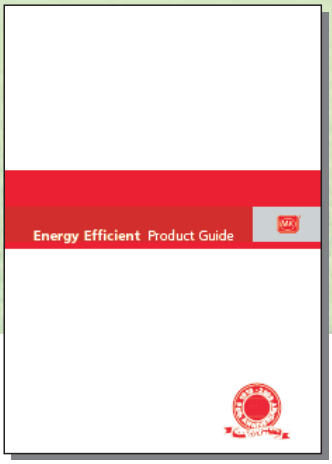
Wiring Devices Range Brochures

Echo Brochure
The future of the switch - Wireless, Batteryless, Self-Powered

MK Sensors Brochure
MK Sensors range overview, including application examples

MK Battenfit Sensors Flyer
Think before you print - A download is more sustainable

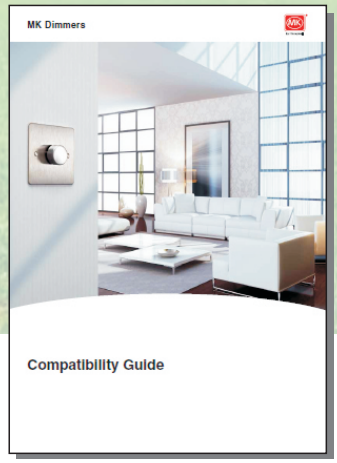
MK LED Dimmer
The new LED Dimmer from MK Electric offers the widest lamp compatibility for a reliable dimming solution, and allows the user to create ambience for comfortable surroundings



Energy Efficient Product Guide
Products within the MK portfolio which offer energy savings, including MK Sensors

MK Astral Brochure
Home Control & Convenience at a Touch. The ultimate in automated home technology is in your hands.

MK SIMPLE FIT SENSORS PRODUCT FEATURES FLYER



MK Dimmer Compatibility Guide
Guide to dimming all lighting types with a compatibility overview

Echo™

Wireless • Batteryless • Self-powered Switches and Controls

range introduction

Imagine switch technology and automated systems that need no wiring, use no batteries and are effortless to install and commission. Echo™ is an innovative range of entirely wireless, batteryless and self-powered switches and controls which can work together offering even more convenience and energy saving opportunities.

Echo™ enables you to create your own automated control system for a domestic or commercial environment. With the ability to incorporate a range of transmitters from switches, temperature sensors and presence detectors, alongside a range of receivers, the installer can create a flexible system which can deliver safety, comfort, cost savings and energy efficiency for the building owner or user.

The MK Echo™ portfolio is enabled by EnOcean technology. EnOcean based products make use of the energy generated by slight changes in pressure, light levels or temperature, to provide self-powered, batteryless and wireless solutions. This technology is used by many world leading manufacturers, products from these companies can be used together to provide solutions for energy efficient buildings which are more flexible and cost efficient to design, build and operate.

To find out more visit www.mkelectric.co.uk.

features and benefits

Wireless
Instant installation and location flexibility, reducing disruption and cost.

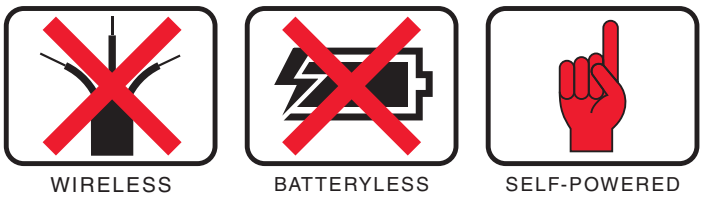
Batteryless
Low maintenance and low running costs makes Echo™ a very versatile and sustainable option.

Self-powered
Uses innovative technology to 'harvest' energy.

Automated systems
Gives the user control over their local environment ensuring maximum comfort and convenience.

Energy savings
With additional local control, alongside the use of temperature sensors and presence detectors, users can create an energy efficient environment.

Be it a functional building, office, home or hotel suite, Echo™ is the future of switch technology and automation systems.



Application Example: Hotel Bedroom

In this example the installer is able to create an automated system to enable the control of lights, curtains and temperature to ensure comfort for the guest, whilst delivering energy efficiency and cost savings for the hotel without disturbing the fabric of the room. In addition, with wireless transmitters, the layout and positioning is completely flexible and can be changed quickly without disruption.

The guest is able to easily control their local environment from a number of locations within the room. A 2 channel transmitter by the entry doorway enables control of both the bedroom and living area lighting. An additional 4 channel transmitter next to the bed gives further control of not only the bedroom and living area lighting, but also the curtains and an all off function. There is additional control in the bathroom and on the balcony.

The hotel is able to control all lighting, heating and cooling by the card switch transmitter, ensuring guests do not leave lighting or air conditioning on when they leave the room. The hotel is also able to ensure a safe environment; the presence detector can be programmed to turn low level lighting on when a guest enters the room during the hours of darkness. In addition the presence detector can be programmed to turn lighting off, or dim to a low level when no presence is detected in the room but the card switch is still in place. Door contacts ensure the air conditioning is not in use whilst the balcony doors are open, offering further energy savings. The temperature sensor can also help control energy costs; in a cold environment a reduction in temperature by just two degrees during the hours of sleep can have a big impact on the overall energy bill.

The KNX gateway enables each Echo-controlled hotel room to be linked to a central computer, where a facilities manager can remotely monitor and control each hotel room, and the overall system.

To find out more visit www.mkelectric.co.uk.

SWITCH RECEIVER

MOTOR CONTROLLER

PLUG-THROUGH DIMMER RECEIVER

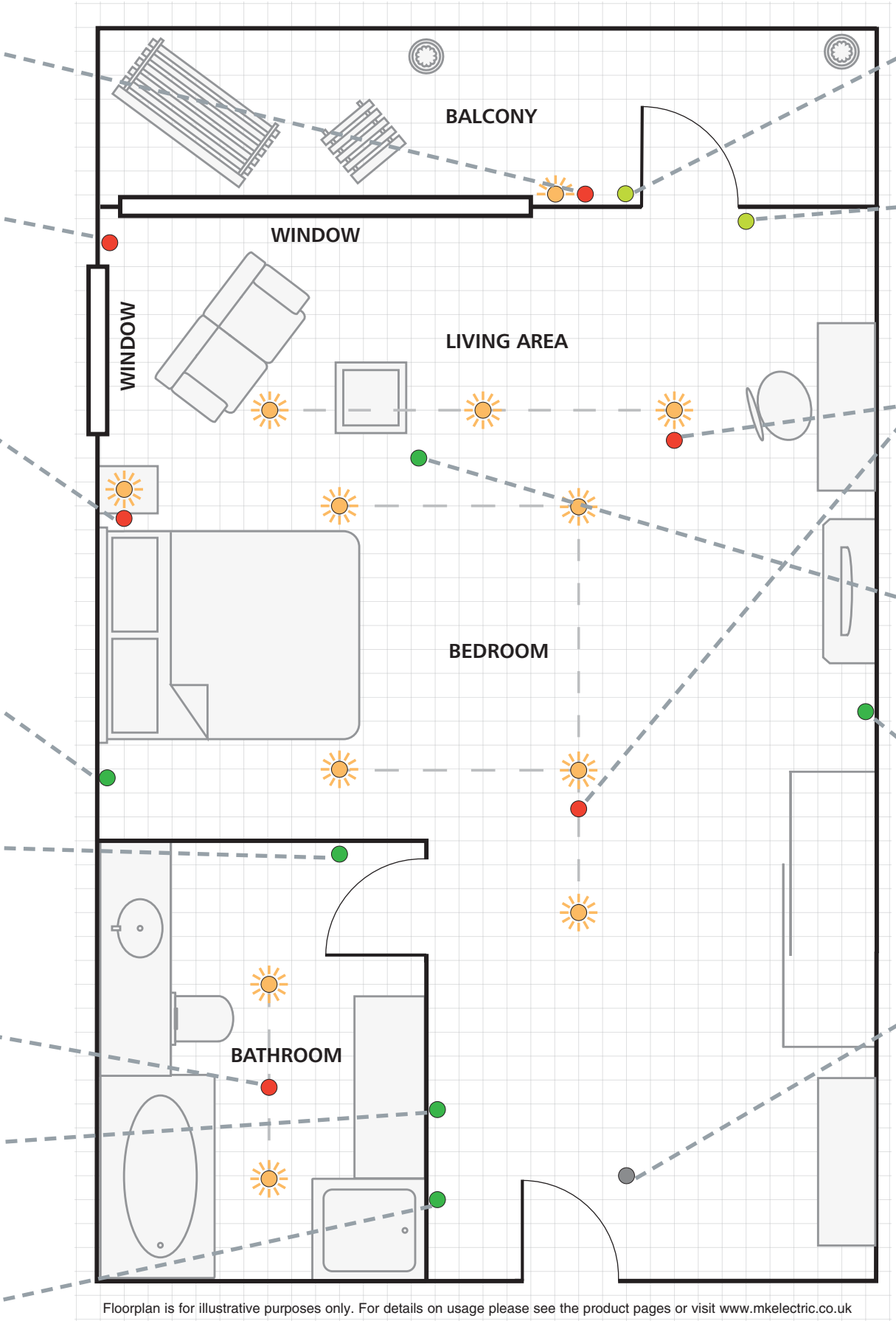
4 CHANNEL TRANSMITTER
1 - LIVING AREA LIGHTS
2 - BEDROOM LIGHTS
3 - PLUG-THROUGH LIGHT
4 - ALL OFF

I CHANNEL TRANSMITTER

SWITCH RECEIVER

2 CHANNEL TRANSMITTER
1 - BEDROOM LIGHTS
2 - LIVING AREA

CARD TRANSMITTER



1 CHANNEL IP66 TRANSMITTER

DOOR CONTACT

DIMMER RECEIVER

PRESENCE DETECTOR

TEMPERATURE SENSOR

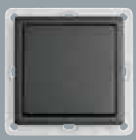
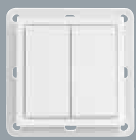
KNX GATEWAY (SEE WEBSITE FOR MORE DETAILS)

KEY

- LIGHT
- TRANSMITTER
- RECEIVER
- OTHER

Floorplan is for illustrative purposes only. For details on usage please see the product pages or visit www.mkelectric.co.uk

Modular Transmitters

FINISHES	1 CHANNEL MODULAR TRANSMITTER	2 CHANNEL MODULAR TRANSMITTER	MODULAR CARD SWITCH TRANSMITTER	MODULAR WALL TEMPERATURE SENSOR TRANSMITTER
				
WHITE	**K5786WHI** 1	**K5789WHI** 1	**K5744CWHI** 1	**K5744WHI** 1
BLACK	**K5786BLK** 1	**K5789BLK** 1	**K5744CBLK** 1	**K5744BLK** 1
ALUMINIUM	**K5786ALU** 1	**K5789ALU** 1	**K5744CALU** 1	**K5744ALU** 1
				ONLY COMPATIBLE WITH THE K5422G KNX GATEWAY OR A DEDICATED SEPARATE RECEIVER. SEE WEBSITE FOR DETAILS.
	For use with K5776, K5779 frames and K5412 locator	For use with K5776, K5779 frames and K5412 locator	For use with K5776, K5779 frames and K5412 locator	For use with K5776, K5779 frames and K5412 locator.
	OPERATING FREQUENCY: 868.3Mhz IP RATING: IP2 x D DIMENSIONS: 55 x 55mm ETSI EN 301489-1/3 ETSI EN 300220-1/2	OPERATING FREQUENCY: 868.3Mhz IP RATING: IP2 x D DIMENSIONS: 55 x 55mm ETSI EN 301489-1/3 ETSI EN 300220-1/2	OPERATING FREQUENCY: 868.3Mhz IP RATING: IP2 x D DIMENSIONS: 55 x 55mm ETSI EN 301489-1/3 ETSI EN 300220-1/2	OPERATING FREQUENCY: 868.3Mhz IP RATING: IP2 x D DIMENSIONS: 55 x 55mm ETSI EN 301489-1/3 ETSI EN 300220-1/2

MOUNTING SWITCH TRANSMITTERS: All can be mounted directly to the wall surface – screws supplied. All can be mounted to back boxes – screws supplied. Logic Plus and Aspect type transmitters can also be mounted using supplied adhesive pads

Modular Frames

	1G FRAME GLOSSY FINISH	2G FRAME GLOSSY FINISH
		
FINISHES		
WHITE	K5776WHI 1	K5779WHI 1
BLACK	K5776BLK 1	K5779BLK 1
ALUMINIUM	K5776ALU 1	K5779ALU 1
	For use with K5412 locator and K5786, K5789, K5744, K5744C transmitters. Surface mount installation only. DIMENSIONS: 83 x 83mm	For use with K5412 locator and K5786, K5789, K5744, K5744C transmitters. Surface mount installation only. DIMENSIONS: 83 x 154mm

	1G FRAME GLASS FINISH	2G FRAME GLASS FINISH
		
FINISHES		
GLASS, BLACK	K5776GLAB 1	K5779GLAB 1
GLASS, GREEN	K5776GLAG 1	K5779GLAG 1
GLASS, ALUMINIUM	K5776GLAA 1	K5779GLAA 1
GLASS, GROOVED ALUMINIUM	K5776GLAGA 1	K5779GLAGA 1
	For use with K5412 locator and K5786, K5789, K5744, K5744C transmitters. Surface mount installation only. DIMENSIONS: 85 x 85mm	For use with K5412 locator and K5786, K5789, K5744, K5744C transmitters. Surface mount installation only. DIMENSIONS: 85 x 157mm

MOUNTING SWITCH TRANSMITTERS: All can be mounted directly to the wall surface – screws supplied. All can be mounted to back boxes – screws supplied. Logic Plus and Aspect type transmitters can also be mounted using supplied adhesive pads

TRANSMITTERS

Logic Plus

FINISHES	1 CHANNEL TRANSMITTER	2 CHANNEL TRANSMITTER
WHITE	K4786WHI 1	K4789WHI 1
GRAPHITE	K4786GRA 1	K4789GRA 1

OPERATING FREQUENCY: 868.3Mhz
IP RATING: IP2 x D
DIMENSIONS: 86 x 86mm
BS EN 60669-1 : BS EN 60669-2-1 : ETSI EN 301 489-1 + -3 : ESTI EN 300 220-3

OPERATING FREQUENCY: 868.3Mhz
IP RATING: IP2 x D
DIMENSIONS: 86 x 86mm
BS EN 60669-1 : BS EN 60669-2-1 : ETSI EN 301 489-1 + -3 : ESTI EN 300 220-3

Albany Plus

FINISHES	1 CHANNEL TRANSMITTER	2 CHANNEL TRANSMITTER
BRUSHED STAINLESS STEEL	K4766BSS* 1	K4767BSS* 1
LACQUERED BRUSHED STEEL		
SILVER ANODIZED ALUMINIUM		
BRUSHED CHROME	K4766BRC* 1	K4766BRC* 1
POLISHED CHROME	K4766PCR* 1	K4766PCR* 1
SATIN GOLD	K4766SAG* 1	K4767SAG* 1
PORCELAIN WHITE		
LUSTROUS IVORY		
LUSTROUS BLACK		
POLISHED BRASS		
TEXTURED IRON		
DESERT BRONZE		
ANTIQUE BRASS		
TEXTURED COPPER		

*** Available with the option of either White or Black inserts. Add Suffix 'W' or 'B' to part number when ordering, E.g. KxxxxBSSW.**

Where there is no asterix, the final suffix W = White Insert, B = Black Insert, E.g. KxxxxWHIW = Porcelain White finish with White inserts

LEAD TIMES: Please contact our Customer Services Department on: 01268 563 404

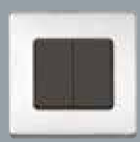
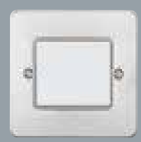
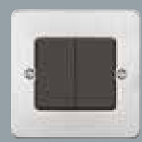
OPERATING FREQUENCY: 868.3Mhz
IP RATING: IP2 x D
DIMENSIONS: 86 x 86mm
BS EN 60669-1 : BS EN 60669-2-1 : ETSI EN 301 489-1 + -3 : ESTI EN 300 220-3

OPERATING FREQUENCY: 868.3Mhz
IP RATING: IP2 x D
DIMENSIONS: 86 x 86mm
BS EN 60669-1 : BS EN 60669-2-1 : ETSI EN 301 489-1 + -3 : ESTI EN 300 220-3

MOUNTING SWITCH TRANSMITTERS: All can be mounted directly to the wall surface – screws supplied. All can be mounted to back boxes – screws supplied. Logic Plus and Aspect type transmitters can also be mounted using supplied adhesive pads

Aspect

Edge

1 CHANNEL TRANSMITTER (Aspect)		2 CHANNEL TRANSMITTER (Aspect)		1 CHANNEL TRANSMITTER (Edge)		2 CHANNEL TRANSMITTER (Edge)	
							
K23476BSS*	1	K23477BSS*	1	K13476BSS*	1	K13477BSS*	1
K23476LBS*	1	K23477LBS*	1	K13476LBS*	1	K13477LBS*	1
				K13476SAA*	1	K13477SAA*	1
K23476BRC*	1	K23477BRC*	1	K13476BRC*	1	K13477BRC*	1
K23476POC*	1	K23477POC*	1	K13476POC*	1	K13477POC*	1
K23476SAG*	1	K23477SAG*	1	K13476SAG*	1	K13477SAG*	1
K23476WHIW	1	K23477WHIW	1	K13476WHIW	1	K13477WHIW	1
K23476LIVW	1	K23477LIVW	1	K13476LIVW	1	K13477LIVW	1
K23476LBKB	1	K23477LBKB	1	K13476LBKB	1	K13477LBKB	1
K23476PBR*	1	K23477PBR*	1	K13476PBR*	1	K13477PBR*	1
K23476TIRB	1	K23477TIRB	1	K13476TIRB	1	K13477TIRB	1
K23476DBZB	1	K23477DBZB	1	K13476DBZB	1	K13477DBZB	1
K23476ABSB	1	K23477ABSB	1	K13476ABSB	1	K13477ABSB	1
K23476TCOB	1	K23477TCOB	1	K13476TCOB	1	K13477TCOB	1

*** Available with the option of either White or Black inserts. Add Suffix 'W' or 'B' to part number when ordering, E.g. KxxxxBSSW.**

Where there is no asterix, the final suffix W = White Insert, B = Black Insert, E.g. KxxxxWHIW = Porcelain White finish with White inserts

Aspect 1 Channel	Aspect 2 Channel	Edge 1 Channel	Edge 2 Channel
OPERATING FREQUENCY: 868.3 Mhz	OPERATING FREQUENCY: 868.3 Mhz	OPERATING FREQUENCY: 868.3 Mhz	OPERATING FREQUENCY: 868.3 Mhz
IP RATING: IP2 x D	IP RATING: IP2 x D	IP RATING: IP2 x D	IP RATING: IP2 x D
DIMENSIONS: 86 x 86mm	DIMENSIONS: 86 x 86mm	DIMENSIONS: 86 x 86mm	DIMENSIONS: 86 x 86mm
BS EN 60669-1 : BS EN 60669-2-1 : ETSI EN 301 489-1 + -3 : ESTI EN 300 220-3	BS EN 60669-1 : BS EN 60669-2-1 : ETSI EN 301 489-1 + -3 : ESTI EN 300 220-3	BS EN 60669-1 : BS EN 60669-2-1 : ETSI EN 301 489-1 + -3 : ESTI EN 300 220-3	BS EN 60669-1 : BS EN 60669-2-1 : ETSI EN 301 489-1 + -3 : ESTI EN 300 220-3

MOUNTING SWITCH TRANSMITTERS: All can be mounted directly to the wall surface – screws supplied. All can be mounted to back boxes – screws supplied. Logic Plus and Aspect type transmitters can also be mounted using supplied adhesive pads

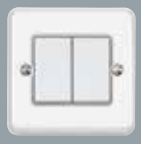
TRANSMITTERS

Metalclad Plus

Masterseal Plus

Other

Presence Detector

	1 CHANNEL TRANSMITTER	2 CHANNEL TRANSMITTER	1 CHANNEL TRANSMITTER	2 CHANNEL TRANSMITTER	REMOTE CONTROL TRANSMITTER	WINDOW CONTACT TRANSMITTER	SENSOLUX SOLAR-PRESENCE DETECTOR
							
FINISHES							
ALUMINIUM	**K3786ALM** 1	**K3787ALM** 1			**K5417R** 1	**K5421** 1	**K5754** 1 ONLY COMPATIBLE WITH THE K5435R RECEIVER OR THE K5422G KNX GATEWAY. SEE WEBSITE FOR DETAILS.
GREY			**K55400GRY** 1	**K55406GRY** 1			
WHITE	**K3786WHI** 1	**K3787WHI** 1	**K55400WHI** 1	**K55406WHI** 1			
BLACK			**K55400BLK** 1	**K55406BLK** 1			

						Provides interlock functionality for use with multi-function receivers and blind controllers. Solar powered.	Solar powered with optional backup battery.
	OPERATING FREQUENCY: 868.3 Mhz IP RATING: IP2 x D DIMENSIONS: 86 x 86mm BS EN 60669-1 : BS EN 60669-2-1 : ETSI EN 301 489-1 + -3 : ESTI EN 300 220-3	OPERATING FREQUENCY: 868.3 Mhz IP RATING: IP2 x D DIMENSIONS: 86 x 86mm BS EN 60669-1 : BS EN 60669-2-1 : ETSI EN 301 489-1 + -3 : ESTI EN 300 220-3	OPERATING FREQUENCY: 868.3 Mhz IP RATING: IP66 DIMENSIONS: 95 x 95 x 57mm BS EN 60669-1 : BS EN 60669-2-1 : ETSI EN 301 489-1 + -3 : ESTI EN 300 220-3	OPERATING FREQUENCY: 868.3 Mhz IP RATING: IP66 DIMENSIONS: 95 x 95 x 57mm BS EN 60669-1 : BS EN 60669-2-1 : ETSI EN 301 489-1 + -3 : ESTI EN 300 220-3	OPERATING FREQUENCY: 868.3 Mhz IP RATING: IP2 x D DIMENSIONS: 50 x 82 x 21mm BSEN 60669-1 : BS EN 60669-2-1 : ETSI EN 301 489-1 + -3 : ESTI EN 300 220-3	OPERATING FREQUENCY: 868.3Mhz IP RATING: IP40 DIMENSIONS: 110 x 19 x 15mm and 23 x 14 x 6mm EN 301489-1/3 EN 300220-1/2	OPERATING FREQUENCY: 868.3Mhz IP RATING: IP50 DIMENSIONS: 108 x 108 x 26.8mm EN 301489-1/3 EN 300220-1/2

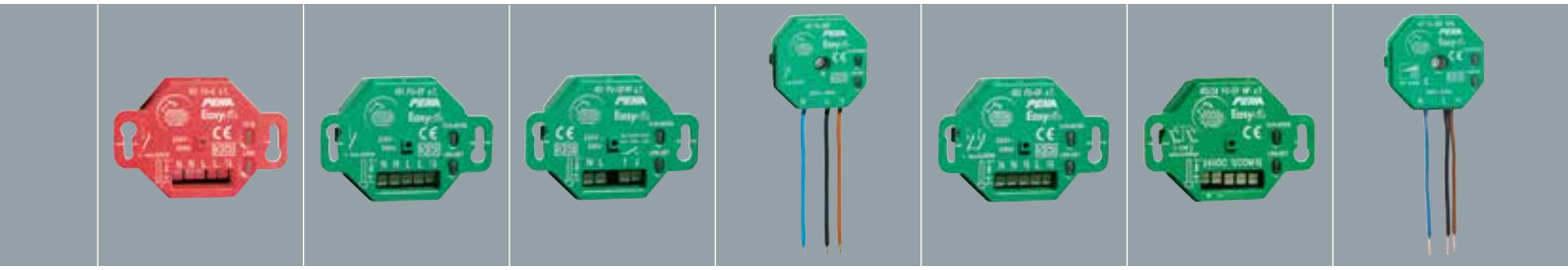
MOUNTING SWITCH TRANSMITTERS: All can be mounted directly to the wall surface – screws supplied. All can be mounted to back boxes – screws supplied. Logic Plus and Aspect type transmitters can also be mounted using supplied adhesive pads

RECEIVERS

1 Channel Switch Receivers

2 Channel Switch Receivers

1 Channel Dimmer Receiver



K5434R 1
1 CHANNEL SWITCH RECEIVER

Provides basic on/off functionality only.

