug-in wiring system) or it can be hard wired using standard 3 core cable.

Movement Detection

If there is no movement in the vicinity of the luminaire after a defined period of time has elapsed (the hold time), the light dims and then switches off after a further period (the stand-by period). If a level of light is required at all times, the stand-by period (when the lights are dimmed) can be permanent, whether or not there is movement. The light output is restored to full output as soon as movement is detected.

Movement Detection Settings

The microwave motion sensor can be set between 5 seconds and 30 minutes (the default period is 10 minutes) i.e. if there is no movement during this period (the hold time) the light reduces to the dimmed level, which can be set at 10%, 20%, 30% or 50% of the normal output (the default setting is 20%). The light output can remain at this level indefinitely or the array can be switched off after a period of between 0 and 60 minutes (the stand-by period). The default setting for the stand-by period is 10 minutes. If movement is detected whilst the array is dimmed or is off, the array returns to full output as soon as movement is detected.

Light Level

i-Site luminaires also incorporate a light level sensor. Once enabled, if the ambient light level is above the pre-set lux level, the LED array switches off and is only restored when the lux level drops beneath the pre-set figure and movement is detected in the vicinity. The pre-set ambient light levels are 2, 10 or 50 lux (the default setting is 50 lux).

Altering Settings

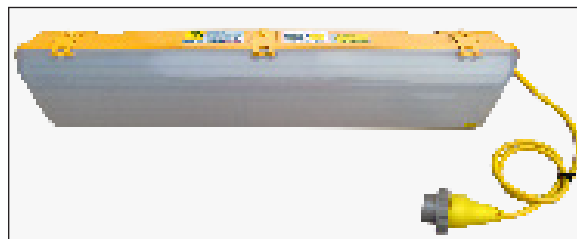
i-Site detection settings are adjusted by a series of dip switches located behind the diffuser, on the gear tray. Full instructions on adjusting the settings are supplied with each fitting.

Emergency Lights

If there is a mains failure, the LED array is supplied directly from the emergency module for a period of 3 hours, whether or not there is movement in the vicinity of a fitting.

i-Site luminaires are intended to be supplied from a standard site transformer via a 3C cabling system. However, there must be a permanent supply to emergency fittings, to ensure batteries do not discharge at the end of a shift, which also ensures batteries are fully charged at the start of the next shift. However, unlike other 3C lighting systems, with i-Site there are virtually no "out of hours" running costs, providing no movement is detected.

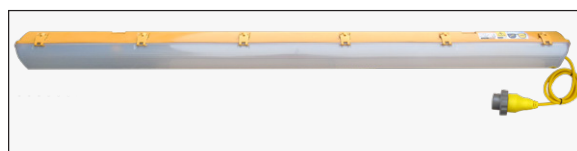
Please see over the page for i-Site part numbers, etc.



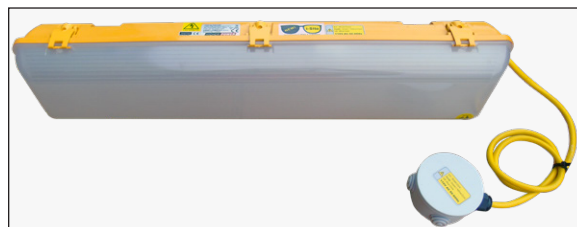
Part No. S061093 standard 30W IP65 110V i-Site LED luminaire with Flori-67/3P Adaptor



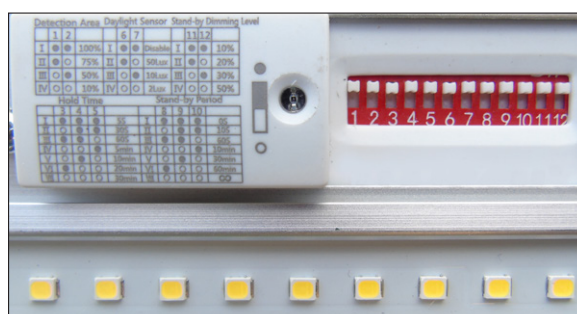
Part No. S061085 standard 30W IP65 110V i-Site LED luminaire, unwired



Part No. S061096F emergency 44W IP65 110V i-Site LED luminaire with Flori-67/3P Adaptor



Part No. S061089EC standard 30W IP65 110V i-Site LED luminaire with pre-wired T-Box



Settings are simple to alter via dip switches, which are safely located behind the diffuser



Expected Running Cost and CO₂ Savings

Calculating the reductions in running costs and CO₂ emissions that can be expected by installing i-Site fittings is difficult to predict precisely. Not only is every site different but every site goes through different phases as it progresses through the build and through the year.