SUPPLY:
230V / 50Hz

LOAD RATINGS:
GLS/Incandescent: 2500W
Halogen: 1200W
Inductive: 600VA
Electronic Ballasts: 3 units

Operating Frequency:
868.3MHz

DIMENSIONS:
Depth: 27mm

EN 60669-2-1
EN 301489-1/3
EN 300220-1/2

K5432R 1
1 CHANNEL MULTI-FUNCTION SWITCH RECEIVER

Multi-functional device providing: single button, stairwell, time-delay, fan, scene operating modes and interlock functions for use with window contact.

SUPPLY:
230V / 50Hz

LOAD RATINGS:
GLS/Incandescent: 2500W
Halogen: 1200W
Inductive: 600VA
Electronic Ballasts: 3 units

Operating Frequency:
868.3MHz

DIMENSIONS:
Depth: 27mm

EN 60669-2-1
EN 301489-1/3
EN 300220-1/2

K5431R 1
1 CHANNEL VOLT-FREE, MULTI-FUNCTION SWITCH RECEIVER

Multi-functional device providing: single button, stairwell, time-delay, fan, scene operating modes and interlock functions for use with window contact.

SUPPLY:
230V / 50Hz

LOAD RATINGS:
GLS/Incandescent:

1200W @ 230Vac
50W @ 30Vdc
Halogen: 600W @ 230Vac

Operating Frequency:
868.3MHz

DIMENSIONS:
Depth: 27mm

EN 60669-2-1
EN 301489-1/3
EN 300220-1/2

K5437R 1
1 CHANNEL MULTI-FUNCTIONAL SWITCH RECEIVER LEADED

Multi-functional device providing: single button, stairwell, time-delay, fan, scene operating modes and interlock functions for use with window contact.

SUPPLY:
230V / 50Hz

LOAD RATINGS:
GLS/Incandescent: 2500W

Halogen: 1200W
Inductive: 600VA

Electronic Ballasts: 3 units

Operating Frequency:
868.3MHz

DIMENSIONS:
Depth: 27mm

EN 60669-2-1
EN 301489-1/3
EN 300220-1/2

K5433R 1
2 CHANNEL MULTI-FUNCTION SWITCH RECEIVER

Multi-functional device providing: single button, stairwell, time-delay, fan, scene operating modes and interlock functions for use with window contact.

SUPPLY:
230V / 50Hz

LOAD RATINGS (per channel):
GLS/Incandescent: 500W
Halogen: 100W
Inductive: 100VA
Electronic Ballasts: 1 unit

Operating Frequency:
868.3MHz

DIMENSIONS:
Depth: 27mm

EN 60669-2-1
EN 301489-1/3
EN 300220-1/2

K5430R 1
2 CHANNEL 24VDC MULTI-FUNCTION SWITCH RECEIVER

Multi-functional device providing single button, pulsed and time-delay operating modes

SUPPLY:
24Vdc

LOAD RATINGS (per channel):
300mA @ 24Vdc

Operating Frequency:
868.3MHz

DIMENSIONS:
Depth: 27mm

EN 60669-2-1
EN 301489-1/3
EN 300220-1/2

K5436R 1
1 CHANNEL MULTI-FUNCTIONAL DIMMER RECEIVER LEADED

Multi-functional device providing: soft start, turn-on memory, switch, stairwell and scene operating modes.

SUPPLY:
230V / 50Hz

LOAD RATINGS:
60-210W

Suitable for use with GLS/ Incandescent/Halogen lamps and 12V low voltage lighting powered by dimmable electronic transformers only.

Operating Frequency:
868.3MHz

DIMENSIONS:
Depth: 27mm

EN 60669-2-1
EN 301489-1/3
EN 300220-1/2

MOUNTING SWITCH TRANSMITTERS: All can be mounted directly to the wall surface – screws supplied. All can be mounted to back boxes – screws supplied. Logic Plus and Aspect type transmitters can also be mounted using supplied adhesive pads

RECEIVERS

Plug-Through Receiver

Alternative Receivers

Presence Detector Receiver

K5427S 1
PLUG-THROUGH SWITCH

Multi-functional device providing: single button, stairwell, time-delay, fan, scene operating modes and interlock functions for use with window contact.

SUPPLY:
230V / 50Hz

LOAD RATINGS:
GLS/Incandescent: 2500W
Halogen: 1250W
Inductive: 600VA
Electronic Ballasts: 3 units

Operating Frequency:
868.3MHz

DIMENSIONS:
130 x 68 x 48mm

EN 60669-2-1
EN 301489-1/3
EN 300220-1/2

K5428D 1
PLUG-THROUGH DIMMER

Multi-functional device providing: soft start, turn-on memory, switch, stairwell and scene operating mode.

SUPPLY:
230V / 50Hz

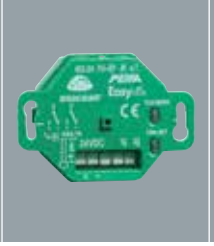
LOAD RATINGS:
60-420W

Suitable for use with GLS/ Incandescent/Halogen lamps and 12V low voltage lighting powered by dimmable electronic transformers only

Operating Frequency:
868.3MHz

DIMENSIONS:
130 x 68 x 48mm

EN 60669-2-1
EN 301489-1/3
EN 300220-1/2



K5438R 1
DC MOTOR CONTROLLER

Multi-functional device providing: blind control, scene and interlock functions for use with window contact.

SUPPLY:
24Vdc

LOAD RATINGS:
1A

Operating Frequency:
868.3MHz

DIMENSIONS:
Depth: 27mm

EN 60669-2-1
EN 301489-1/3
EN 300220-1/2

K5439R 1
AC MOTOR CONTROLLER

Multi-functional device providing: blind control, scene and interlock functions for use with window contact.

SUPPLY:
230V / 50Hz

LOAD RATINGS:
600VA

Operating Frequency:
868.3MHz

DIMENSIONS:
Depth: 27mm

EN 60669-2-1
EN 301489-1/3
EN 300220-1/2

K5418R 1
SMALL LOAD SWITCH RECEIVER 400 WATT

OPERATING FREQUENCY:
868.3Mhz

IP RATING: IP2 x D

DIMENSIONS:
47.4 x 34.6 x 28.9mm

BSEN 60669-1 :
BS EN 60669-2-1 :
ETSI EN 301 489-1 + -3 :
ESTI EN 300 220-3

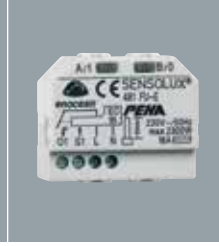
K5420R 1
10AX SWITCH RECEIVER/REPEATER

OPERATING FREQUENCY:
868.3Mhz

IP RATING: IP2 x D

DIMENSIONS:
175.5 x 50.3 x 32.25mm

BSEN 60669-1 :
BS EN 60669-2-1 :
ETSI EN 301 489-1 + -3 :
ESTI EN 300 220-3



K5435R 1
SENSOLUX 1 CHANNEL ENERGY CONTROLLER RECEIVER

For use with K5754 Sensolux Presence detector only

SUPPLY:
230V / 50Hz

LOAD RATINGS:
GLS/Incandescent: 2300W
Halogen: 1250W
Fluorescent Lamps: 1000VA
Inductive: 600VA
Electronic Ballasts: 5 unit

Operating Frequency:
868.3MHz

DIMENSIONS:
45 x 38 x 23mm

EN 60669-2-1
EN 301489-1/3
EN 300220-1/2

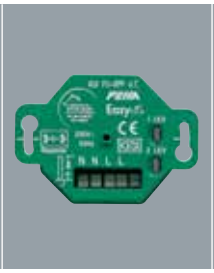
MOUNTING SWITCH TRANSMITTERS: All can be mounted directly to the wall surface – screws supplied. All can be mounted to back boxes – screws supplied. Logic Plus and Aspect type transmitters can also be mounted using supplied adhesive pads

Accessories

K5419R 1
FIELD STRENGTH INDICATOR

K5414R 1
1 LEVEL REPEATER

REPEATS SIGNAL ONCE. WILL NOT REPEAT A PREVIOUSLY REPEATED TELEGRAM.



K5440R 1
2 LEVEL REPEATER

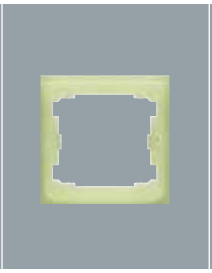
WILL REPEAT A PREVIOUSLY REPEATED TELEGRAM.

Can be operated as either a level 1 or level 2 repeater in the system to extend RF range.

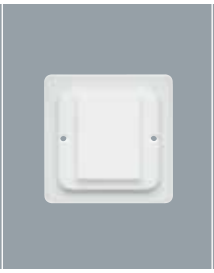
Operating Frequency: 868.3MHz

DIMENSIONS:
Depth: 27mm

EN 60669-2-1
EN 301489-1/3
EN 300220-1/2

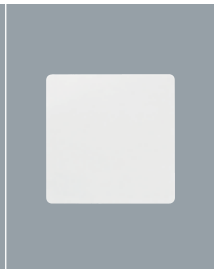


K5412L 1
LUMINOUS LOCATOR FRAME FOR USE WITH MODULAR TRANSMITTERS



K4710P 1
SURFACE MOUNTED PATTRESS FOR USE WITH LOGIC PLUS TRANSMITTER

K55000GRY 1
K55000WHI 1
K55000BLK 1
IP66 ENCLOSURE FOR USE WITH RECEIVERS, CHECK INDVIDUAL RECEIVER DIMENSIONS



KPAD 1
ADHESIVE PAD FOR USE WITH LOGIC PLUS SWITCH TRANSMITTER AND ASPECT SWITCH TRANSMITTER

MOUNTING SWITCH TRANSMITTERS: All can be mounted directly to the wall surface – screws supplied. All can be mounted to back boxes – screws supplied. Logic Plus and Aspect type transmitters can also be mounted using supplied adhesive pads

Transmitters, Receivers and Accessories

Features

- Wireless and Batteryless – using RF technology with ranges up to 300metres in ideal conditions
- Available in all MK wiring device aesthetics
- Quick and easy to install with no need for cabling from the switch to the lighting circuit
- Robust Metalclad Plus and Masterseal available
- 400w and 10AX receiver/repeaters available to cover most installation needs
- Switch Receivers are capable of switching all lighting types

Description

Echo™ is an innovative range of entirely wireless, batteryless and self powered switches, only available from MK Electric.

Wireless – allows for instant switch installation and location flexibility, reducing disruption and cost.

Batteryless – low maintenance and low running costs makes echo a very versatile and sustainable option.

Self Powered – using innovative technology to 'harvest' energy.

Echo™ Installer Guide

1. INTRODUCTION

The MK Echo™ range of products are different from all other products in MK's Wiring Devices portfolio in so far as the "switches" are RF transmitters which communicate with Switch Receivers. It is the Switch Receivers that actually switch the mains power.

Echo™ Transmitters send an RF signal at 868.3 MHz. The unique feature of these products is that the signal transmission is made without the need for mains power, or batteries.

Compared to installing hard-wired systems, wireless systems are much simpler and provide the flexibility to relocate or add to a system.

A symbol is visible on all Switch Receivers to indicate the position of the antenna. Although not always possible, the best reception will always be achieved if the front face of the Transmitter is directly facing the surface of the Switch Receiver on which the antenna symbol is shown.

Based on the physical principle of the propagation of radio waves, certain basic conditions should be observed. The following simple recommendations are provided to ensure successful installation and reliable operation of a robust radio network.

NOTE: A FIELD STRENGTH TEST MEASUREMENT SHOULD BE CARRIED OUT PRIOR TO EACH INSTALLATION TO ENSURE COMPLETE RELIABILITY.

2. PRINCIPLES OF RADIO SIGNALS IN BUILDINGS

As stated in the introduction, Echo™ Transmitters send wireless transmissions to the echo™ Switch Receivers. The receiver checks the incoming signal for accuracy and uses the data to control outputs. Radio signals are electromagnetic waves; hence the signal becomes weaker the further it travels.

Please note that RF signals also decrease in strength when they pass through certain materials between the transmitted signal and the receiver.

While radio waves can penetrate a wall, they are dampened more than on a direct line-of-sight path. A few examples of different types of wall and the realistic typical reduction in signal strength that can be seen are:

MATERIAL	ATTENUATION
Wood, plaster, uncoated glass, with no metal content	0 – 10%
Brick, pressed board	5 – 35%
Ferro-concrete	10 – 90%
Metal, aluminium lining	90 – 100%

In practice, this means that the material used in a building must be taken into consideration during any assessment for radio coverage.

Here are some typical guideline figures when using Logic Plus style Transmitters with plastic frontplates:

Line-of-sight connections:	typically 30m range in corridors, or up to 100m in halls
Plasterboard walls / dry wood:	typically 30m range, through 5 walls
Brick walls / aerated concrete:	typically 20m range, through 3 walls
Ferro-concrete walls / ceilings:	typically 10m range, through 1 ceiling

All other Transmitters in the range that have metal frontplates, do of course cause a reduction in the signal strength and therefore the transmission distance. Generally, the line of site distance in a hall is reduced from 100m described above for Logic Plus, down to 30m.

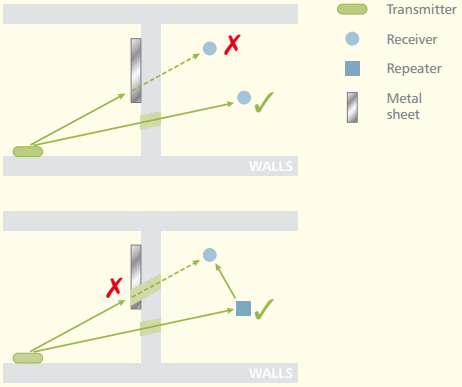
3. SCREENING

Objects made of metal, such as wall reinforcements, the metal foil often used in certain forms of insulation, or metallised heat protected glass, reflect electromagnetic waves and thus create what is known as a radio shadow and thereby a reduction in transmission distance.

The main factors decreasing coverage include:

- A Transmitter mounted on metal surfaces (typically 30% loss of range).
- Transmitters with metal frontplates (typically 60% loss of range).
- Hollow lightweight walls filled with insulating wool on metal foil.
- Inserted ceilings with panels made of metal or carbon fibre.
- Lead glass or glass with metallised coating, steel furniture.

Please note: Fire-safety walls, elevator shafts, staircases and supply areas should be considered as screening.



Simple example of a possible screening problem.

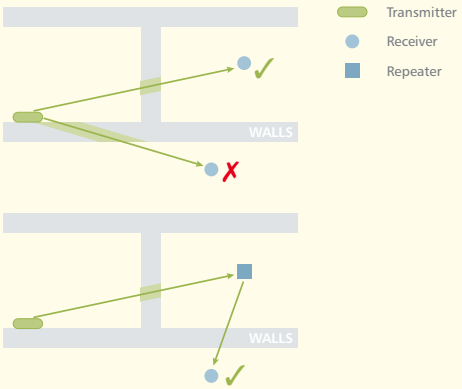
Depending on the material used to build the walls and assuming the distance between the transmitters and receivers are within specification, the illustrations above show a typical screening problem.

For the best range performance a minimum distance of 10mm to 20mm should be allowed from the whole length of the antenna to any conductive objects, which effectively means the area surrounding the Switch Receiver module.

Avoid screening by repositioning the Transmitter and / or Switch Receiver away from the screening objects (radio shadow), or if this is not possible, by using a Repeater.

4. PENETRATION ANGLE

The angle at which the transmitted signal hits the wall is very important. The effective wall thickness – and with it the signal attenuation – varies according to this angle. Signals should be transmitted as directly as possible through the wall. Wall niches should be avoided.

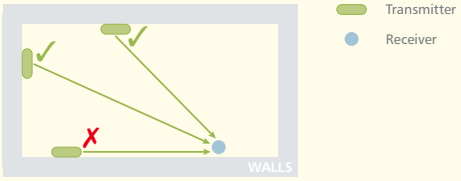


Avoid an unfavourable penetration angle by repositioning the Transmitter and / or Receiver, or by using a Repeater.

Do not position a Switch Receiver behind a Transmitter. In this position the signal strength is greatly reduced, even if there is no wall in-between.

5. ANTENNA INSTALLATION

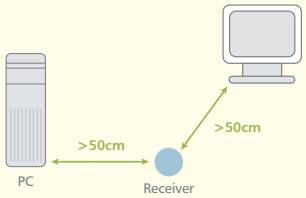
Switch Receivers should not be installed on the same wall as the Transmitter. When positioned near a wall, the radio waves are likely to be subject to interfering dispersions or reflections.



In a similar manner to the comment in the previous section, positioning transmitters and receivers along the same wall will mean the signal strength is greatly reduced.

6. DISTANCE BETWEEN SWITCH RECEIVERS AND A SOURCE OF INTERFERENCE

The distance between Switch Receivers and other transmitters (e.g. GSM / DECT / wireless LAN) or high-frequency sources of interference (computers, audio and video equipment) should be at least 500mm. However, Echo Transmitters can be installed next to any other high-frequency transmitter without a problem.



7. USE OF REPEATERS

In the case of poor reception, it may be helpful to use a Repeater.

The Echo Repeater (K5414R) does not require any configuration (e.g. programming) and will become operational simply by connecting it to the mains supply. The new 10AX Switch Receiver/Repeater (K5420R) is also a repeater when not programmed with any switches. The various possibilities of use are shown by the illustrations in sections 3. SCREENING and 4. PENETRATION ANGLE.

A Repeater has similar requirements in being positioned as a Switch Receiver, i.e. it too has an antenna and needs to receive the signal from the Transmitter and be within range of the Switch Receiver with which it is intended to communicate.

While planning, it may be worth considering retrofitting the system with a Repeater.

Only one repeater is intended for use in any single installation. Using more than one repeater is counterproductive (higher cost, cross-signal interference, etc).

8. FIELD STRENGTH INDICATOR

The K5419R is a mobile Field Strength Indicator enabling the installer to determine the ideal mounting positions for Transmitters and Receivers. Furthermore, faulty connections of devices already installed can be checked. The unit shows the field intensities of radio signals received and any interfering radio signals in the 868MHz range.

Using the Field Strength Indicator allows the installer to review the strength of received signals at the proposed receiver locations – to ensure reliable operation you should aim to have consistent GREEN or AMBER signals on the indicator.

The meaning of the four LEDs at the top section of the Field Strength Indicator, are as follows:

- The right hand AMBER LED is headed "Telegram Valid". This signifies that an 868MHz signal has been detected.
- The left hand RED LED signifies that the signal strength is insufficient for a good installation. This LED will be illuminated immediately when the Power button is switched on.
- The AMBER "Class A" LED signifies that the installation will be good. The only proviso to this is that the Switch Receiver is not to be recessed in the wall or have any further potential screening situated around it, which could further increase signal attenuation.
- GREEN, the "Class B" LED, ensures an excellent installation, even if there is a little further screening caused, for instance by mounting it below a wall surface, assuming this is not in a metal box.

To get the best results, always hold the Transmitter exactly where it is intended to be installed and place the Field Strength Indicator exactly where the Receiver will be installed.

When the Transmitter is operated and the GREEN LED is illuminated, this signals that the receiving field force possesses sufficient power reserve for a reliable installation. There will be generous provision for subsequently changing conditions of the surroundings (i.e. additional screening caused by lightweight walls, shadowing by people etc.).

If the signal received is AMBER, repeat the test three times. If three AMBERS or a mixture of AMBER and GREEN are received, the installation will be good. The only proviso to this is that the Receiver is not to be recessed in the wall or further screened in any way, which in itself would increase any signal attenuation.

If just the RED LED is illuminated, this indicates that the present intended installation is not acceptable.

If the signal is not good enough in the initial layout, consider rearranging the position of the Switch Receiver to see if the signal strength can be improved.

How to use the Field Strength Indicator:

Person 1 operates the Transmitter and generates the radio signal by pressing the switch. Person 2 checks the field strength received on the display of the device and thus determines the ideal position.

Alternatively, if conducting the investigation alone, press the "1 min." button on the Field Strength Indicator, then from the moment of pressing the Transmitter, you have that long to return to the indicator to determine the suitability of the proposed installation.

Field Strength Indicator K5419R

The Field Strength Indicator can be used for on-site determination of the ideal mounting position of the Transmitter and for identification of an interfering radio signal.

Even after careful planning, the Field Strength Indicator should be used to verify proper reception at the Switch Receiver position during installation.

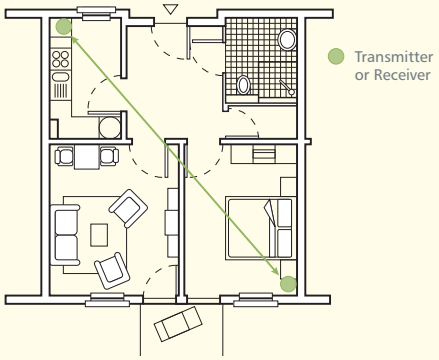
9. PLANNING INFORMATION FOR RESIDENTIAL BUILDINGS

For applications restricted to one or two rooms, e.g. when retrofitting a switch, the direct transmission range will normally be adequate. For applications "throughout" a building, the following differentiations must be made:

Flats, terraced houses and single-family houses of up to 400sqm.

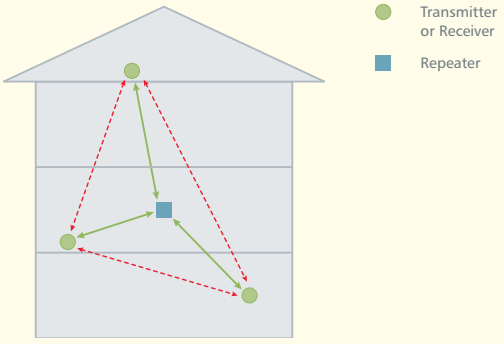
- Larger residential units with 3 rooms or more (living room and bedrooms) should be fitted with a Repeater. The Repeater should be centrally placed (e.g. in the centre of the middle floor).

Small residential unit (up to 3 walls and 1 ceiling)



Bedsit or up to 2 floors in a townhouse: the direct transmission range is usually adequate.

Multi-room flat and one-family house (more than 3 walls, more than 1 ceiling)



To ensure radio coverage in a larger residential unit, it is generally advisable to install a central Repeater.

10. TROUBLESHOOTING

The foregoing information on selecting the ideal place of installation for Transmitters and Switch Receivers has been provided to ensure a smooth operation of the devices. If, however, you still experience problems, please refer first to the following table for troubleshooting:

FAULT	POSSIBLE CAUSE	CHECKING AND POTENTIAL REMEDY
No transmission received	Transmitter fails to transmit	**Close to the Transmitter (distance of around 20-50cm), the Field Strength Indicator does not receive a transmission signal:** Activate the Transmitter, the GREEN LED fails to illuminate. Result – The Transmitter appears to be faulty. Replace the Transmitter.
	Transmitter installed outside the receiver range	**Near the receiver (distance of around 20 - 50cm), the Field Strength Indicator does not receive a transmission signal:** Activate the Transmitter, the GREEN and AMBER LEDs fail to illuminate. Result – Reposition Transmitter or Switch Receiver and follow the information on coverage and installation. Possible need for a Repeater to be added.
	Transmitter was removed (or maybe exchanged)	Always remember to delete the Transmitter from the Switch Receiver's memory before removing it, and/or always add any new transmitter to the Switch Receiver's memory.
	Receiver does not receive	**Close to the Switch Receiver the Field Strength Indicator demonstrates good reception of the transmitted signal:** Activate the Transmitter; the GREEN or AMBER LED of the Field Strength Indicator is illuminated. Result – Check the receiver is functioning and replace the Switch Receiver if necessary.
	Transmitter not programmed (or wrong Transmitter programmed)	Re-programme the Transmitter into the Switch Receiver.
	Some form of jamming is present	The GREEN Class A or AMBER Class B LEDs of the Field Strength Indicator are illuminated consistently: but the "Telegram Valid" LED is not illuminated. Result – There is some form of "jamming" occurring. Find and remove the source of jamming.
	High-frequency jamming near receiver	Move cause of jamming (telephone, PC etc.) at least 50cm away from the Switch Receiver.
Transmission only intermittently received	Receiver is placed at the limit of the transmitter's range	**When placed near the Switch Receiver (at a distance of around 20-50cm) the Field Strength Indicator does not receive a proper transmission signal:** When a Transmitter is operated, neither the GREEN nor AMBER classification LEDs of the Field Strength Indicator are illuminated, but the AMBER "Telegram Valid" LED is illuminated. Result – Poor reception, consider repositioning either the Transmitter or Switch Receiver, or alternatively use a Repeater.
	Occasional change in environmental conditions (cupboard, door, plants, people, interferes with transmission signal)	Check the distance from high-frequency sources of interference, should be at least 50cm. Alternatively, the Switch Receiver has been placed at the limit of the Transmitter's range.
	The position of the transmitter changes occasionally (e.g. transmitter fitted to a mobile object)	Ensure any movement does not cause the Transmitter to move outside the reception range.
	Some form of jamming is present	The GREEN or AMBER classification LEDs are illuminated only intermittently, but the AMBER "Telegram Valid" LED remains off (no valid echo™ transmission). Result – remove the cause of the jamming.

11. DISCLAIMER

The information provided in this document describes typical features of the Echo™ system and should not be misunderstood as specifying operating characteristics. No liability is assumed for errors and / or omissions. We reserve the right to make changes without prior notice.

To find out more, visit: **www.mkelectric.co.uk**

Transmitters

Standards and approvals

BS EN 60669-1, BS EN 60669-2-1,
ETSI EN301 489-1 & -3, ETSI EN61000-6-2,
ETSI EN300 220-3

Technical specification

Physical

Operating temperature:
-5°C to + 40°C

Operating frequency:
868.3 MHz

IP rating:
IP2XD

Max. Installation altitude:
2000 meters

Dimensions

Transmitters: 86mm x 86mm

Fixing centres: 60.3mm

Mounting Transmitters

- All Transmitters can be mounted to any 1-gang back box.
- All can be mounted directly to the wall surface – screws supplied.
- All can be mounted to back boxes – screws supplied.
- Logic Plus and Aspect type Transmitters can also be mounted using supplied adhesive pads

Switch Receivers and Repeater

Standards and approvals

BS EN 60669-1, BS EN 60669-2-1,
ETSI EN301 489-1 & -3, ETSI EN61000-6-2,
ETSI EN300 220-3

Technical specification

ELECTRICAL

K5418R
Voltage rating:
250V a.c. 50Hz

Current ratings:
This is a small load switch receiver that can be used typically for 400W resistive loads and 360W inductive.

Terminals:
Terminal screw size: M2.6
Rated terminal screw torque: 0.4 Nm

Terminal capacity:
Single wire (solid): 1.5 mm²
Stranded wire (flex.): 1.0 mm²
Stranded wire with ferrules: 0.75 mm²

K5420R (When used as a receiver)
Voltage rating:
250V a.c. 50Hz

Current ratings:
10AX – No de-rating when used on standard magnetic ballast fluorescent loads.

Terminals:
Terminal screw size M3
Rated terminal screw torque: 0.5 Nm

Terminal capacity:
4 x 1mm²
3 x 1.5mm²
2 x 2.5mm²

PHYSICAL
Operating temperature:
-5°C to + 40°C

IP rating:
IP2XD

Max. Installation altitude:
2000 meters

K5418R

K5414R

K5420R

K5420R

The 10AX Receiver/Repeater can function both as a 1 level repeater and as a 10AX Switch Receiver.

K5414R

The Repeater does not pass current, but all other details are the same as the 10AX Switch Receiver/Repeater K5420R.

Dimensions

10AX Switch Receiver/Repeater – K5420R

Length: 175.5mm

Width: 50.3mm

Height: 33.25mm

1 Level Repeater - K5414R

Length: 175.5mm

Width: 50.3mm

Height: 33.25mm

Small Load Switch Receiver – K5418R

Length: 47.4mm

Width: 34.6mm

Height: 28.8mm

For complete technical information on all Echo™ products, please visit www.mkelectric.co.uk

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www.mkelectric.co.uk

Download the new
App from MK Electric.

Reference UKMK005-0213-EN
February 2013

MK Sensors

Energy Efficient Lighting Control

Part L of the Building Regulations, Conservation of Fuel and Power

In April 2006 Part L was revised and reissued to ensure compliance with the legal obligations set out in the legal obligations set out in the European Union Energy Performance of Buildings directive.

It was again revised in April 2010 due to changes in legal requirements and technical guidance.

Part L is only concerned with England and Wales. Similarly, other parts of the UK are addressing environmental issues and the economic benefits of a more energy efficient building.

Three key areas are identified which can have a dramatic impact on power consumption and carbon dioxide emissions:

- Limiting heat gains and losses through thermal elements and other parts of the building fabric and from pipes, ducts and vessels used for space heating, space cooling and hot water services.
- Providing and commissioning energy efficient fixed building services with effective controls
- Providing to the owner sufficient information about the building, the fixed building services and their maintenance requirements so that the building can be operated in such a manner as to use no more fuel and power than is reasonable in the circumstances

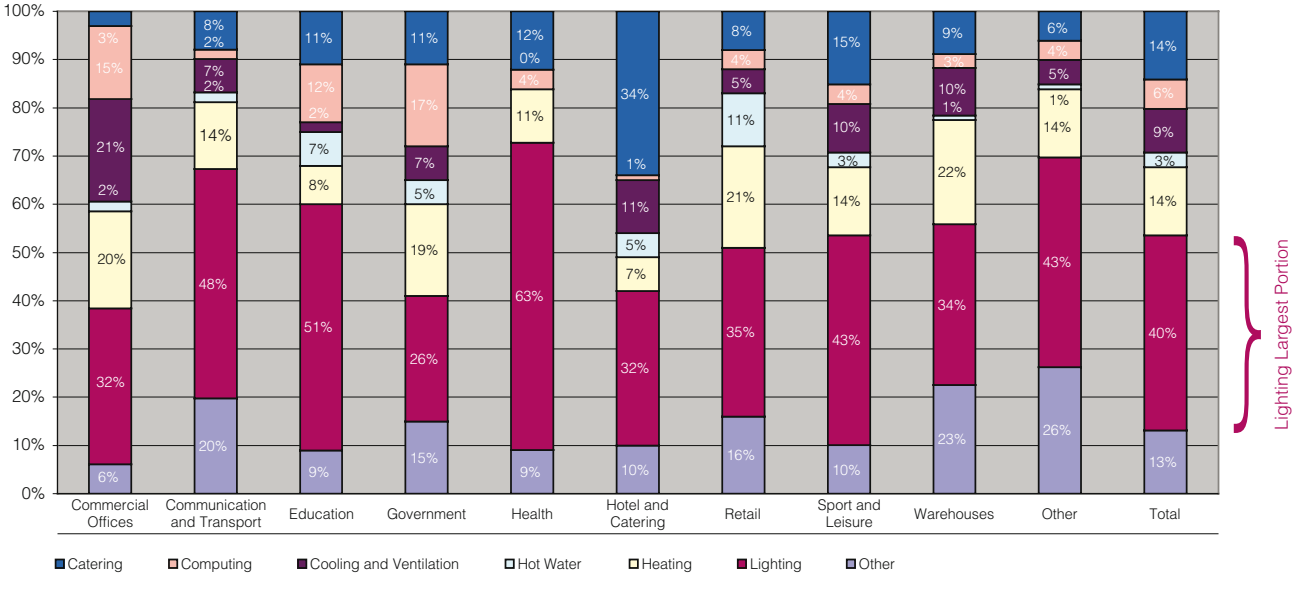
Why Stand Alone PIRs for Lighting Control?

The provision of effective and efficient lighting controls should be a key priority for contractors and specifiers alike. The MK Sensors range offers products to assist customers in complying with the relevant building regulations such as Part L, whilst also providing an energy conscious product choice.

Statistics published by the Building Research Establishment show that, across a broad selection of non-domestic applications, lighting represents 40% of a building's total energy consumption. Lighting was by far the function with the highest energy usage, also representing the largest opportunity for energy savings.

MK Sensors not only help you and your customers realise the highest potential savings in energy consumption, and thus to energy bills, but also offer the shortest payback periods.

Energy usage by application

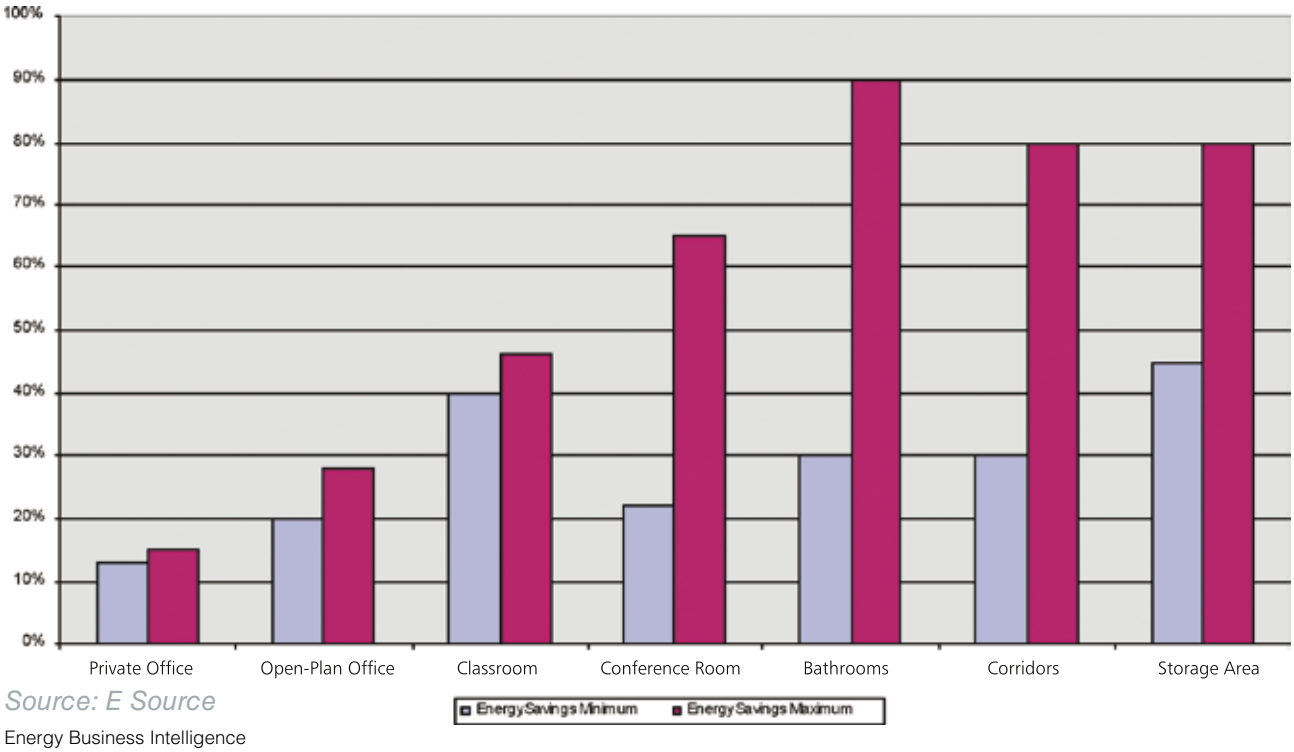


Source - devised from building research establishment dates – Office for National Statistics

Potential savings of up to 90%

Energy savings are affected by a number of variables, including the type of space, the footfall within that space and the presence of ambient light or natural daylight. Significant savings have been shown in a variety of installations, in particular, bathrooms, corridors, storage and other low usage areas. Employing the use of a sensor in rest rooms can show potential energy savings of up to 90%.

Typical Energy Savings Through Occupancy Sensors



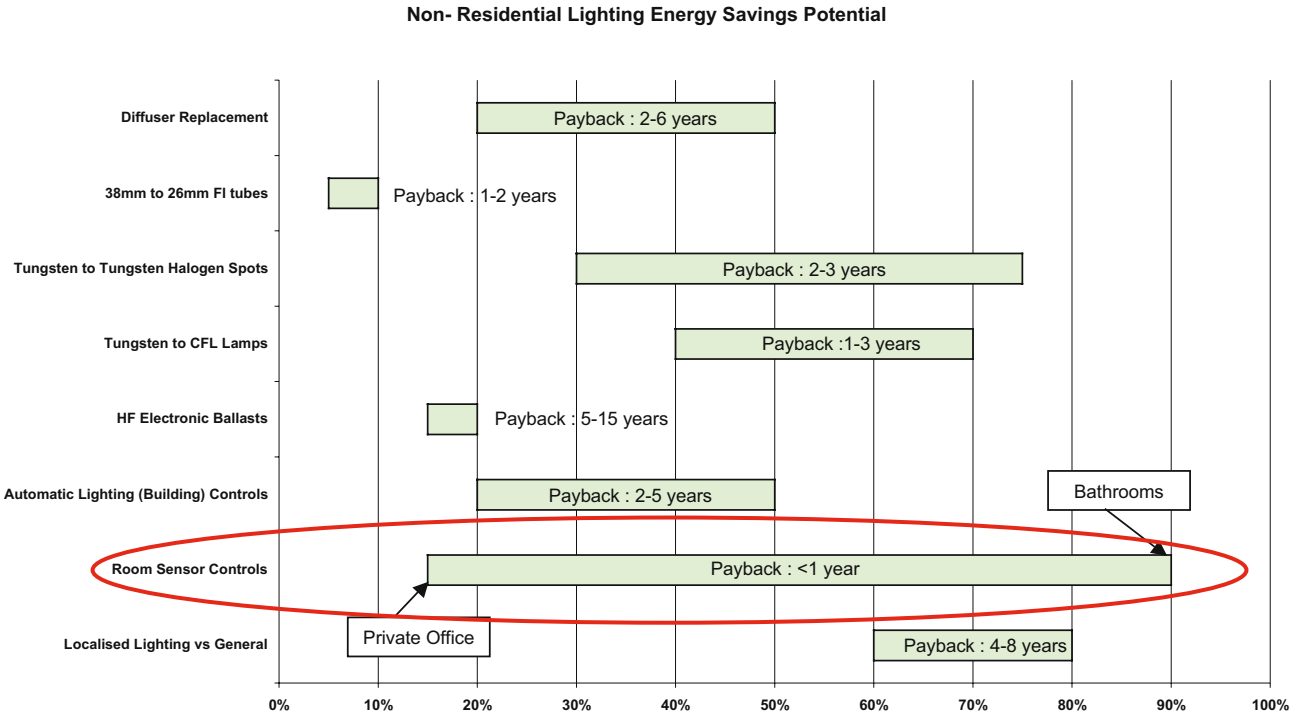
Source: E Source

Energy Business Intelligence

When considering these potential savings and taking into account the initial cost of specification and installation of lighting control, the payback period can be as little as less than one year for Room Sensor Controls.

The following research statistics, produced by the Chartered Institute of Building Services Engineers, shows the quickest payback period, combined with the highest potential energy savings which occur when installing Room Sensors Controls, such as MK Sensors.

Lighting Energy Saving Measures



Source = CIBSE – Chartered Institute of Building Services Engineers

Room sensor controls offer fastest payback and up to 90% savings in certain applications

All MK energy-saving lighting controls and associated equipment qualify for Enhanced Capital Allowances (ECAs). ECAs enable businesses to claim 100% first year capital allowances on qualifying investments via their Corporation Tax Return. In addition to equipment costs, installation charges, and any changes to the building needed to install the equipment also qualify for tax relief. The Carbon Trust offer interest-free loans of £5,000 - £100,000 for energy efficient projects, repayable over 4 years. These loans are available to small and medium sized enterprises in England and Wales that have been trading for at least 12 months. Any project which saves energy and has a payback of less than 5 years may qualify, and the loan can cover installation and commissioning costs as well as equipment costs.

MK Electric's lighting management systems deliver energy savings

MK Electric, the UK's leading manufacturer of wiring devices and accessories, has a comprehensive range of innovative lighting controls – MK Sensors – designed to deliver energy savings and lighting usage management in a wide range of commercial applications. Lighting represents, on average, up to 40% of a building's total energy consumption; and also the largest opportunity for energy savings.

MK Sensors not only help realise the highest potential savings in energy consumption, and thus to energy bills; but also offer the shortest payback periods when compared to means such as diffuser replacement and lamp type changes.

The MK Sensor range deploys three main types of sensor technology – namely Passive Infra Red (PIR), Microwave and Ultrasonic – in a variety of devices configured for ceiling or corner mounting; as well as long range detection.

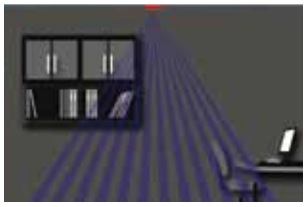
All products in the MK Sensors range have a built-in photocell, providing occupancy and light level detection. The range is also complemented by a host of accessories and ancillaries – such as programmers and controllers – which combine to make MK Sensors easy to install, easy to understand and easy to use.

Awareness of environmental issues and the need to reduce carbon dioxide emissions has increased considerably in recent years. With various government targets in mind, and the ever-growing issues and concerns around energy consumption, the environment and sustainability; it is now essential that contractors, specifiers and building managers alike appreciate the effect lighting sensors can have on the efficiency and environmental impact of buildings.

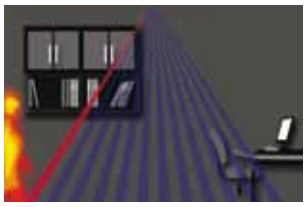
Ceiling mounted sensors comprise a choice of:

- Simple Fit PIR
- Standard PIR
- Superior PIR
- Ultrasonic + Microwave Detectors

Automatically switch or dim lighting based on presence and daylight levels.



Passive infrared operates by detecting changes in temperature within a cone-shaped area around the detector.



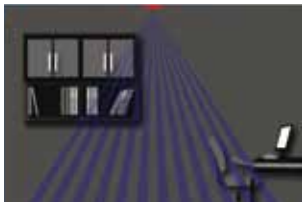
Changes in temperature within the detection area are recognised as occupancy signals.

When someone enters the room, their body heat is detected and the lights are switched on.

Lights are kept on for as long as someone remains in the area.

When the last person leaves the area and there is no longer any body heat to detect, the switch-off timer is activated.

If no-one re-enters the room within this period (set to 20 minutes in this example), the lights switch off.



Lights remain off until someone re-enters the monitored area.

Passive infrared provides simple, cost effective presence detection for lighting.

Ultrasonic & Microwave – Active Presence Detection

Ultrasonic and microwave detectors operate by constantly sending out signals to detect activity in the area.

If these signals come back unchanged, there is no movement.

When movement is detected, this causes a distortion of the signals and the detector switches the lights on.

Lights are kept on for as long as there is movement in the area.

When movement ceases and the signals show no distortion, the switch-off timer is activated.