In the table below, we show running cost and emission levels based on 100 lights, running for 24 hours a day, 7 days a week, for 52 weeks. This can be considered the “worst case” for one year’s operation. In the same tables we show comparisons based on 100 lights running for 10 hours per day for: 7 days a week; 6 days a week; and 5 days a week. The example of 10 hours per day for 5 days a week shows a reduction in running costs and CO₂ emission levels of 70% against the worst case.

Q. Is a 70% reduction in running costs and CO₂ emissions likely to be achieved in practice?

A. If the main activity on a site is between 7am and 7pm, Monday to Friday, with i-Site fittings installed it is very unlikely that all of the lights will be ON full brightness for more than 80% of every working day (i.e. for more than 10 hours). It could therefore be argued that the savings shown below could easily be exceeded, particularly as consumption reduces when the lights are dimmed, which occurs when there is no movement in the vicinity (referred to as the stand-by period).

It is also worth reiterating that traditional 3C lighting circuits with emergency fittings must not be switched OFF at the end of a shift, as this will cause the batteries to discharge, which not only causes irrevocable damage to the batteries if repeated regularly but also means that there will not be adequate emergency lighting until the batteries have re-charged, which takes 24 hours or more. This is much less of an issue when i-Site fittings are installed: whilst they need to be supplied 24/7, they consume virtually no electricity if there is no movement in the vicinity of a fitting.

Examples of annual CO₂ and running cost savings using i-Site fittings with integral movement detection.

Cost for 52 weeks, based on average hours “ON” per day, per 100 Fittings ##					
Luminaire	Consumption	24 hours per day, 7 days per week	10 hours per day, 7 days per week	10 hours per day, 6 days per week	10 hours per day, 5 days per week
30W LED	3 kW per hour	£5241.60	£2285.90	£1984.30	£1682.70
44W LED	4.4 kW per hour	£7687.68	£3305.10	£2857.90	£2410.70
CO ₂ Emissions for 52 weeks, based on average hours “ON” per day, per 100 fittings ##					
Luminaire	Consumption	24 hours per day, 7 days per week	10 hours per day, 7 days per week	10 hours per day, 6 days per week	10 hours per day, 5 days per week
30W LED	3 kW per hour	6106 kg	2544 kg	2180 kg	1817 kg
44W LED	4.4 kW per hour	8956 kg	3731 kg	3198 kg	2665 kg
## Based on 100 fittings at a cost of £0.20 per kWhr & 0.233 kg CO ₂ per kWhr					

Part No.	IP65 i-Site Anti-Corrosive LED, 110V, unwired
S061085	i-Site 2’ luminaire, 110V, 30W LED array
S061086F	i-Site 2’ luminaire, 110V, 30W LED array, integral battery back-up
S061087	i-Site 5’ luminaire, 110V, 44W LED array
S061088F	i-Site 5’ luminaire, 110V, 44W LED array, integral battery back-up
Part No.	IP65 i-Site Anti-Corrosive LED, 110V, fitted with a Flori-67/3P input lead
S061093	i-Site 2’ luminaire, 110V, 30W LED array pre-wired with Flori-67/3P lead
S061094F	i-Site 2’ luminaire, 110V, 30W LED array, integral battery back-up, pre-wired with Flori-67/3P lead
S061095	i-Site 5’ luminaire, 110V, 44W LED array pre-wired with Flori-67/3P lead
S061096F	i-Site 5’ luminaire, 110V, 44W LED array, integral battery back-up, pre-wired with Flori-67/3P lead
S060754	Flori-67/3P string, 100m, 1.5mm ² cable with an outlet every 5m (20 per 100m)
S060757	Flori-67/3P string, 100m, 2.5mm ² cable with an outlet every 5m (20 per 100m)
S060801	Flori-67/3P string, 100m, 4mm ² cable with an outlet every 5m (20 per 100m)
Part No.	IP65 i-Site Anti-Corrosive LED, 110V, pre-wired with 1m input lead & T box
S061089EC	i-Site 2’ luminaire, 110V, 30W LED array pre-wired with lead & T box
S061090FC	i-Site 2’ luminaire, 110V, 30W LED array, integral battery back-up, pre-wired with lead & T box
S061091EC	i-Site 5’ luminaire, 110V, 44W LED array, pre-wired with lead & T box
S061092FC	i-Site 5’ luminaire, 110V, 44W LED array, integral battery back-up, pre-wired with lead & T box

i-Site luminaires have been independently tested to verify compliance with the Radio Equipment Directive (RED), as well as the Low Voltage (LV) and the Electromagnetic Compatibility (EMC) Directives.