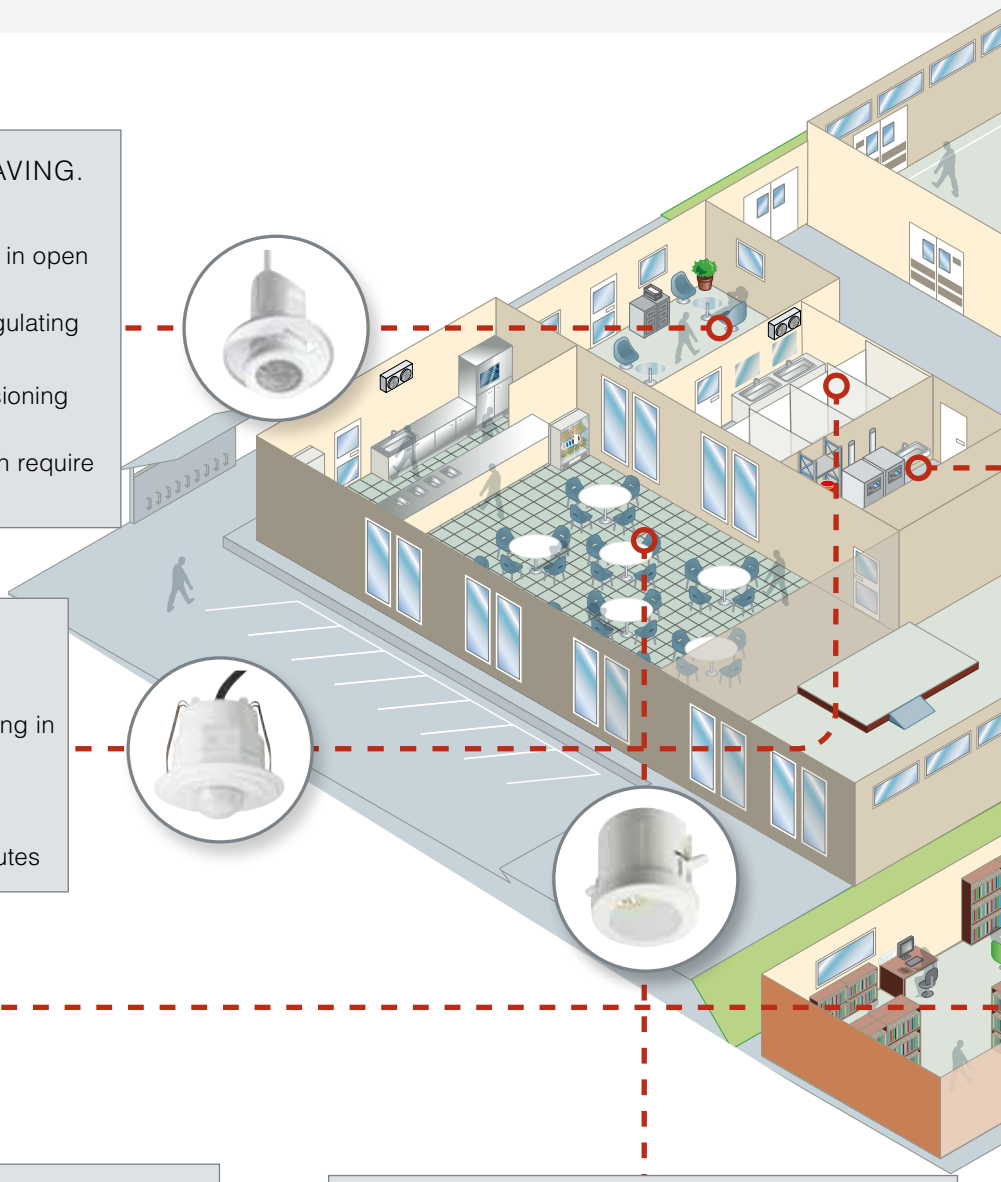
If no movement is detected within this period (set to 20 minutes in this example), the lights switch off.

Lights remain off until movement is again detected in the monitored area.

Microwave and Ultrasonic presence detection technology enables the range and sensitivity to be adjusted to ensure a tailored detection pattern to suit any application. Can be used in offices including open plan areas.

Using all three major types of presence detection technology; passive infrared, ultrasonic and microwave as demonstrated in the above captions, gives optimum control covering a vast array of applications and scenarios.

Typical product specification in an educational environment



STAFF ROOM – UP TO 30% SAVING.
CEILING MOUNTED SUPERIOR PIR.

- Programmable presence detection for use in open plan areas and offices
- Photocell settings - Passive, Active, or Regulating
- Off Delay between 5 and 35 minutes
- Remote Programmers allow easy commissioning and re-commissioning
- Dual circuit switches perimeter lights which require photocell control

TOILETS – UP TO 90% SAVING.
CEILING MOUNTED SIMPLE FIT PIR.

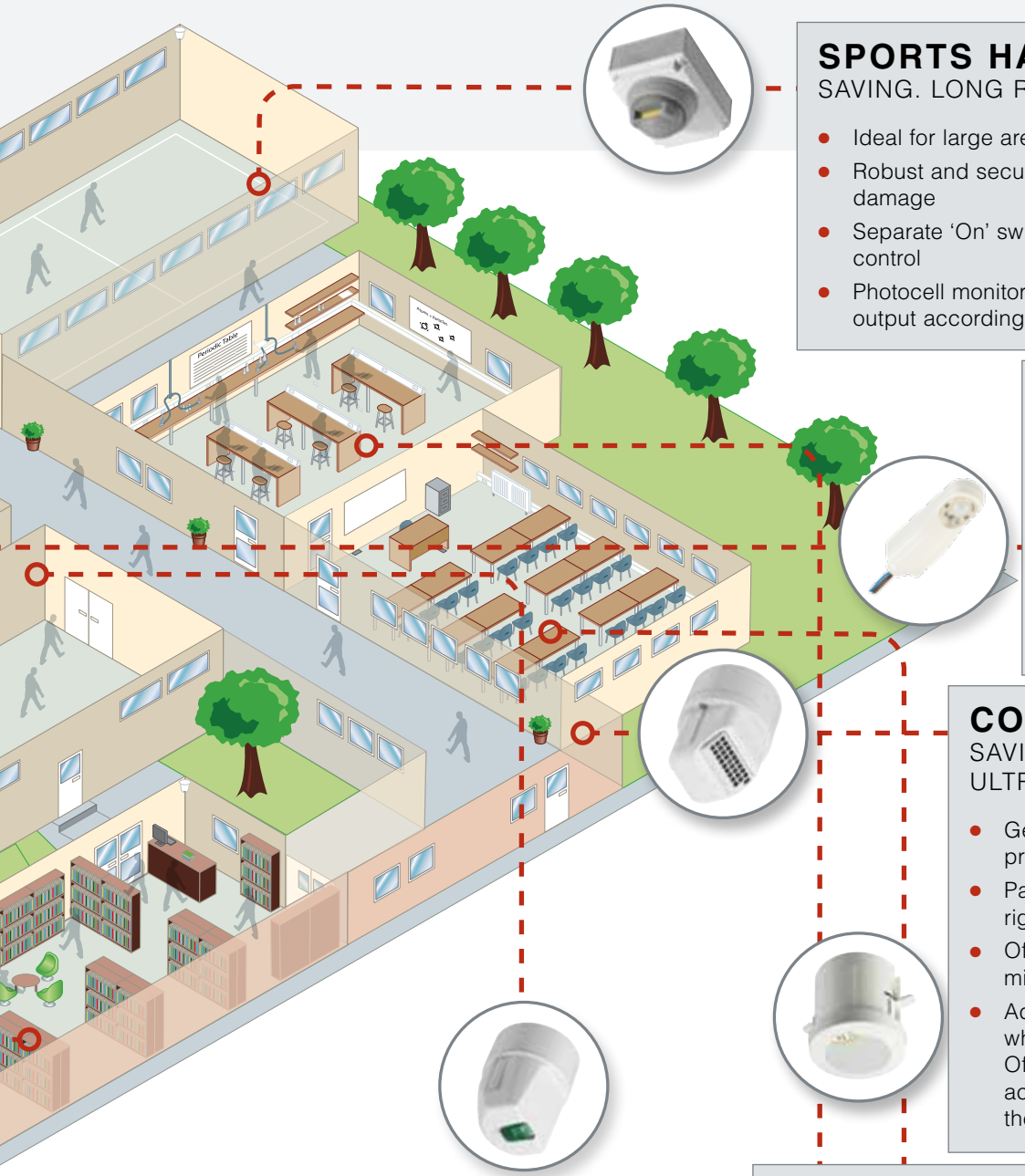
- Cost effective presence detection for lighting in small areas
- Passive Photocell holds lights off in bright ambient conditions
- Off Delay between 5 seconds and 40 minutes

LIBRARY – UP TO 45% SAVING.
CORNER MOUNTED MICROWAVE SENSOR.

- High performance directional presence detector, ideal for a library or storage aisle
- Built in Photocell monitors the controlled space as well as ambient light and all other light contributions
- Can be installed vertically for use in aisles
- Low Off Range setting will avoid traffic passing the end of the aisle activating the lights within the aisle
- Can be installed horizontally for wide angle horizontal coverage

CANTEEN – UP TO 65% SAVING.
CEILING MOUNTED MICROWAVE DIGITAL SENSOR.

- Utilises microwave technology as opposed to infrared, avoiding activation by heat, therefore ideal for use in kitchens
- Photocell monitors ambient light and adjusts output accordingly
- Off Delay between 5 and 35 minutes
- Remote Programmers allow easy commissioning and re-commissioning



SPORTS HALL – UP TO 80% SAVING. LONG RANGE DETECTORS.

- Ideal for large areas such as sports halls
- Robust and secure, protects against accidental damage
- Separate 'On' switch can be installed for further control
- Photocell monitors ambient light and adjusts output accordingly

UTILITY ROOM – UP TO 80% SAVING. BATTENFIT SENSOR.

- Solution for batten style luminaires
- Advanced PIR detection technology monitors occupancy, delivering light when it's needed

CORRIDOR – UP TO 80% SAVING. CORNER MOUNTED ULTRASONIC SENSOR.

- General purpose directional presence detector with 13m range
- Passive Photocell holds lights off in right ambient conditions
- Off Delay between 5 and 15 minutes
- Adjustable On and Off Range, which allows low setting during Off mode to avoid lights being activated by traffic passing across the end of the corridor

ASSEMBLY HALL – UP TO 65% SAVING. CORNER MOUNTED MICROWAVE SENSOR.

- High performance directional presence detector, ideal for conference rooms or assembly hall
- Built in Photocell monitors the controlled space as well as ambient light and all other light contributions
- Extremely flexible with no independent sensitivity controls

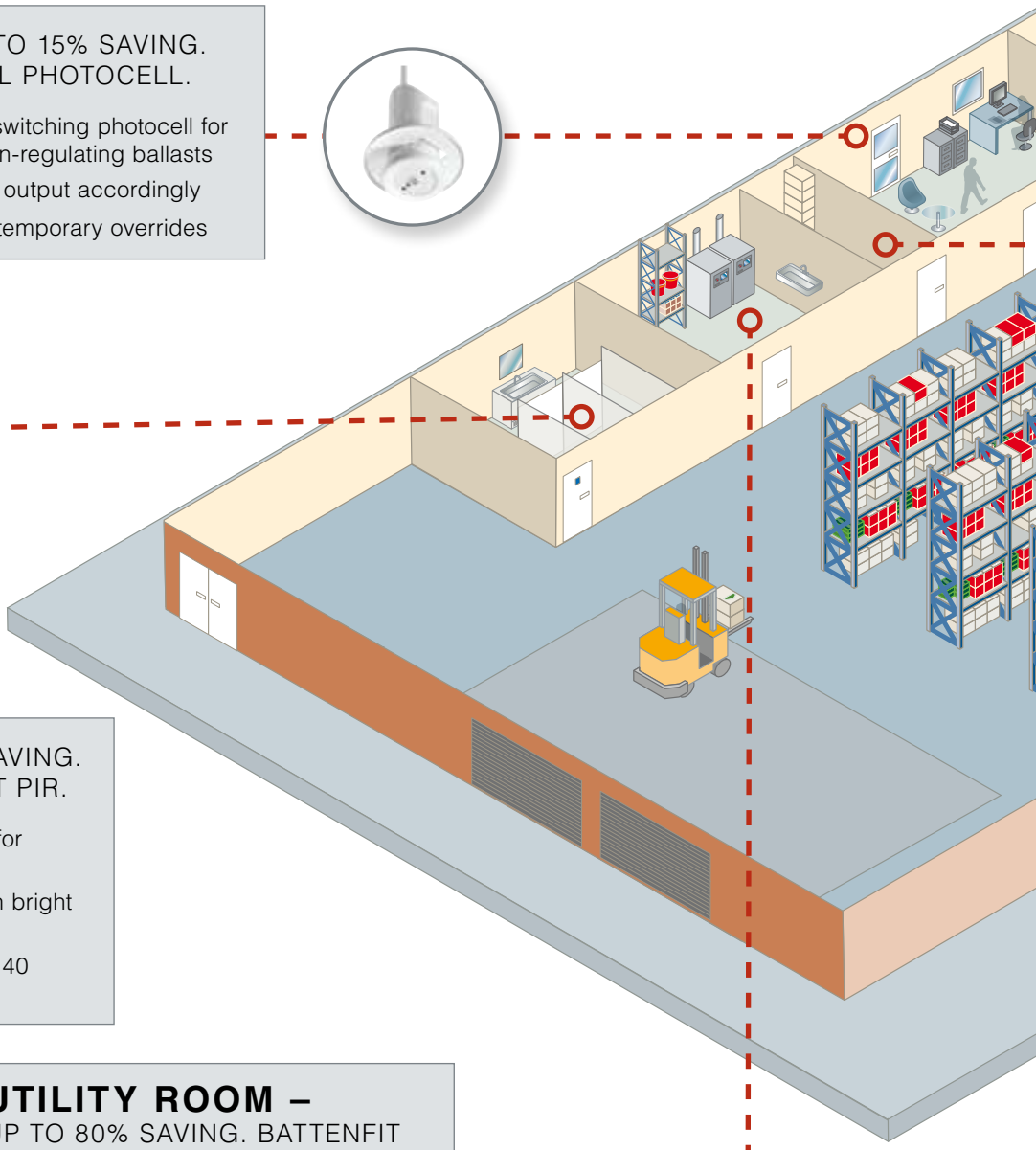
CLASSROOMS – UP TO 45% SAVING. CEILING MOUNTED MICROWAVE DIGITAL SENSOR.

- Programmable control in open work spaces and classrooms
- Photocell monitors ambient light and adjusts output accordingly
- Scene settings can be programmed for use when viewing multimedia presentations or for other activities
- Hand-held Controller available for temporary override and scene setting
- Off Delay between 5 and 35 minutes

Typical product specification in a warehouse environment

SMALL OFFICE – UP TO 15% SAVING. CEILING MOUNTED UNIVERSAL PHOTOCELL.

- High performance regulating and switching photocell for DSI, DALI, Analogue 1-10V and non-regulating ballasts
- Monitors ambient light and adjusts output accordingly
- Hand-held Controller available for temporary overrides

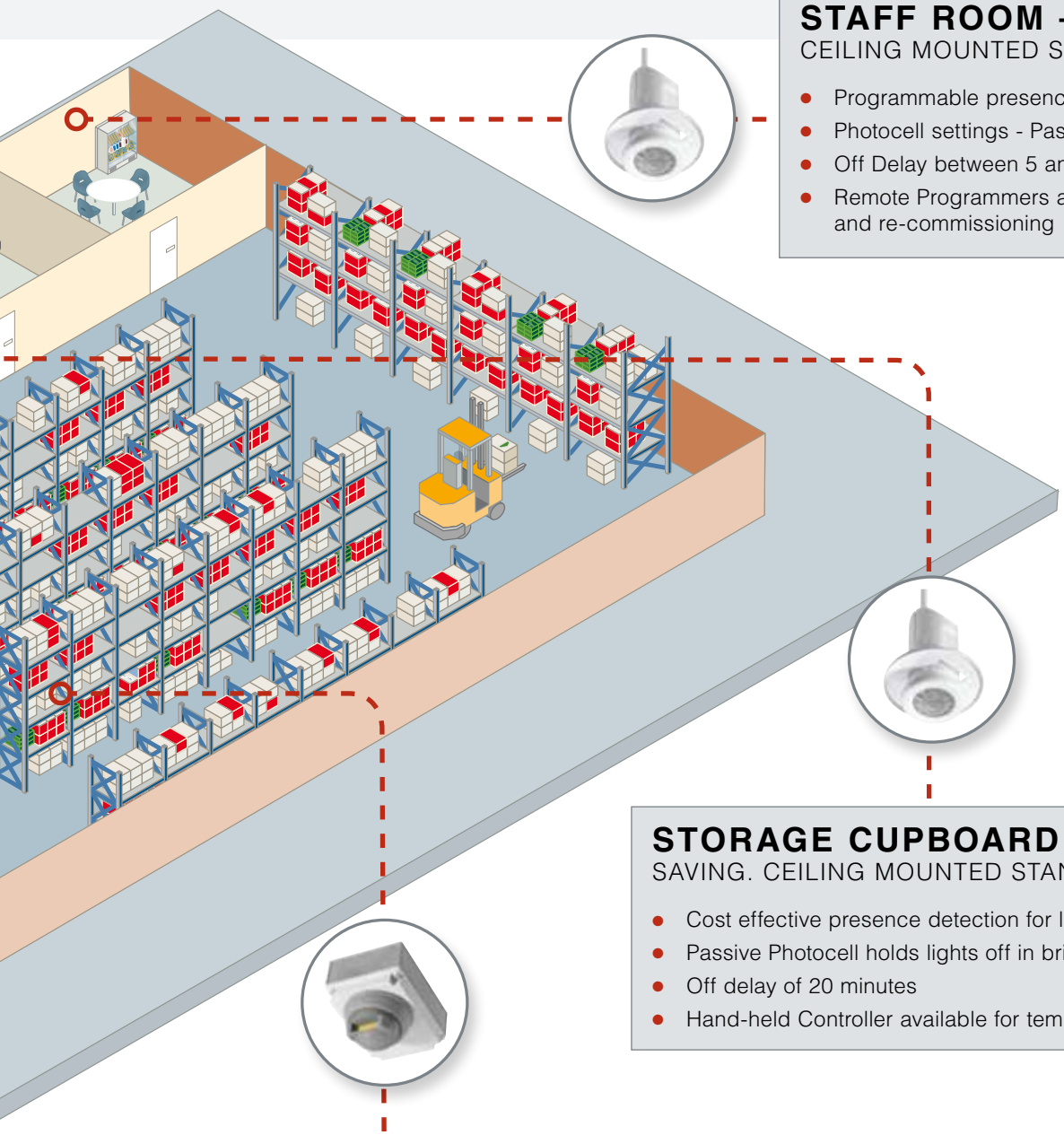


TOILETS – UP TO 90% SAVING. CEILING MOUNTED SIMPLE FIT PIR.

- Cost effective presence detection for lighting in small areas
- Passive Photocell holds lights off in bright ambient conditions
- Off Delay between 5 seconds and 40 minutes

UTILITY ROOM – UP TO 80% SAVING. BATTENFIT SENSOR.

- Solution for batten style luminaires
- Advanced PIR detection technology monitors occupancy, delivering light when it's needed
- Variants with photocell have adjustable delay from 1 minute to 96 hours



STAFF ROOM – UP TO 65% SAVING. CEILING MOUNTED SUPERIOR PIR.

- Programmable presence detector
- Photocell settings - Passive, Active, or Regulating
- Off Delay between 5 and 35 minutes
- Remote Programmers allow easy commissioning and re-commissioning

STORAGE CUPBOARD – UP TO 80% SAVING. CEILING MOUNTED STANDARD PIR.

- Cost effective presence detection for lighting in small areas
- Passive Photocell holds lights off in bright ambient conditions
- Off delay of 20 minutes
- Hand-held Controller available for temporary override

STORAGE AREA – UP TO 80% SAVING. LONG RANGE SENSORS.

- High performance presence detection system
- Control unit and low voltage microwave detectors
- Remote photocells can be used to control all or part of the load
- Low Off Range setting will avoid traffic passing the end of the aisle activating the lights within the aisle

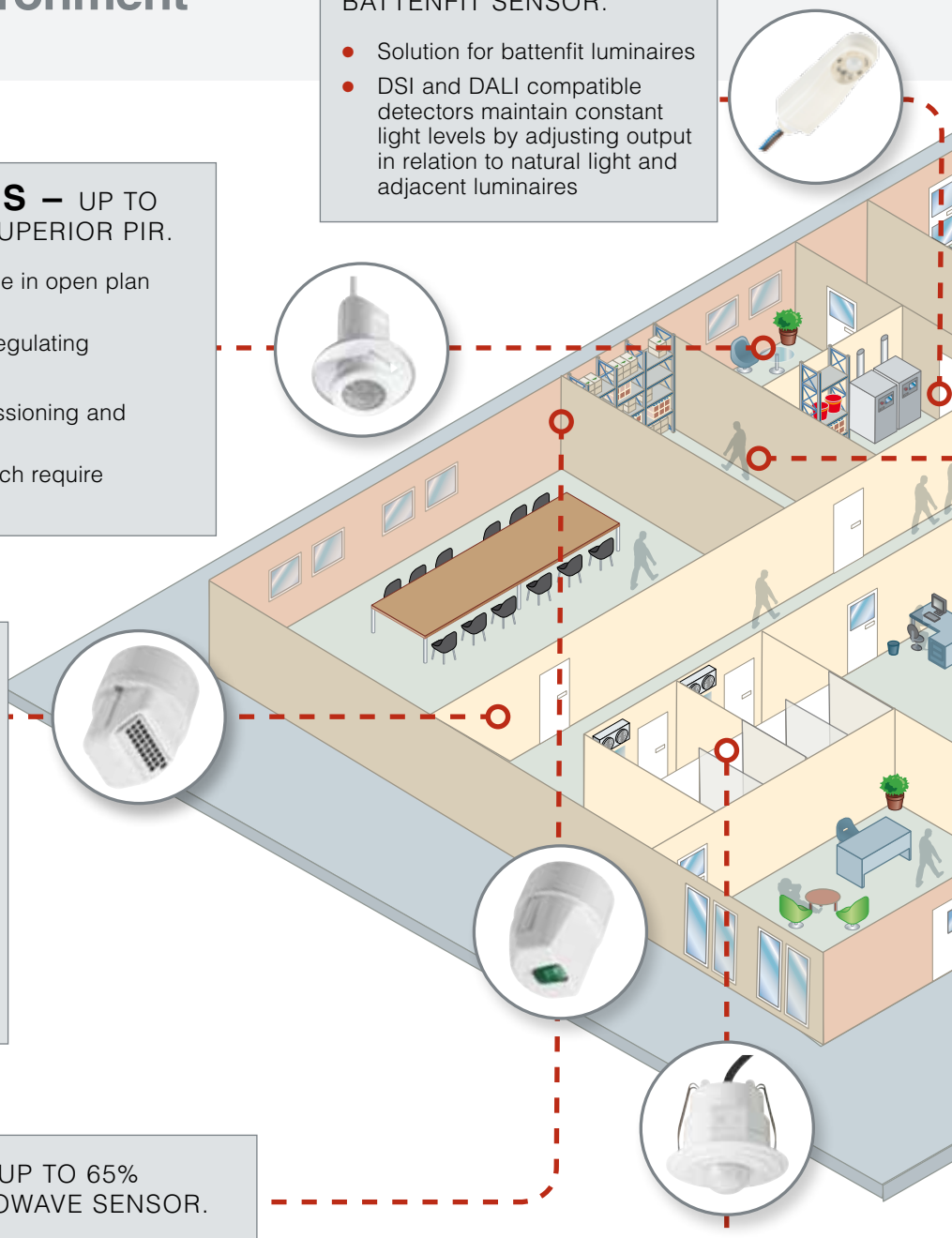
Typical product specification in an office environment

SMALL MEETING ROOMS – UP TO 65% SAVING. CEILING MOUNTED SUPERIOR PIR.

- Programmable presence detection for use in open plan areas and offices
- Photocell settings - Passive, Active, or Regulating
- Off Delay between 5 and 35 minutes
- Remote Programmers allow easy commissioning and re-commissioning
- Dual circuit switches perimeter lights which require photocell control

UTILITY ROOM – UP TO 80% SAVING. BATTENFIT SENSOR.

- Solution for battenfit luminaires
- DSI and DALI compatible detectors maintain constant light levels by adjusting output in relation to natural light and adjacent luminaires



CORRIDOR – UP TO 80% SAVING. CORNER MOUNTED ULTRASONIC SENSOR.

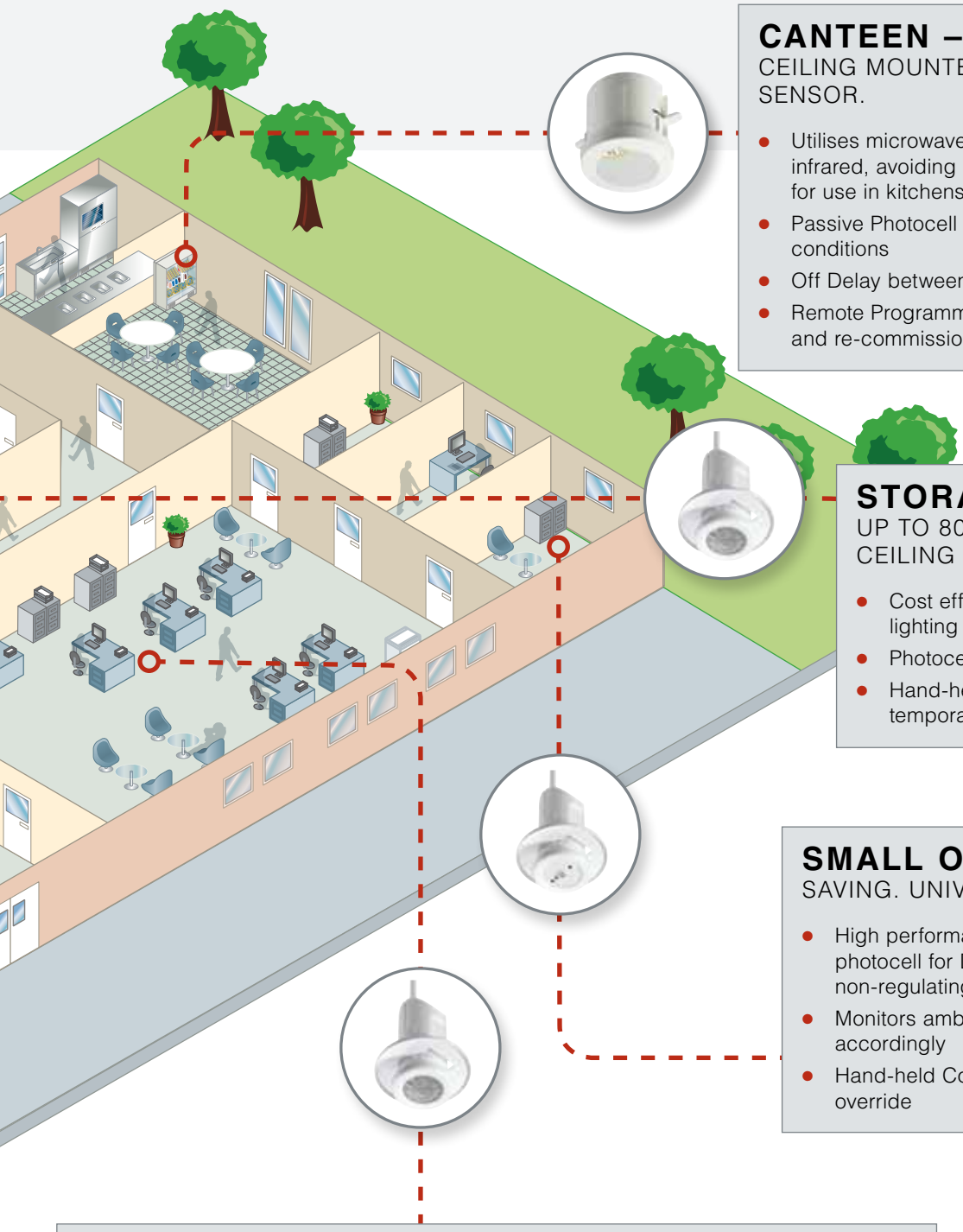
- General purpose directional presence detector with 13m range
- Passive Photocell holds lights off in bright ambient conditions
- Off Delay between 5 and 15 minutes
- Adjustable On and Off Range, which allows low setting during Off mode to avoid lights being activated by traffic passing across the end of the corridor

CONFERENCE ROOM – UP TO 65% SAVING. CORNER MOUNTED MICROWAVE SENSOR.

- High performance directional presence detector, ideal for conference rooms
- Built in Photocell monitors the controlled space as well as ambient light and all other light contributions
- Can be installed horizontally for wide angle horizontal coverage
- Extremely flexible with two independent sensitivity controls

TOILETS – UP TO 90% SAVING. CEILING MOUNTED SIMPLE FIT PIR.

- Cost effective presence detection for lighting in small areas
- Passive Photocell holds lights off in bright ambient conditions
- Off Delay between 5 seconds and 40 minutes



CANTEEN – UP TO 65% SAVING. CEILING MOUNTED MICROWAVE DIGITAL SENSOR.

- Utilises microwave technology as opposed to infrared, avoiding activation by heat, therefore ideal for use in kitchens
- Passive Photocell holds lights off in bright ambient conditions
- Off Delay between 5 and 35 minutes
- Remote Programmers allow easy commissioning and re-commissioning

STORAGE CUPBOARD – UP TO 80% SAVING. CEILING MOUNTED STANDARD PIR.

- Cost effective presence detection for lighting in small areas
- Photocell Off delay of 20 minutes
- Hand-held Controller available for temporary override

SMALL OFFICES – UP TO 15% SAVING. UNIVERSAL PHOTOCELL.

- High performance regulating and switching photocell for DSI, DALI, Analogue 1-10V and non-regulating ballasts
- Monitors ambient light and adjusts output accordingly
- Hand-held Controller available for temporary override

OPEN PLAN OFFICE – UP TO 30% SAVING. CEILING MOUNTED SUPERIOR REGULATING PIR.

- Programmable presence detection for use in open plan areas and offices
- Photocell settings - Passive, Active, or Regulating
- Off Delay between 5 and 35 minutes
- Up to six scenes can be set via user remote control
- Remote Programmers allow easy commissioning and re-commissioning

Simple Fit PIRs

MK Simple Fit Sensors offer cost effective presence detection for lighting control in small to medium areas. This one-box solution is easy to install and commission, and requires no additional fixing tools or parts.

K5015 and K5016

- Presence detection by passive infrared
- Loading up to 6 Amps (1500W) of any type of load (including fluorescent lights)
- PIR Lens provides 360 degree detection and a 6m range
- External programming dials enable quick adjustment of time and lux levels with easy configuration
- Off delay adjustable between 5 seconds and 40 minutes following the last observed movement after which the lights switch off

K5015

K5015

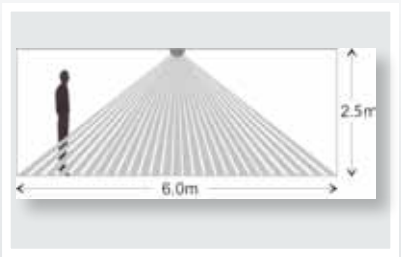
- Spring Clips enables ease of installation in plasterboard ceilings
- Flush mounted

K5016

- Screw and Plug Fixings can be mounted direct to the ceiling or on to a square pattress box (K2160 WHI)
- Surface Mounted

K5016

Cone shaped detection pattern. Optimum mounting height of 2.5m, gives a detection diameter of 6.0m.



Standard PIRs (6 Amp)

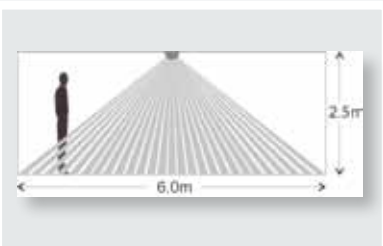
MK Standard Sensors provides simple, cost-effective presence detection for lighting control in small to medium areas.

- Presence detection by passive infrared effectively enhanced to improve sensitivity to small movements
- Passive photocell holds lights off in bright ambient conditions
- Off delay of 20 minutes following the last observed movement after which the lights switch off
- Flush or surface mounted variants available
- Quick fixing clamp (flush mounted) adjusts to ceiling tile thickness

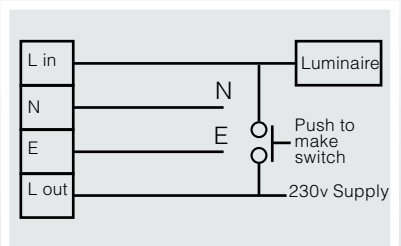
K4010

K4011

Cone shaped detection pattern. Optimum mounting height of 2.5m, gives a detection diameter of 6m.



Quick fixing clamp (flush mounted) adjusts to the ceiling tile thickness.



Superior PIRs (6 Amp)

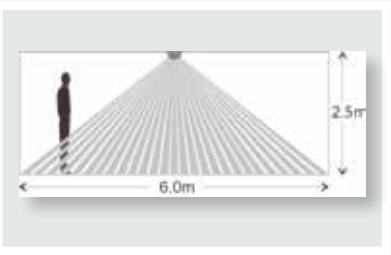
MK Superior Sensors offer high-performance, programmable presence detection for lighting control in offices and open-plan workstations.

- Presence detection by passive infrared effectively enhanced to improve sensitivity to small movements
- Passive photocells hold lights off in bright ambient conditions (pre set as standard). Active photocell ensures artificial light is only provided when necessary. Regulating photocell actively monitors ambient light levels and adjusts the light output to maintain a constant light level
- Dual circuit option (1x volt free, 1 x switched-live) available for areas where just perimeter lights require photocell control
- Off delay adjustable between 5 and 35 minutes following the last observed movement after which the lights switch off
- Power up off = In the event of a power cut, sensors will only activate lights when an area is occupied
- Semi automatic mode provides “absence detection” via either an MK retractive switch or hand-held controller
- Wash room mode – no movement is detected in a 24 hour period, Detector can be linked to a valve unit plus programmed to switch the load on for the duration in the off delay

K4015

K4017

Cone shaped detection pattern. Optimum mounting height of 2.5m, gives a detection diameter of 6m.



Independent time delays and photocell adjustments can be programmed by use of an Infrared Programming Tool (K4053 or K4050).

Hand-held Controllers give temporary on or off override, light level adjustment and scene setting to the building’s occupant (K4051 & K4052).

BattenFit Sensors

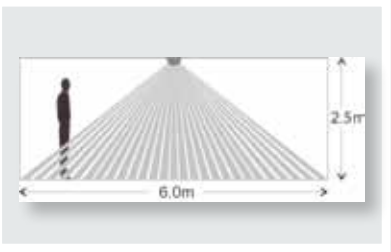
BattenFit Sensors are a simple-to-fit control solution for batten style luminaires. Using presence detection and photocells, BattenFit Sensors can deliver energy savings of up to 80%*. The range comprises of variants with or without photocells and options for controlling DSI or DALI ballasts.

- The simplest BattenFit device automatically switches the light on when someone enters an area, and switches the light off again after a fixed period when the area is vacated
- IP65 BattenFit Sensors are ideal for outdoor applications, or indoor areas exposed to water and dust
- More sophisticated BattenFit variants have adjustable delay from 1 minute to 96 hours
- A Photocell additionally monitors levels of natural light to further eliminate unnecessary use of energy
- Passive photocell holds lights off in bright ambient conditions. Active photocell can switch lights off in occupied areas (K4042)
- DSI and DALI-compatible BattenFit detectors are capable of maintaining constant light levels by adjusting a luminaire's output in concert with available natural light and adjacent luminaires
- BattenFit Sensors are ideal for customers requiring a simple and cost effective energy saving solution for existing or new installations
- Ideally suited for use in;
  - Warehousing / Distribution
  - Industrial units
  - Factories
  - Storage areas
  - Utility areas
  - Plant rooms
- Suitable for controlling Honeywell LED Utility Lighting. For more information visit www.mkelectric.co.uk

K4041

K4047

Cone shaped detection pattern. Optimum mounting height of 2.5m, gives a detection diameter of 6m.



Hand-held Controllers give temporary on or off override, light level adjustment and scene setting to the building's occupant (K4051 & K4052).

*Typical energy savings through occupancy sensors installed in storage areas. (Source: Energy Business Intelligence)

K4051 and K4052 – Hand-held Controller

Hand held remote controls are available to enable users to temporarily override preset conditions and take local control over lighting.

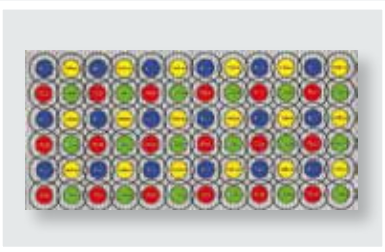
Microwave Digital Sensors (6 Amp)

MK Microwave Digital Sensors offer superior-performance programmable presence detection for lighting control in offices, open plan workstations and classrooms.

- Active presence detection by Microwave technology
- Dual circuit available (useful for applications where perimeter lights require dimming while the remainder are fixed output)
- Regulating photocell actively monitors ambient light levels and adjusts the light output accordingly (dimmable control gear only)
- Off delay adjustable between 5 and 60 minutes following the last observed movement after which the lights switch off
- Incorporates simple scene setting – up to six scenes can be set via user remote control
- The entry scene is automatically selected when the area becomes occupied. Similarly, there is an option to select an Exit Scene for when an area is vacated
- One switch dimming manual input to adjust light level or turn luminaires on or off. Available for fixed output high frequency ballasts and dimmable DSI and DALI ballasts

K4025

For reliable operation it is essential that units of the same colour code do not occupy adjacent positions in open-plan areas. This is why MK supplies four variants of the Sensor (K4025 Blue/Yellow/Red/Green).



Remote Programming Handsets allows commissioning and re-commissioning of Sensors to be carried out with virtually no disturbance to the building's occupants (K4053 or K4050).

Hand-held Controllers give temporary on or off override, light level adjustment and scene setting to the building's occupant (K4051 & K4052).

Microwave Digital Sensors (10 Amp)

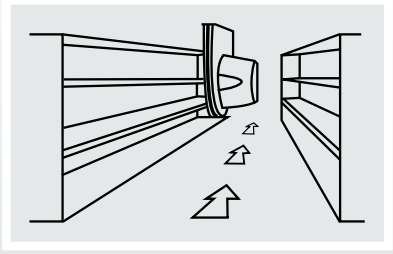
MK Microwave Sensors are high performance, directional presence detectors with built-in photocell for use in almost any internal space. Ideal for larger classrooms, conference rooms, longer storage aisles and other applications up to 20m x 20m, the unit is self-contained offering simple installation. It utilises microwave technology and features a movement detector, photocell and 10 Amp (load switching) element.

- Two independent sensitivity controls make the Ultrasonic Sensors supremely flexible in use
- ON Range is the normal range control, which may be adjusted according to the needs of the space being monitored
- OFF Range sets the detector range once lights have been switched off and may, in some cases require a low setting
- OFF Range offers a low setting which may be used in some applications, for example a library or storage aisle. A higher range may be required when the aisle is occupied, but a much lower range when the area becomes unoccupied. Traffic passing across the end of an aisle will not activate the lights
- OFF Delay sets the time delay (after last detected movement) before lights are switched off and is adjustable up to 20 minutes
- The Photocell observes the controlled space, not just ambient daylight, and takes account of all light contributions – even from adjacent zones

K4032/K4033

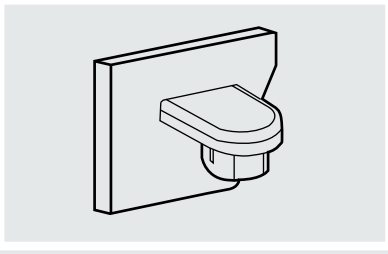
Vertical Installation

Use this method of mounting for racking aisle applications and where adjustment in the vertical plane will give improved control over the precise point of entry detection.



Horizontal Installation

For general applications where ceiling mounting is not convenient and wide angle coverage in the horizontal plane is desirable.



Ultrasonic Sensors (10 Amp)

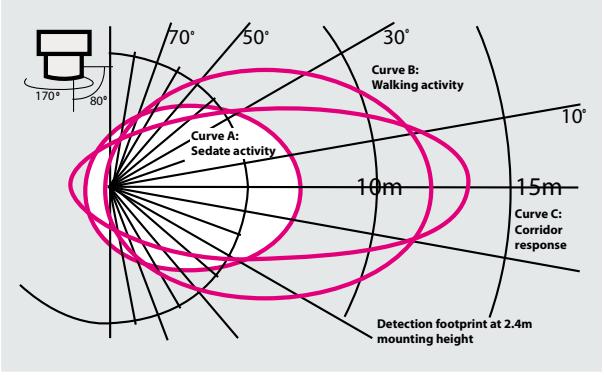
MK Ultrasonic Sensors are a general purpose, fully automatic, directional presence detector with photocell. The Ultrasonic Sensor saves energy by switching off lights in unoccupied areas and by holding lights off in occupied areas that have adequate natural light.

- Ultrasonic radar monitors the controlled space for movement, and is sensitive enough to respond to even the slightest movement, ensuring lighting is sustained whenever space is occupied
- If no movement has been detected for a pre-selected period the lights will be switched off until the next visitor is detected
- Features movement detector, photocell and 10 Amp load switching element
- Off delay adjustable between 5 and 15 minutes following the last observed movement after which the lights switch off
- The adjustable photocell will bring lights on as required if light levels in an occupied area fall
- Two independent sensitivity controls make the Ultrasonic Sensor extremely flexible in use
- Adjustment controls are available for commissioning purposes
- 'On Range' is the adjustable normal range control
- 'Off Delay' sets the time delay after the last detected movement

K4030

K4031

MK Ultrasonic Sensors utilise ultrasonic radar to monitor a space for movement. This involves transmitting an ultrasound signal and examining the reflected signal for frequency variations. Directional range of 13m makes the Ultrasonic sensor ideal for use in corridors.



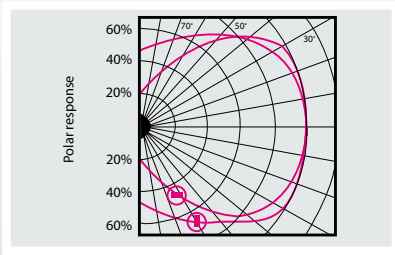
Long Range Detector (10 Amp)

MK Long Range Sensors offer high performance presence detection system providing effective energy-saving control to large areas such as warehouses, sports halls and stadia, workshops, hangars, conference centres etc.

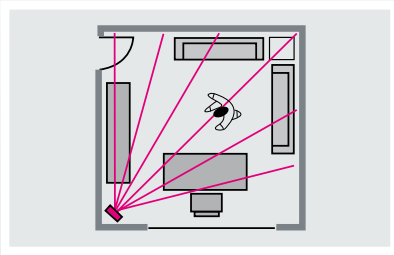
- Long Range Detectors consist of a control unit and low voltage microwave detectors, which may be combined to form one self-contained unit
- All or part of the load may be in semi-automatic operation, whereby a switch is provided to switch On. The load is automatically reset Off once the area is vacated
- Semi-automatic operation can be employed where activation from adjacent spaces may occur or where existing light levels are adequate for visiting access
- The remote photocells can be configured to control all, or part of, the controlled load
- Detectors are located in a unique spherical housing which incorporates an antenna and offers a wide polar response
- The unit is robust and secure against accidental damage in open areas such as sports halls and warehouses
- Flush or surface mounted, 30m and 60m variants available

K4036

Polar response
Orientation to give optimum width or depth of coverage. Note: the Long Range Detectors can 'see' behind themselves in open ended aisles they should be inset.



Positioning
The Detector can see through glass and should be pointed away from thin partitions and windows.



Universal Photocell (6 Amp)

The MK Universal Photocell offers a high performance regulating and switching photocell for DSI, DALI, Analogue 1-10V and non-regulating ballasts.

- Easy installation, Universal Photocells are designed for use in a suspended or plasterboard ceiling, with simple connections and commissioning
- Easy to programme and configure using infrared programming tool
- For use with all common types of control gear in almost any environment where lights would be left on unnecessarily when there is sufficient daylight
- The Photocell observes the controlled space, not just daylight, and takes account of all light contributions
- Passing Cloud Timer prevents nuisance switching when light levels fluctuate rapidly, and can be set from 5-60 minutes
- Hand-held controllers available for manual dimming and on/off control

K4045

Menu-driven Digital Programmer with automatic equipment recognition and parameter download facilities (K4053).

Quick fixing clamp (flush mounted) adjusts to the ceiling tile thickness.

Hand-held Controllers give temporary on or off override, light level adjustment and scene setting to the building's occupant (K4051 & K4052).

K4050 – Basic Programmer

An easy-to-use programming tool for use with Standard and Superior PIRs, Ceiling Mounted microwave Digital Sensors and BattenFit Sensor variants with photocell.

- Allows the commissioner to set the time delay function, and select semi or fully automatic operation via an array of 12 dil switches
- Regulating light level may also be set in conjunction with a suitable lux meter

K4053 – Digital Programmer

The Digital Programmer is a hand-held infrared unit designed for use with Standard and Superior PIRs, Ceiling Mounted Microwave Digital Sensors, Universal Photocells and BattenFit Sensor variants with photocell..

- Allows commissioning and re-commissioning to be carried out with almost no disturbance to the building's occupants
- Settings are chosen from a menu and transferred instantaneously to the PIR or Detector by simply pressing the Upload button
- The commissioner receives positive feedback throughout the process, and can download settings from one product to upload to another to reduce commissioning time
- During the lifetime of an installation the lighting requirements may change several times due to changes in layout or use of a space. The reprogramming of the PIRs or Detectors can be carried out quickly, easily and with minimum disruption by utilising the Digital Programmer
- The Digital Programmer can be upgraded to accommodate product revisions and additions via software from MK which can be uploaded into the Handset via the USB port

K4051 and K4052 – Hand-held Controller

Hand held remote controls are available to enable users to temporarily override preset conditions and take local control over lighting.

- The two button option allows the user to turn lights on or off and adjust light level (K4051)
- Multi-functional option has the additional feature of allowing the user to select any one of six preset scenes (K4052)

KEY

- Advanced presence detection by passive infrared (PIR) technology
- Active presence detection by Ultrasonic or microwave technology
- Off delay in minutes following the last observed movement after which lights switch off up to 96 hours with K4053
- Passive photocell holds lights off when area becomes occupied in bright ambient conditions
- Regulating photocell adjusts luminaire output to maintain constant light levels
- Active photocell switches lights on and off according to ambient conditions
- Detection pattern and range in meters under normal operating conditions
- One Switch Dimming. Manual input to adjust light level or turn luminaires on or off
- Hand-held Controllers provide local user override
- Infrared programming enables easy commissioning and re-commissioning
- Dual circuit option (switching or switching and dimming) available
- Scene setting – lights switch on to a pre-programmed scene when area becomes occupied

MK PASSIVE INFRA RED SENSORS (PIRS)

IMAGE	LIST NO.	DESCRIPTION												
	K5015	Simple Fit PIR with Photocell – Flush 6 Amp	✓		0-40 min	✓			6m					
	K5016	Simple Fit PIR with Photocell – Surface 6 Amp	✓		0-40 min	✓			6m					
	K4010	Standard PIR with Photocell – Slim Flush. 6 Amp	✓		20min Fixed	✓			6m					
	K4011	Standard PIR with Photocell – Surface. 6 Amp	✓		20min Fixed	✓			6m					
	K4015	Superior PIR with Photocell – Slim Flush. 6 Amp	✓		5-35 min*			✓	6m		✓			
	K4016	Superior PIR with Photocell – Surface. 6 Amp	✓		5-35 min*			✓	6m		✓			
	K4017	Superior Dual Circuit PIR with Photocell – Flush. 6 Amp	✓		5-35 min*			✓	6m		✓		✓	
	K4018	Superior Dual Circuit PIR with Photocell – Surface. 6 Amp	✓		5-35 min*			✓	6m		✓		✓	
	K4019	Superior PIR - Slim Flush 9 x DSI Ballasts.	✓		5-35 min*		✓		6m		✓			✓
	K4020	Superior PIR – Surface 25 x DSI Ballasts.	✓		5-35 min*		✓		6m		✓			✓

*From 1min-96hrs via K4050 or K4053

MK BATTENFIT SENSORS

IMAGE	LIST NO.	DESCRIPTION												
	K4041	BattenFit Sensor Switching Output 2 Amps Max IP43	✓		20min Fixed				6m		✓	✓		
	K4042	BattenFit Sensor with Switching Photocell 2 Amps Max IP43	✓		5-35 min*	✓		✓	6m		✓	✓		
	K4043	BattenFit Occupancy Detector with Regulating Photocell DSI IP43	✓		5-35 min*		✓		6m	✓	✓	✓		✓
	K4044	BattenFit Occupancy Detector with Regulating Photocell DALI IP43	✓		5-35 min*		✓		6m	✓	✓	✓		✓
	K4046	BattenFit Sensor Switching Output 2 Amps Max IP65	✓		20min Fixed				6m		✓	✓		
	K4047	BattenFit Sensor with Switching Photocell 2 Amps Max IP65	✓		5-35 min*	✓		✓	6m		✓	✓		
	K4048	BattenFit Occupancy Detector with Regulating Photocell DSI IP65	✓		5-35 min*		✓		6m	✓	✓	✓		✓
	K4049	BattenFit Occupancy Detector with Regulating Photocell DALI IP65	✓		5-35 min*		✓		6m	✓	✓	✓		✓

*From 1min-96hrs via K4050 or K4053

MK MICROWAVE DIGITAL SENSORS

IMAGE	LIST NO.	DESCRIPTION												
	K4025BLU	Ceiling Mounted Microwave Digital Sensor – Flush DSI Blue. 6 Amp		✓	5-60 min		✓	✓	7m	✓	✓	✓	✓	✓
	K4025YEL	Ceiling Mounted Microwave Digital Sensor – Flush DSI Yellow. 6 Amp		✓	5-60 min		✓	✓	7m	✓	✓	✓	✓	✓
	K4025RED	Ceiling Mounted Microwave Digital Sensor – Flush DSI Red.6 Amp		✓	5-60 min		✓	✓	7m	✓	✓	✓	✓	✓
	K4025GRN	Ceiling Mounted Microwave Digital Sensor – Flush DSI Green.6 Amp		✓	5-60 min		✓	✓	7m	✓	✓	✓	✓	✓
	K4032	Corner Mounted Microwave Sensor with Photocell 20m Range – Surface. 10 Amp		✓	0-20 min			✓	20m					
	K4033	Corner Mounted Microwave Sensor with Photocell 20m Range – Semi Flush. 10 Amp		✓	0-20 min			✓	20m					

MK ULTRASONIC SENSORS

IMAGE	LIST NO.	DESCRIPTION												
	K4030	Corner Mounted Ultrasonic Sensor with Photocell – Surface. 10 Amp		✓	5-15 min	✓			6-13m					
	K4031	Corner Mounted Ultrasonic Sensor with Photocell – Semi Flush. 10 Amp		✓	5-15 min	✓			6-13m					

MK LONG RANGE SENSORS

IMAGE	LIST NO.	DESCRIPTION												
	K4035*	Corner Mounted Long Range Sensors 30m Range – Flush Mounted.		✓	0-32 min	✓			30m				✓	
	K4036*	Corner Mounted Long Range Sensors 30m Range – Box Mounted.		✓	0-32 min	✓			30m				✓	
	K4037*	Corner Mounted Long Range Sensors 60m Range – Flush Mounted.		✓	0-32 min	✓			30m				✓	
	K4038*	Corner Mounted Long Range Sensors 60m Range – Box Mounted		✓	0-32 min	✓			30m				✓	
	K4039*	Corner Mounted Long Range Control Unit – Single Circuit.10 Amp												
	K4040*	Corner Mounted Long Range Control Unit – Dual Circuit. 10 Amp												

MK PHOTOCELL

IMAGE	LIST NO.	DESCRIPTION												
	K4045	Universal Photocell – Slimline Flush. 6 Amp For use with DSI and DALI ballasts					✓				✓	✓		✓

MK LONG RANGE CONTROL UNITS

IMAGE	LIST NO.	DESCRIPTION
	K4051	Two Button Hand-held Controller
	K4052	Multifunction Hand-held Controller

MK PROGRAMMERS

IMAGE	LIST NO.	DESCRIPTION
	K4050	Hand-held Programmer
	K4053	Digital Programmer

**For long range detectors a control unit is required, each control unit can control up to 2 detectors*

MK PLASTERBOARD FIXING KIT		
IMAGE	LIST NO.	DESCRIPTION
	K4054	Plasterboard Fixing Kit (for use with with Slimline Flush Sensors)

All MK Sensors are CE marked.

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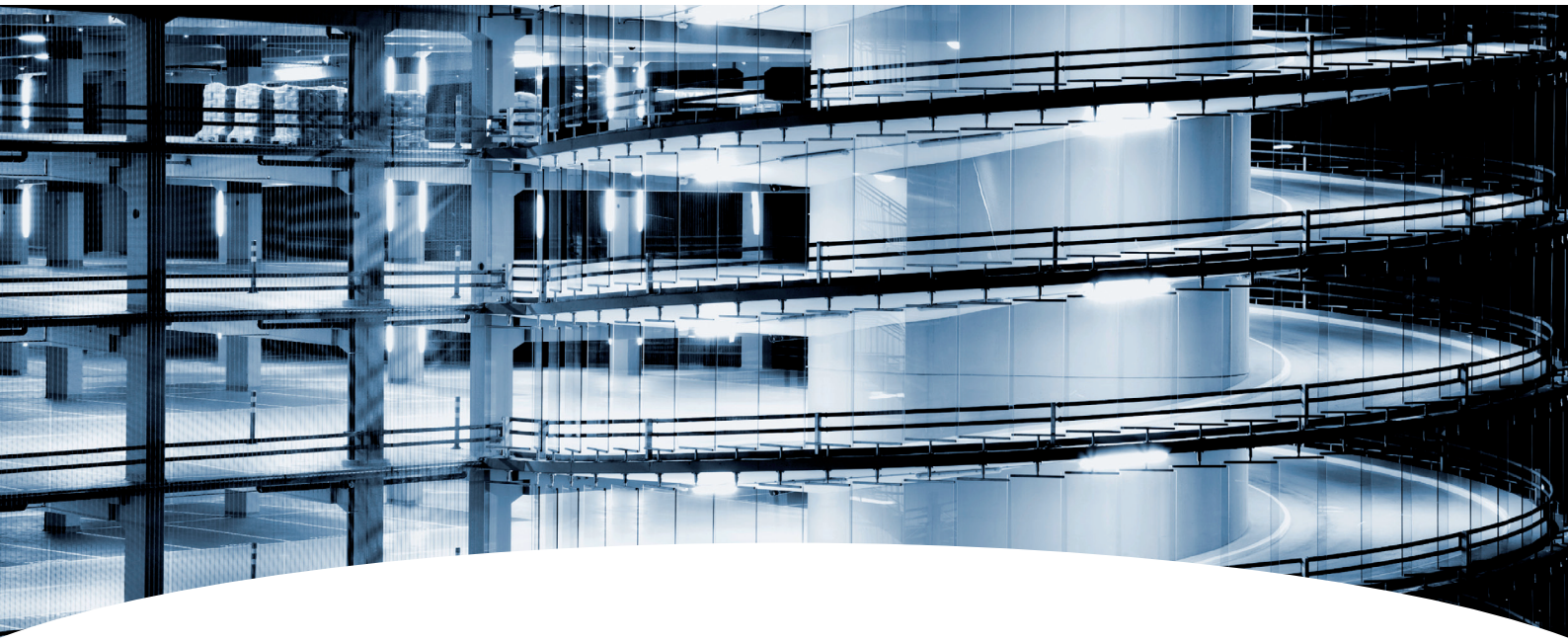
Reference UKMK045-1211a-EN
December 2011

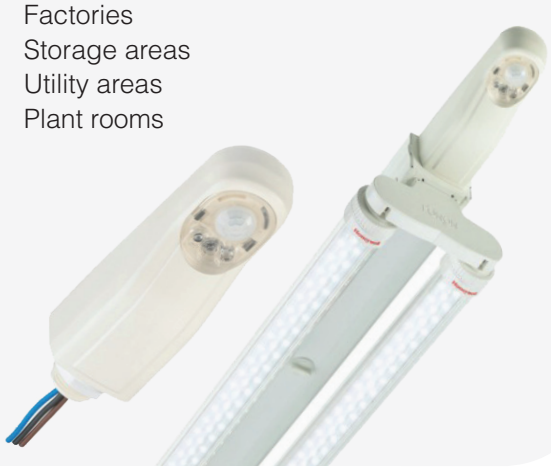
MK Sensors - BattenFit



The BattenFit sensor is a simple-to-fit control solution for batten style luminaires. Using presence detection and photocells, BattenFit sensors can deliver energy savings of up to 80%*

The range comprises of variants with or without photocells and options for controlling DSI and DALI ballasts.

- BattenFit device (K4041) automatically switches the light on when someone enters an area, and switches the light off again after a fixed period when the area is vacated.
- A Photocell additionally monitors levels of natural light to further eliminate unnecessary use of energy.
- More sophisticated BattenFit variants (K4042, K4043 & K4044) with photocell, have adjustable delay from 1 minute to 96 hours.
- Passive photocell holds lights off in bright ambient conditions. Active photocell can switch lights off in occupied areas (K4042).
- DSI and DALI-compatible BattenFit detectors are capable of maintaining constant light levels by adjusting a luminaire's output in concert with available natural light and adjacent lumiaires (K4043 and K4044).
- BattenFit sensors are ideal for customers requiring a simple and cost effective energy saving solution for existing or new installations.
- Suitable for controlling Honeywell LED Utility Lighting.
- Ideally suited for use in;
  - Warehousing / Distribution
  - Industrial units
  - Factories
  - Storage areas
  - Utility areas
  - Plant rooms



** Typical energy savings through occupancy sensors installed in storage areas. Source: E Source, Energy Business Intelligence*

Sensors - BattenFit

- Advanced presence detection by passive infrared (PIR) technology
- Active presence detection by Ultrasonic or microwave technology
- Off delay in minutes following the last observed movement after which lights switch off from 1 to 96 hours with K4053
- Passive photocell holds lights off when area becomes occupied in bright ambient conditions
- Regulating photocell adjusts luminaire output to maintain constant light levels
- Active photocell switches lights on and off according to ambient conditions
- Detection pattern and range in meters under normal operating conditions and at mounting height (2.5m)
- One Switch Dimming. Manual input to adjust light level or turn luminaires on or off
- Hand-held Controllers provide local user override
- Infrared programming enables easy commissioning and re-commissioning
- Dual circuit option (switching or switching and dimming) available
- Scene setting – lights switch on to a pre-programmed scene when area becomes occupied

PRODUCT SELECTOR

IMAGE	LIST NO.	DESCRIPTION										
	K4041	BattenFit Sensor Switching Output 2 Amps Max IP4X	✓		Fixed				6m			✓	
	K4042	BattenFit Sensor with Switching Photocell 2 Amps Max IP4X	✓		1min-96hrs	✓		✓	6m		✓	✓	
	K4043	Batten Fit Occupancy Detector with Regulating Photocell DSI IP4X	✓		1min-96hrs		✓		6m	✓	✓	✓	✓
	K4044	Batten Fit Occupancy Detector with Regulating Photocell DALI IP4X	✓		1min-96hrs		✓		6m	✓	✓	✓	✓

Product warranty 2 years

MK LONG RANGE CONTROL UNITS

Hand-held Controllers give temporary on or off override, light level adjustment and scene setting to the buildings occupant (K4051 & K4052)

IMAGE	LIST NO.	DESCRIPTION
	K4051	Two Button Hand-held Controller provides local user to turn lights on or off and adjust the light level.
	K4052	Multifunction Hand-held Controller has the additional feature of allowing the user to select anyone of six preset scenes.

MK PROGRAMMERS

Independent time delays and photocell adjustments can be programmed with virtually no disturbance to the buildings occupants, using on infrared programming tool (K5053 or K4050)

IMAGE	LIST NO.	DESCRIPTION
	K4050	An easy-to-use basic programmer to set time delay function and select semi or fully automatic operation
	K4053	Commission or re-commission with no disturbance to occupants. Settings are chosen from a menu and transferred instantaneously to the sensor, using an upload feature. Save time by transferring settings from one sensor to another.

TECHNICAL DATA

MOUNTING HEIGHT:	5.0m max
RANGE:	Cone-shaped detection pattern. Detection diameter (at floor level) = approx 6m at typical mounting height of 2.5m. Diameter of detection pattern is approx 2.25 x mounting height.

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Reference MK290-0712Aen
July 2012

MK LED Dimmer

NEW LED Dimmer from MK Electric offers the widest lamp compatibility for a reliable dimming solution and allows the user to create ambience for comfortable surroundings.

Product Specifications

- MK Electric is the first leading manufacturer to offer a LED dimming solution across its wiring devices range
- Available as a single or double dimmer, in MK Logic Plus and MK Grid Plus*
- MK Logic Plus product is rated 4 – 70W (300W/240VA)
- MK Grid Plus product is rated 4 – 70W (220W/180VA)
- Compatible with tungsten filament, low voltage halogen and **dimmable LED lamps**
- Greater user control, with a minimum load adjustment control on dimmer switch
- Maximum 10 lamps per circuit
- Intelligent load protection will prevent lamp wattage exceeding rating of dimmer

A perfect match

The MK LED Dimmer has been tested with leading lamp manufacturers and is compatible with tungsten filament, low voltage halogen and a wide range of dimmable LED lamps.

Reduce energy costs

LED lighting technology delivers enhanced lamp endurance and energy savings. Dimmable LED lamps can increase energy savings, allowing you to reduce energy costs further.

Achieve a consistent look

The MK LED Dimmer is available in a wide range of decorative finishes to compliment interior design styles. Matching wiring devices including sockets and switches are available to ensure a consistent look and feel.

Decorative LED Dimmer Finish Selector

Lacquered Brushed Steel (LBS)	Brushed Stainless Steel (BSS)	Brushed Chrome (BRC)	Textured Iron (TIR)	Textured Copper (TCO)	Desert Bronze (DBZ)	Antique Brass (ABS)
Polished Chrome (POC)	Silver Anodised Aluminium (SAA)	Polished Brass (PBR)	Satin Gold (SAG)	Lustrous Black (LBK)	Lustrous Ivory (LIV)	Porcelain White (WHI)

*Grid Plus range is available in 14 colour options, with black or white inserts. The Module is designed to be used with MK Electric's decorative range of Aspect, Edge, Albany Plus cover plates.

Part Number	Description
Logic Plus Range	
K1523WHILV	1 Gang 2 Way 40-300W/240VA/4-70W LED Single Intelligent Dimmer
K1524WHILV	1 Gang 2 Way 40-300W/240VA/4-70W LED Double Intelligent Dimmer
Decorative Edge, Aspect and Albany Plus Range	
K4511WHILV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Plastic cap - White Trim
K4511BLKLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Plastic cap - Black Trim
K4511BSSBLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Brushed Stainless Steel, Black Trim
K4511BSSWLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Brushed Stainless Steel, White Trim
K4511LBSWLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Lacquered Brushed Steel, White Trim
K4511LBSBLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Lacquered Brushed Steel, Black Trim
K4511SAAWLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Silver Anodised Aluminium, White Trim
K4511SAABLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Silver Anodised Aluminium, Black Trim
K4511BRCWLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Brushed Chrome - White Trim
K4511BRCBLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Brushed Chrome - Black Trim
K4511POCWLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Polished Chrome - White Trim
K4511POCBLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Polished Chrome - Black Trim
K4511SAGWLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Satin Gold - White Trim
K4511SAGBLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Satin Gold - Black Trim
K4511WHIWLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Porcelain White - White Trim
K4511LIVWLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Lustrous Ivory, White Trim
K4511LBKBLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Lustrous Black, Black Trim
K4511PBRWLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Polished Brass, White Trim
K4511PBRBLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Polished Brass, Black Trim
K4511TIRBLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Textured Iron, Black Trim
K4511DBZBLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Textured Desert Bronze, Black Trim
K4511ABSBLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Antique Brass, Black Trim
K4511TCOBLV	1 Module 2 Way 40-220W/180VA/4-70W LED Dimmer inc. - Metal cap - Textured Copper, Black Trim

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Reference UKMK359-0213-EN
February 2013

by Honeywell

Energy Efficient Product Guide

Energy Efficient Product Guide

Awareness of environmental issues and the need to reduce carb considerably in recent years. With various government targets in mind, a around energy consumption, the environment and sustainability, it is now alike understand how they can have an effect on the efficiency and environm

With buildings contributing 47 per cent of the UK's total carbon emissions, the government has set a goal to cut carbon emissions by 20% from 1990 levels by 2010, exceeding the 12.5% reduction outlined in the Kyoto Protocol.

The Kyoto Protocol is the first international treaty to set legally binding emission reduction targets on developed countries. Targets will reduce an overall emissions basket of six greenhouse gases. The European Union and its member states agreed to meet a joint target of an 8% reduction. This arrangement allows the EU's target to be redistributed between member states to reflect their national circumstances and requirements for economic growth.

The UK Government made a commitment to the European Union's Energy Performance of Buildings Directive. This Directive sets out objectives to promote the introduction of cost effective measures, including renewable energy systems, to improve the energy performance of new and existing buildings, in which it recognises that the largest potential energy savings lies with existing building stock. The directive saw the introduction of Energy Performance Certificates in all buildings, which started with the sales of homes back in June 2007.

on dioxide emissions has increased

nd the ever-growing issues and concerns

essential that Specifiers and Contractors

ental impact of buildings.

In April 2006 Part L of the Building Regulations for England and Wales, Conservation of Fuel and Power, was revised and reissued to ensure compliance with the legal obligations set out in the European Union Energy Performance of Buildings Directive.

The Climate Change Bill – the first of its kind in any country – and accompanying strategy, set out a framework for moving the UK to a low-carbon economy. It demonstrates the UK's leadership as progress continues towards establishing a post-Kyoto global emissions agreement.

Key points of the bill include:

- A series of clear targets for reducing carbon dioxide emissions – including making the UK's targets for an 80% reduction by 2050 and a 26% to 32% reduction by 2020 legally binding
- A new system of legally binding five year "carbon budgets", set at least 15 years ahead
- A new statutory body, the Committee on Climate Change, to provide independent expert advice and guidance to Government
- New powers to enable the Government to more easily implement policies to cut emissions
- A new system of annual open and transparent reporting to Parliament by the Committee on Climate Change
- A requirement for Government to report at least every five years on current and predicted impacts of climate change

The Climate Change Bill paved the way for the 2007 Energy White Paper and the introduction of the Climate Change Commitment (CRC).

The CRC will be a mandatory emissions trading scheme, targeting emissions from organisations not currently included in the EU ETS or Climate Change Agreements.

It is estimated that up to 5,000 larger organisations in the UK will be included, for example, supermarket chains, hotel chains, office based corporations, government departments, large local authorities, and schools etc.

Energy Efficient Product Guide

As well as events within the political arena, practical issues, and consumer concerns are also affecting the view points and requirements of those who design, construct, purchase, accommodate or use buildings within the UK. These issues include, but are not exclusive to:

The Energy Gap

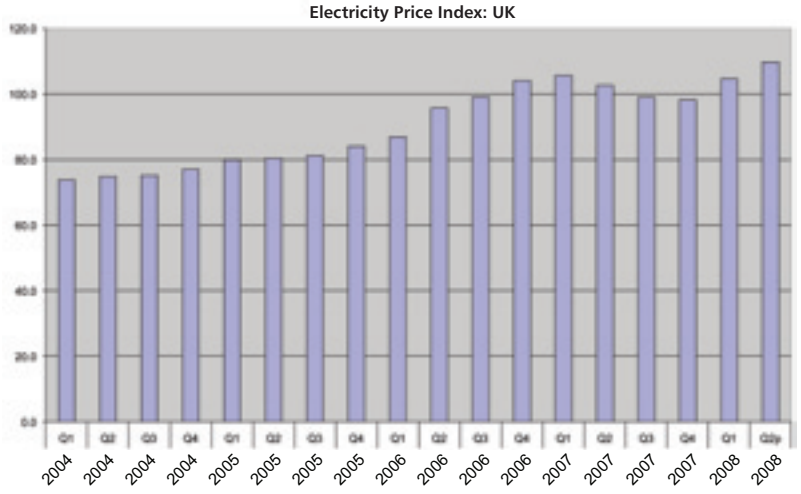
There are various schools of thought as to when the Energy Gap may occur, what impact it will have on our day-to-day lives, and how to address it. The Energy Gap has been broadly debated by various groups including government departments, scholars, environmentalists etc. and covers four key areas:

- UK Consumption, production and security of supply
- Meeting carbon dioxide reduction targets
- Loss of existing sources of energy
- Uncertainty about new sources of energy

An attempt to quantify the exact gap is difficult as the energy shortfall is reliant on variable factors such as the weather, demand, efficiency, future security and the prices on world markets.

Spiralling Energy Costs

The Electricity Retail Price Index has shown a steady increase from January 2004 through to January 2006. However, from January 2006 there has been a marked step change, and the trend clearly shows prices increasing at a greater rate. There are direct cost implications for consumers in the way of more expensive bills, and consumers are also feeling the effect as higher energy costs are passed down to customers by manufacturers, retailers and other service providers. We could also see wider, longer-term implications to economic growth for businesses such as manufacturing.



In conclusion, it is clear, Government and Social focus highlights the need to reduce energy consumption and to continue developing methods of producing energy which have a less harmful effect on our environment.

Energy Efficient Product Guide

The Department of Energy and Climate Change (DECC) was created in October 2008, bringing together energy policy (previously with BERR – the Department for business, Enterprise and Regulatory Reform) with climate change mitigation policy (previously with Defra – the department for Environment, Food and Rural Affairs).

The Building Regulations in England and Wales are the responsibility of the Department for Communities and Local Government (DCLG). The DCLG implement and enforce all Building Regulations and, as the regulations are an Act of Parliament, failure to comply, be it a company or an individual carrying out the work, is a criminal offence and could lead to prosecution.

The Energy Performance of Buildings Directive was recast in November 2008 and will be enforced in the UK through amendments to Part L of the Building Regulations in 2010, 2013 and 2016.

"Tackling climate change is one of the biggest long-term challenges we face. That is why on this occasion we need the building industry to comply with the new regulations much more rapidly than normal. These new regulations, combined with those in 2002, deliver a 40% increase in energy efficiency standards in just four years, and cut householders' fuel bills too."

Press Release, ODPM, 22nd February 2006, Yvette Cooper, Housing and Planning Minister

Part L is only concerned with England and Wales, and is a legislative response to the environmental impact of power consumption, and the lack of progress towards the UK's 2010 carbon dioxide emissions target. If you or your company carries out work in England and Wales you will need to have knowledge of Part L and be competent enough to ensure your work complies with the requirements.

Part L identifies three key areas which can have a dramatic impact on power consumption and carbon dioxide emissions:

- Limiting heat gains and losses through thermal elements and other parts of the building fabric and from pipes, ducts, and vessels used for space heating, space cooling and hot water services
- Providing and commissioning energy efficient fixed building services with effective controls
- Providing to the owner sufficient information about the building, the fixed building services and their maintenance requirements so that the building can be operated in such a manner as to use no more fuel and power than is reasonable in the circumstances

The European Union Energy Performance of Buildings Directive specifically identifies the need to look at the potential for energy savings in existing buildings. In addition there are clearly different routes to energy savings within dwellings and non-dwellings. As such Part L is split into four areas:

- L1A – Conservation of fuel and power in new dwellings
- L1B – Conservation of fuel and power in existing dwellings
- L2A – Conservation of fuel and power in new buildings other than dwellings
- L2B – Conservation of fuel and power in existing buildings other than dwellings

Although the requirements are common, the guidance provided in Approved Document L differs for each section.

Scotland & Northern Ireland & Republic of Ireland

Although Part L only covers England and Wales, on this occasion the key issues addressed by the legislation are clearly still concerns for those in other parts of the United Kingdom. Energy conservation and reducing harmful emissions is just as topical in Scotland and Northern Ireland. As well as addressing environmental issues, the economic benefits of a more energy efficient building can be a huge draw to building owners and managers.
This has been addressed by the Building Standards and Regulations in Scotland by - Section 6.
Northern Ireland - Part F
Republic of Ireland – Part L

Energy Efficient Product Guide

MK Electric's lighting management systems detect energy savings

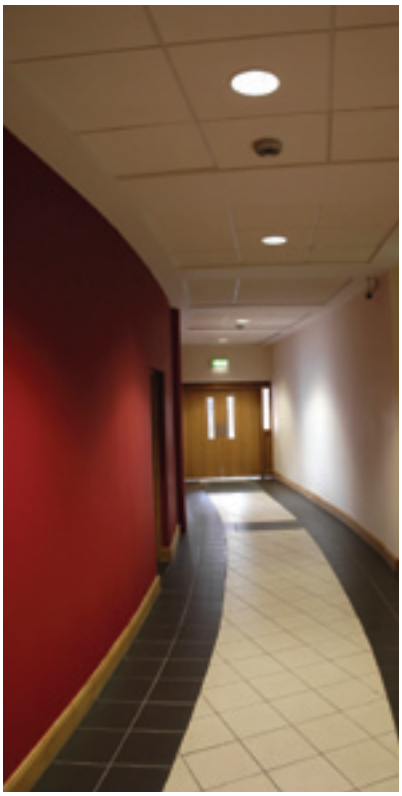
MK Electric, the UK's leading manufacturer of wiring devices and accessories, has introduced a comprehensive range of innovative lighting controls – MK Sensors – designed to deliver energy savings and lighting usage management in a wide range of commercial applications. Lighting represents, on average, up to 40% of a building's total energy consumption; and also the largest opportunity for energy savings.

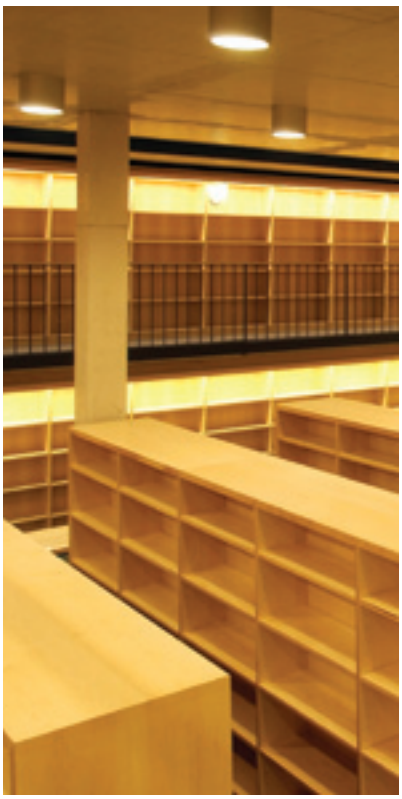
MK Sensors not only help realise the highest potential savings in energy consumption, and thus to energy bills; but also offer the shortest payback periods when compared to means such as diffuser replacement and lamp type changes.

The MK Sensor range deploys three main types of sensor technology – namely PIR, Microwave and Ultrasonic – in a variety of devices configured for ceiling or corner mounting; as well as long range detection.
All products in the MK Sensors range have a built-in photocell, providing occupancy and light level detection. The range is also complemented by a host of accessories and ancillaries – such as programmers and controllers – which combine to make the collection easy to install, easy to understand and easy to use.

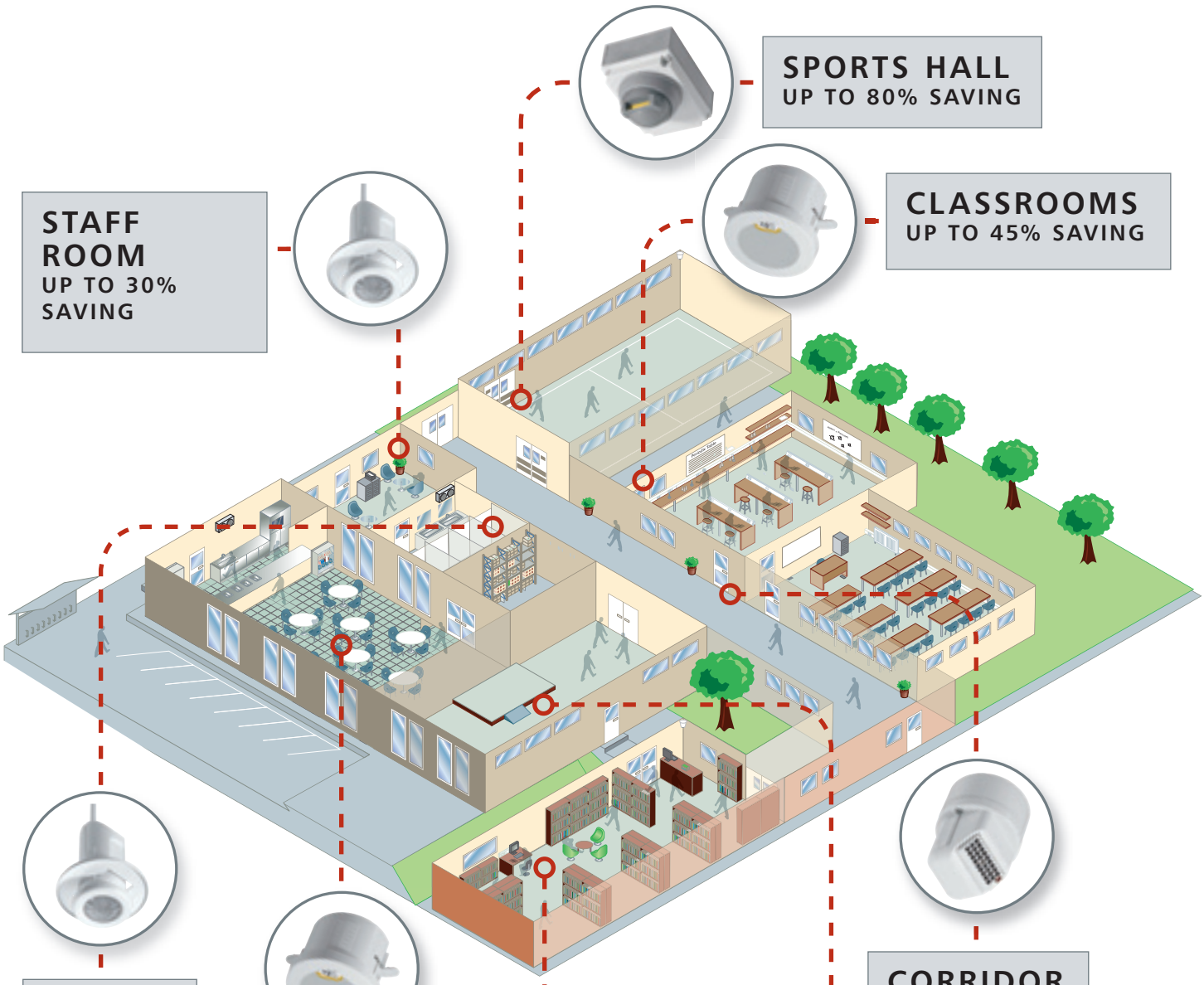
Awareness of environmental issues and the need to reduce carbon dioxide emissions has increased considerably in recent years. With various government targets in mind, and the ever-growing issues and concerns around energy consumption, the environment and sustainability; it is now essential that contractors, specifiers and building managers alike appreciate the effect lighting sensors can have on the efficiency and environmental impact of buildings.

Ceiling mounted sensors comprise a choice of Standard PIR, Superior PIR and Microwave Detectors.





Typical product specification in an educational environment



Energy saving products

In addition to the new range of MK Sensors, there are a number of other products from MK and Friedland which can help save energy, or offer you and your customers a more conscientious product choice.

In public areas, limiting access to power and controls can not only avoid unnecessary lighting or power consumption via unused appliances, but can also avoid abuse of power via unregulated use.

Energy saving products

SIMPLE FIT PIR WITH PHOTOCELL

MK SENSORS SUPERIOR PIR

MK Sensors are designed to deliver energy savings and lighting usage management in a wide range of commercial applications. Lighting represents, on average, up to 40% of a building's total energy consumption; and also the largest opportunity for energy savings.

The MK Sensor range deploys three main types of sensor technology – namely PIR, Microwave and Ultrasonic – in a variety of devices configured for ceiling or corner mounting; as well as long range detection.

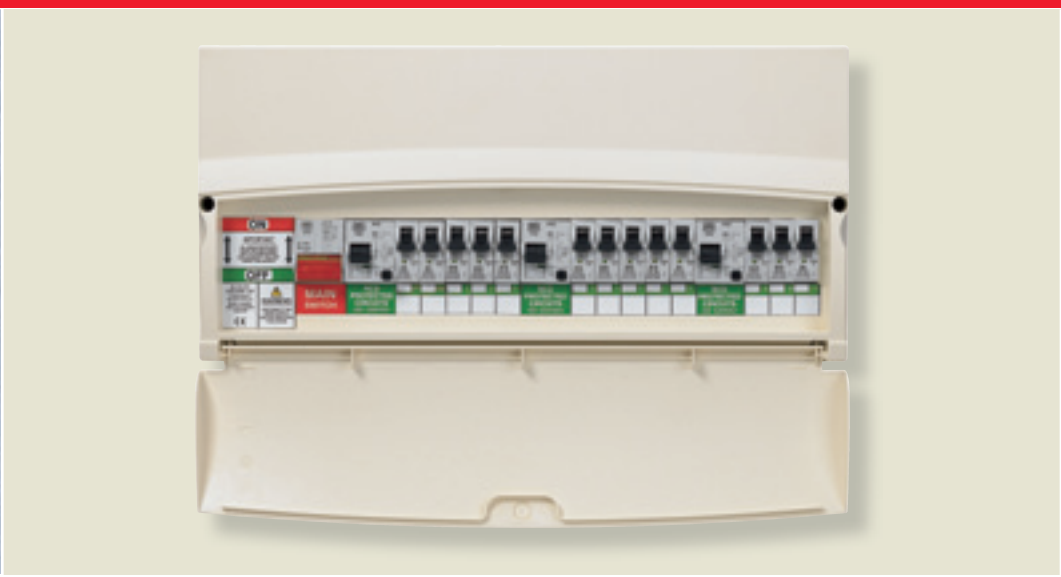
All products in the MK Sensors range* have a built-in photocell, providing occupancy and light level detection. The range is also complemented by a host of accessories and ancillaries – such as programmers and controllers – which combine to make the collection easy to install, easy to understand and easy to use.

For a full range of products please see MK Sensors brochure or alternatively visit our website **www.mkelectric.co.uk**

*Excludes long range detectors

Energy saving products

MK TIME DELAY SWITCH



MK SENTRY CONSUMER UNIT

For areas which are passed through, or only visited for a short period of time, a Time Delay Switch may provide the best solution. The Time Delay Switch avoids lights being left on once no longer required or when the person using the space forgets to turn the lights off. The Time Delay Switch is particularly suitable for applications where entry and exit to an area are at different points. Used in conjunction with MK Logic Plus momentary switches, additional control positions can be utilised for lighting adjustment over the same time period.

To gain further control over the accessibility of lighting controls, the MK Sentry range features a selection of Timer Switches. Available as 7 day, 24 hour or combined variants, the Timer Switch can control the entire circuit. For small commercial applications such as retail outlets the entire lighting circuit could be turned off during night time hours. Digital One and Two Channel variants are also available, giving further programming flexibility, including 'Holiday Programming' for domestic applications.

MK ENERGY
SAVING CARD SWITCH

MK ECHO SWITCH TRANSMITTER

MK EDGE LOCKABLE SOCKET

MK's Energy Saving Switches, often used in hotels, student accommodation and other residential applications, gives control of lighting and other appliances to the user of the space, only when they are present. The Energy Saving Switch is a simple and effective way of avoiding abuse or inadvertent use of energy, and may increase safety by preventing appliances being left on in unoccupied rooms. By removing the Card or Keytag the power is switched off, eliminating the need to switch off each individual light or appliance. A neon locator on the unit makes it easy to locate when entering a dark room.

If you are specifying or installing products in hotels, or other accommodation, the K808 WHI and K818 WHI Clearshave Plus feature a low energy 11 Watt compact fluorescent lamp (CFL), typically saving up to 70% energy costs when compared to a similar 60 Watt GLS lamp. As well as offering a more energy conscious choice to your customer in terms of energy consumption, they will also benefit from the related cost savings in their energy bill. In addition, the CFL lamp has a longer life of 8,000 hours, eight times more than the 1,000 hours of its GLS equivalent, reducing the number of times a replacement is required, and the associated maintenance hours and cost.

If you only wish to control access to socket outlets, Edge Lockable Sockets could be installed. Particularly useful in public areas, such as hotel lobbies, where access to socket outlets should be limited to staff or contractors, the key can be removed whilst in both the 'On' and 'Off' position leaving the socket with or without power. The Lockable Socket can easily be installed as a replacement for a standard 2 Gang socket.

Energy saving products

MK MASTERSEAL SOCKET WITH ELECTRONIC TIMER MODULE

MK MASTERSEAL PHOTO ELECTRIC SWITCH

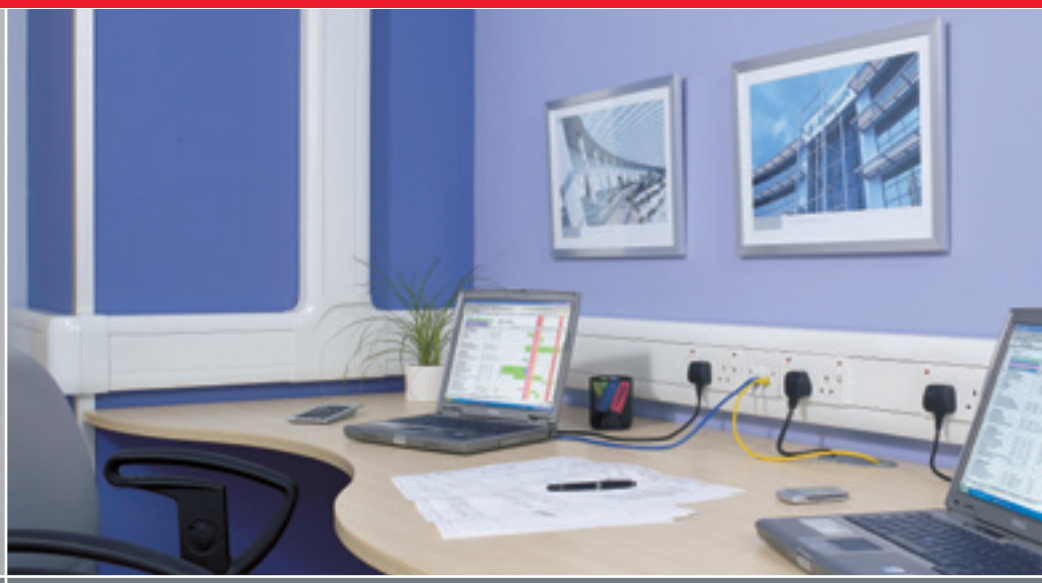
MK MASTERSEAL LOCKABLE SOCKET

MK's Masterseal range of wiring accessories has been specifically designed for use outdoors and in areas heavily exposed to dust and splashing water. The Masterseal range features a Socket with an Electronic Timer Module for use in a variety of installations in small commercial and domestic situations. This could provide additional control to outdoor lighting, water features pond pumps.

The Masterseal Photo Electric Switch will automatically switch On at Dusk and Off at Dawn. The Photo Electric Switch features an additional time delay which can be set to switch Off before Dawn after a desired period of time. This could be particularly useful for outdoor lighting, which may be required to be on when it gets dark, but does not need to be on all night.

Echo™ is an innovative range of entirely wireless, batteryless and self powered switches, only available from MK Electric. Echo™ aids compliance to the Building Regulations, such as Part L by providing localised control of lighting, integration with lighting management systems and other networks covering areas like heating and air conditioning.

MK LOW ENERGY PENDANT



MK PRESTIGE 3D

In most instances the emphasis is on giving control to the owner of the space or appliance. We are all consumers of energy during our day–to–day lives, and just remembering to switch off sockets when an appliance is not in use could save a substantial amount of energy. Installing socket outlets which have neon indicators will provide a visual reminder that a socket is switched on. Sockets with neon indicators are available in all MK ranges, on both products with internal and external rockers.

MK Cable Management – the conscientious choice

MK's long term policy of sourcing 100% recycled uPVC for the extruded lengths means that systems such as Prestige 3D offer the most recycled content of any comparable system. Across the entire range, extrusions and mouldings, the recycled content of MK Cable Management systems is in excess of 90%. The use of recycled uPVC, which is made from waste, off-cuts and bar lengths collected from fabricators in the window industry, supports MK's commitment to sustainability in two ways; it diverts over 12,000 tonnes of material destined for landfill and prevents the equivalent tonnage of new virgin product being produced with the associated savings in energy, providing a significant reduction in carbon emissions.

For all products mentioned in this brochure please visit the MK website **www.mkelectric.co.uk**
For the complete MK range, Wiring Devices, Circuit Protection and Cable Management, please refer to the MK Catalogue available via the website.

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Registered Office: Honeywell House Arlington Business Park Bracknell Berkshire RG12 1EB Registered No. 189291 Ref MK009-0609Ben

astral™

HOME CONTROL & CONVENIENCE AT A TOUCH

MK by Honeywell

MK astral™ offers a simple to install, cost-effective, reliable and flexible wireless control system that uses the very latest in automated home technology and which delivers ultimate control from within the home or remotely.

Reliable. Thanks in part to the robust, wireless MESH-based Z-Wave protocol, no additional wiring is required and thus MK astral™ is ideally suited for retrofit projects.

Flexible. MK astral™ can provide automation for your lighting and blinds, and components simply form a high-speed network over which wireless communication paths are established, allowing you to conveniently control any light from any point within the home, without wiring them together.

Expandable. MK astral™ can also be integrated as part of a larger home automation system, that controls many other aspects of the home including heating, security and home entertainment.

Simple. For the ultimate experience MK astral™ leverages the simplicity and intuitiveness of the Apple® iPad, iPod touch and iPhone. Control your MK astral™ system with the free MK astral™ App, and choose from 3 stylish interface options. Should you prefer it, a standard remote control is also available.

astral™

HOME CONTROL & CONVENIENCE AT A TOUCH

reliable. fle

the ultimate in au

xible. expandable. simple.

tomated home technology is in your hands.

Enjoy the ultimate interactive control experience.

astral™ makes your day

Close the living room blinds.

Automate the lighting.

Do it all remotely.

MK astral™ in blinds and shutters mode

astral™

HOME CONTROL & CONVENIENCE AT A TOUCH

A lazy, relaxed weekend can be just that...time to sit back and indulge in all that MK astral™ can offer – making best use of the latest developments in technology to automate everyday tasks, enhance your lifestyle, and control your home's energy consumption all at the same time.

So relax, enjoy some quality time after a hectic week and indulge in the ultimate interactive home automation experience.

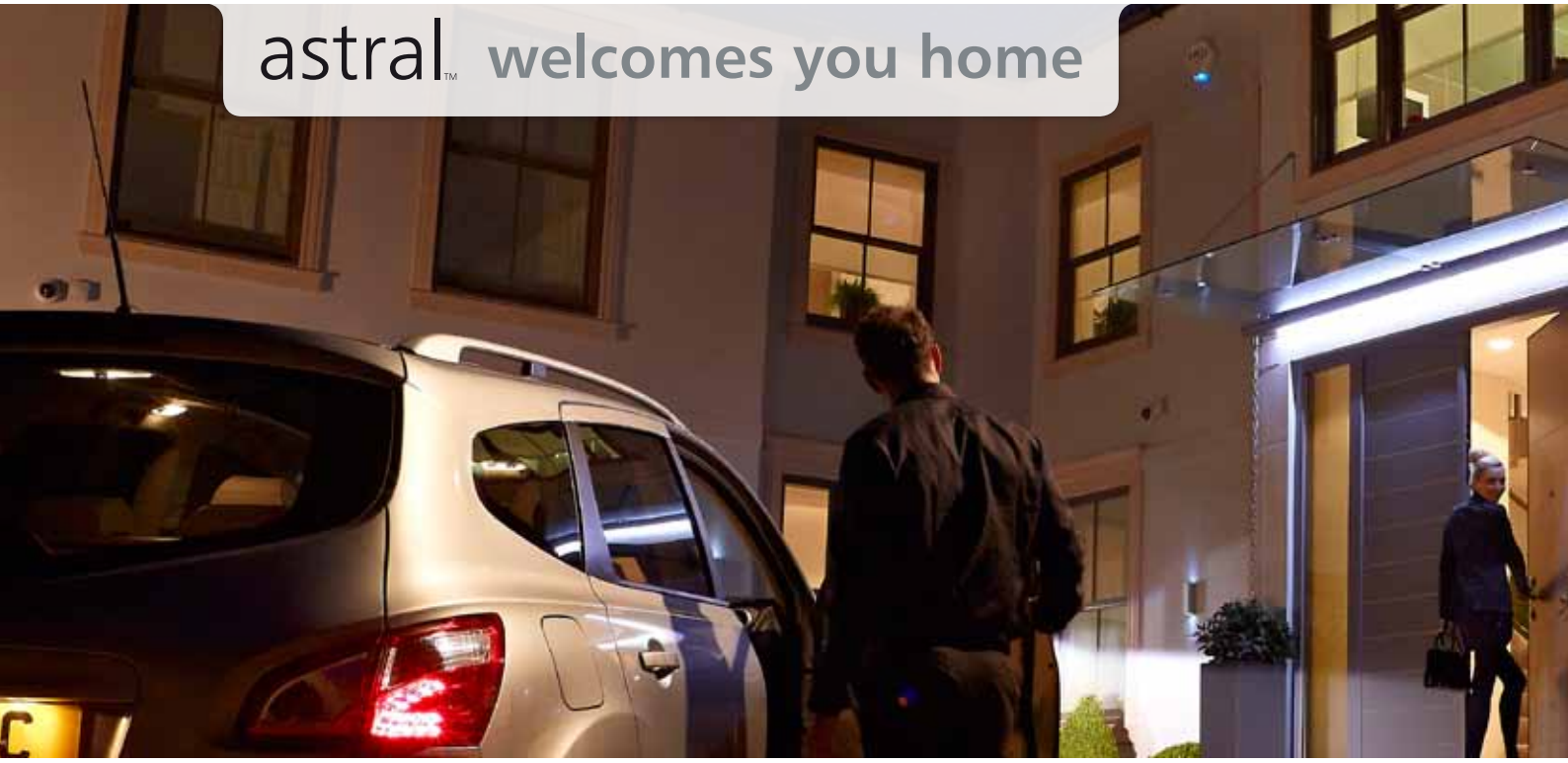
Control blinds, curtains and shutters to keep out the light, or create the perfect lighting scenarios via Scene and Group controls, using dramatically differing effects to create the environment you need.

All MK astral™ devices are both transmitters and receivers and will display positive, visual indication that the instructions have been received at all target devices through the unique 2-way communications feature.

This gives peace of mind that the instructions you send have been relayed and acted upon, whether you're in another room, or at the other side of the world.

If you are still on your way home, dim the security lights and raise the blinds from the comfort of the airport lounge, train or taxi using the remote activation features of MK astral™ on the iPad, iPod touch and iPhone.

astral™ welcomes you home



Activate the exterior lighting.

Turn the hallway lights on.

Dim the lounge lighting.

From a small dimmed lamp to a television on standby mode in a remote part of the building, MK astral™ can turn every device off at a single touch. This saves power, time and reduces your carbon footprint with each intelligent touch.

MK astral™ in scene lighting mode

astral™

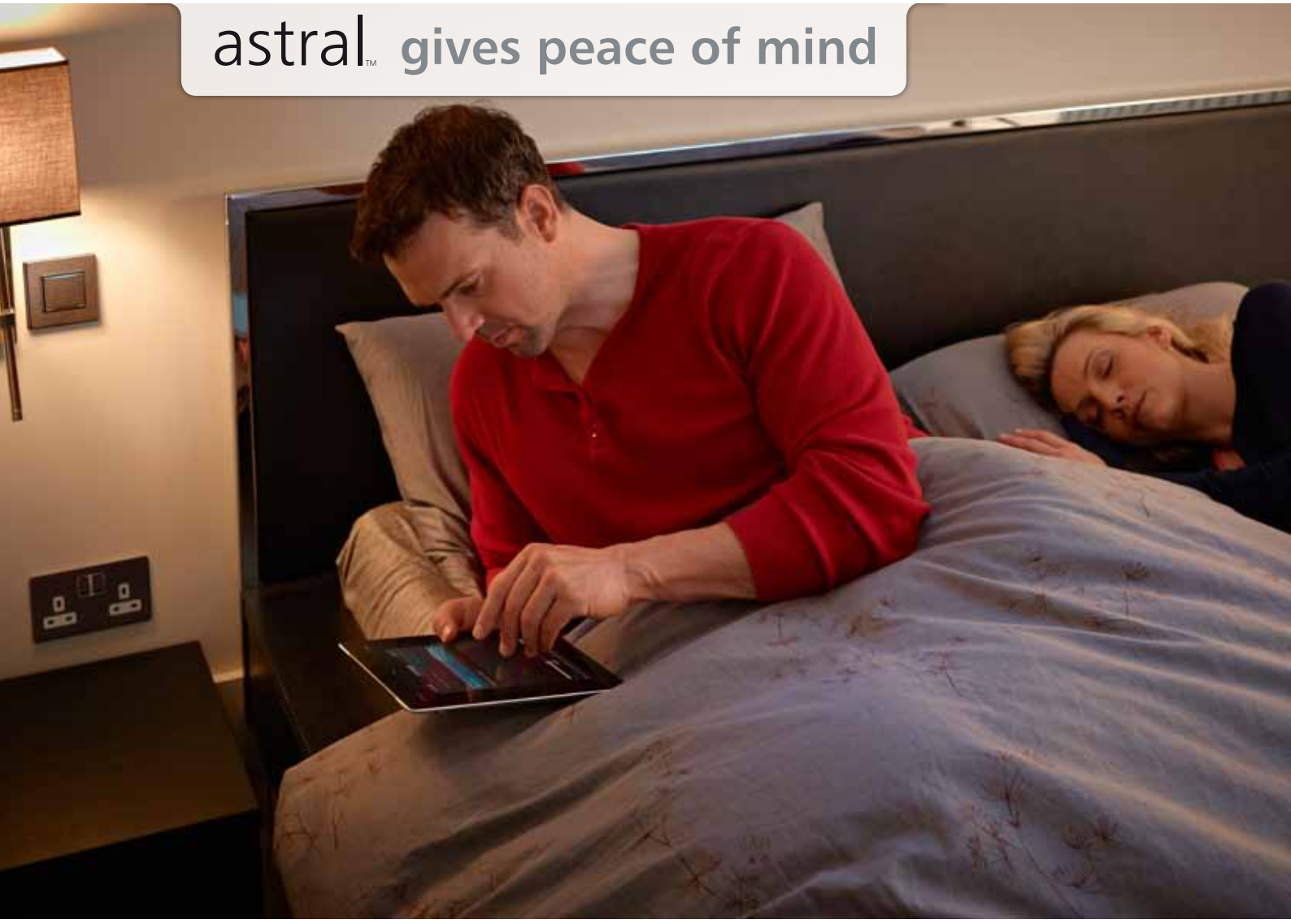
HOME CONTROL & CONVENIENCE AT A TOUCH

On your way home? For your convenience, MK astral™ gives a reassuring welcome even before you get inside your home.

- Illuminate the exterior lights before you enter the driveway
- Switch on the hall lighting before you unlock the front door
- Select the perfect lighting scenario to create just the right mood

With everyone settled, switch off the exterior and hall lighting from the comfort of your chair – the flexibility that MK astral™ affords gives you more time to enjoy those precious 'relax' moments.

astral™ gives peace of mind



MK astral™ in security lighting mode

...at home &

astral™
HOME CONTROL & CONVENIENCE AT A TOUCH

At the end of the day, you want to know that your property is as secure as it can be – occupied or empty. Whether home or away, MK astral™ will help keep your property safe. Activate security lighting and enable individual room lights to switch on and off in a realistic sequence when you are away from home, so your property won't draw unwelcome attention.

- Activate security lights as you retire for the night
- Dim the landing and hallway lights
- Simulate occupancy by repeating your last 24 hours of lighting activity via the MK astral™ Holiday Mode

Switch on the security lights.

Dim the landing lighting.

Simulate occupancy.

MK astral™ in Holiday Mode
(occupancy simulation)

astral™ case study - tudor court

A 4 bedroom and 2 bathroom Southampton family home underwent an extensive build and renovation project, expanding the total living space to 17,000 square feet. The refurbishment expanded it to 11 bedrooms over four floors, as well as five large living rooms, a cinema, games room, gym and indoor pool.

An extension of this size presents a wiring and energy saving conundrum. MK astral™ was the perfect solution and as a result, the project has become the largest MK astral™ installation in the UK to date.

The flexibility of the system enabled the contractor to work with the family and build the system room by room, with the ability to add or remove switches and dimmers as the project progressed. Given the size of the property, the main challenge was ensuring that the Z-Wave signal – used to communicate between the switches – could be transmitted across the whole house.

With every switch and dimmer being a transceiver, the communication between devices was no issue, and detailed checks at each stage confirmed this.

astral™

HOME CONTROL & CONVENIENCE AT A TOUCH

The ease of installation and ease of control were the key elements for this project, along with energy savings. MK astral™ runs on conventional wiring so electricians do not need to learn new skills to install the system. Programming and on-going management of the system are also easy; with a simple remote control the homeowner can easily change lighting groups and scenes. There was no need for extensive chasing of walls for specialized cabling or a need for in-wall touchscreens as with MK astral™, everything can be wirelessly controlled.

The selling point for the customer is often the ease of control, but the biggest benefits of MK astral™ are actually energy savings and lower electricity bills. By being able to control whole areas of the house with one switch and by using timers to ensure lights are automatically turned off when appropriate, the savings can be much higher than expected.

When a full Home Automation system such as Dianemo® is integrated with MK astral™ advanced lighting and blind controls, it results in a cost effective, future proof, flexible home automation system that can be integrated into any internal or external space, along with a host of other products and services.

Uniquely designed with the forward-thinking electrical contractor in mind, Dianemo® provides a single, 'off the shelf' solution which readily integrates with a wide variety of devices and systems from different manufacturers. As a result, contractors do not need any specialised knowledge or formal training to install a complete home automation system.

For example, Dianemo® works seamlessly with a wide range of communication protocols such as IP, Z-Wave, RS232, RS485, infra-red, DLNA, EnOcean and Wi-Fi based networks, to name just a few. The best thing about this? You'll be controlling your smart home from a single software interface, via an App on your smartphone, tablet, laptop, touchscreen or even television.

Designed to easily accommodate new technologies as they develop, Dianemo® and MK astral™ are capable of integrating existing equipment to ensure the user gets the very best from what they already have.

astral™

and

DIANEMO

easy installa

a complete hom

Technology now allows the home owner to have far more control over the space that people live and work in. Surroundings can be more comfortable with MK astral™ advanced lighting and blind controls, which react to what is happening and how you wish to use the space.

Affordable security systems bringing high quality CCTV solutions into the home or office, integrated music storage, cutting-edge Home Theatres, high speed wireless networks linked to laptops, smartphones and iPads are all now an everyday feature of people's lives.

The challenge is to make sure that the system that is in place to control all of these devices is easy to install, set up and use, fully controllable from any location and flexible enough to ensure that the system can maintain its integrity whatever the future may throw at it.

For a full demonstration of how Dianemo® and MK astral™ work together, please contact MK Electric.

tion. cost effective. future proof.

e automation system that grows with you.

astral™ and DIANEMO

The Dianemo® system allows easy to use control of even the most sophisticated home entertainment equipment

- Multi-channel TV record/view/listen (up to 72 TV channels and all radio channels) on FreeView or FreeSat
- Integrated DVD and music storage with all online music sources and multi-site output around the property
- Photo and video storage and replay through any TV or computer screen; every screen in the Dianemo® system becomes a digital photo frame!
- Remote control of multiple TV and Radio recording devices (Sky Plus and TIVO)

Security control is fully integrated into the Dianemo® system

- Remote control of internal and external security CCTV and Alarms; watch CCTV output remotely over the Internet
- Motion sensor capability with security alerts broadcast to your mobile phone or networked PC device, anywhere in the world
- Complex security solutions can now be placed at the heart of the property control system. Control Alarm settings remotely

Security Control Screen

Products that speak Z-Wave®
work together better

Control the room environment from wherever you are

- Smart wireless environmental controls can be integrated within the Dianemo® system allowing control of timing and temperature from anywhere in the property
- Offsite control via the building's computer network is possible allowing environmental controls to be adjusted when your circumstances change
- Heating and air conditioning scenarios can be designed alongside lighting scenarios

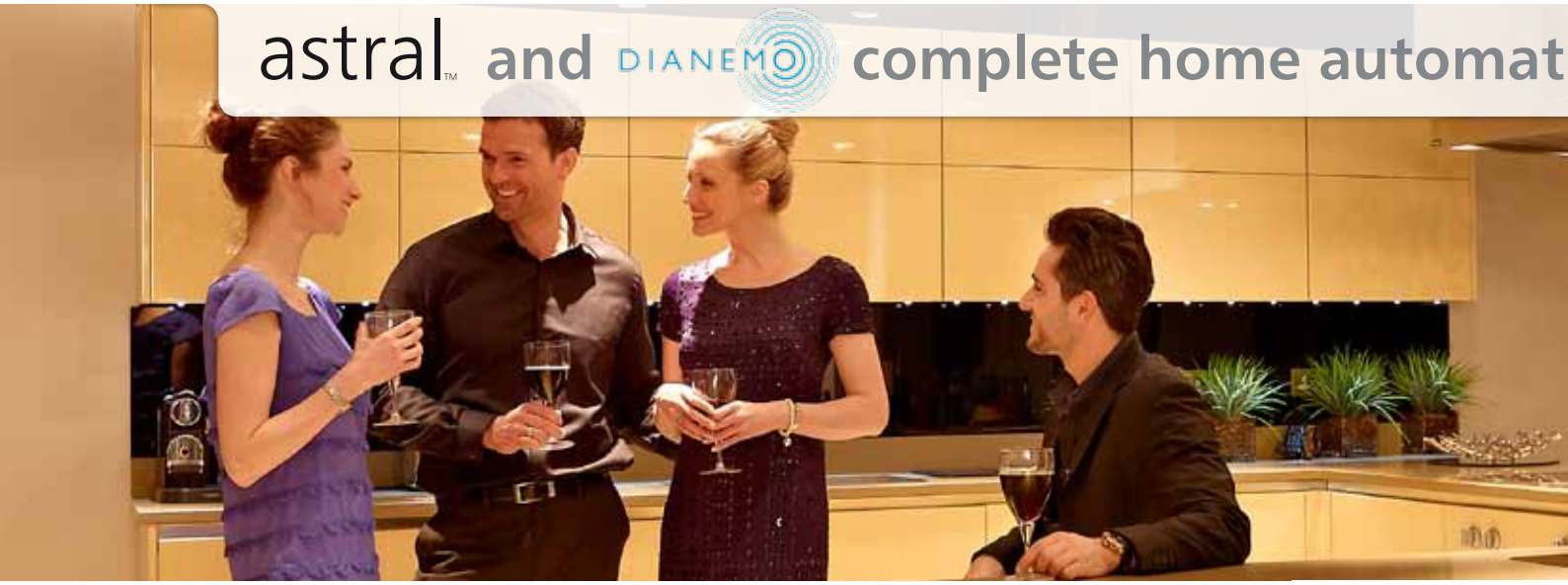
Dianemo Home Screen

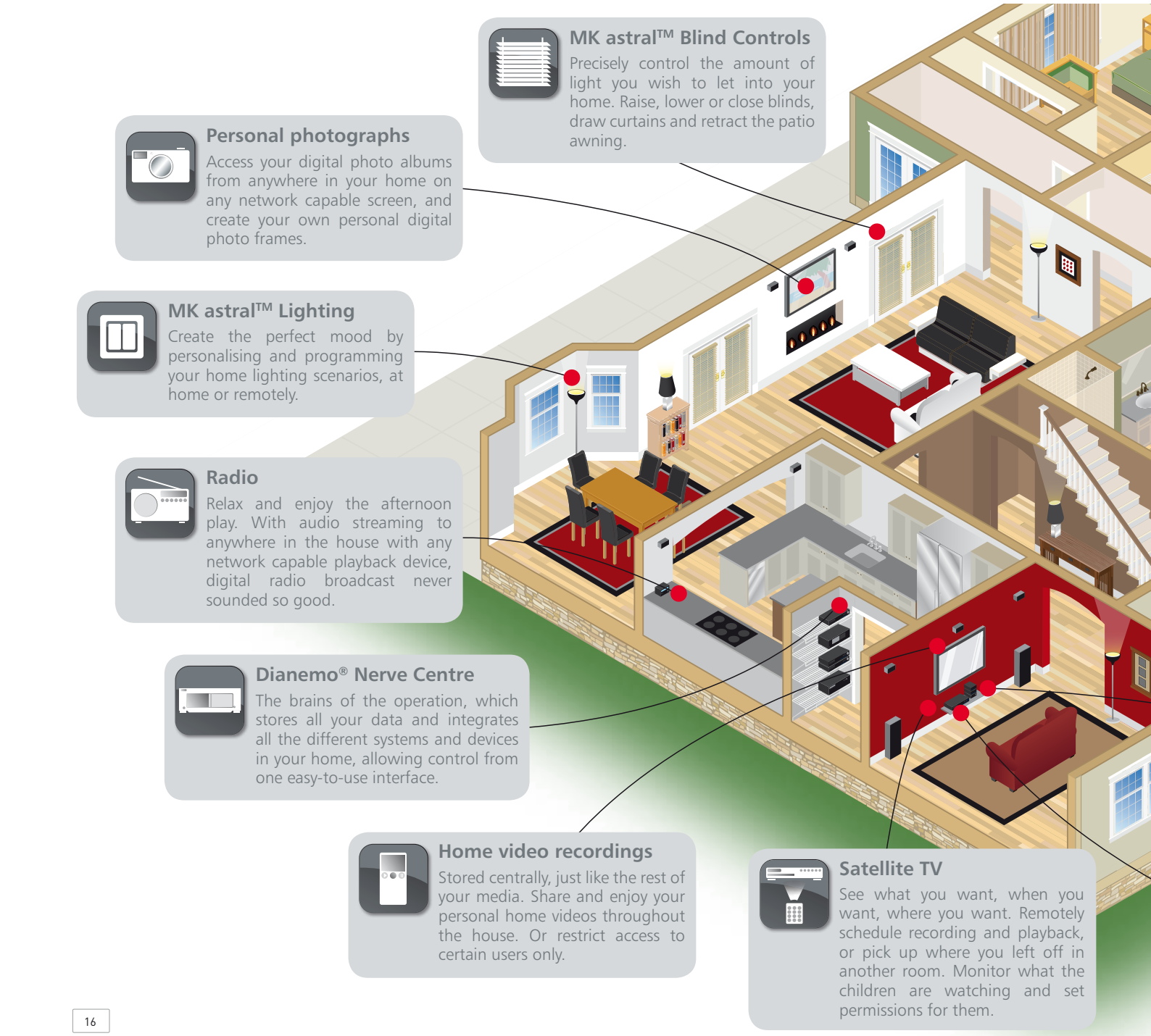
Sky Control Screen

Access your Dianemo system from anywhere at any time

- Control the Dianemo system from a 'smartphone' (iPhone; iPod touch and Android devices)
- Interact with the Dianemo system wirelessly from your PC; laptop; android tablet or iPad
- Wired or wireless touch screen controls easily retrofitted around the property
- Control the Dianemo system using any television in the property
- Adds an integrated VoIP telephony system to the property which can interface with door and gate entry systems

astral™ and DIANEMO complete home automat





MK astral™ Blind Controls

Precisely control the amount of light you wish to let into your home. Raise, lower or close blinds, draw curtains and retract the patio awning.

Personal photographs

Access your digital photo albums from anywhere in your home on any network capable screen, and create your own personal digital photo frames.

MK astral™ Lighting

Create the perfect mood by personalising and programming your home lighting scenarios, at home or remotely.

Radio

Relax and enjoy the afternoon play. With audio streaming to anywhere in the house with any network capable playback device, digital radio broadcast never sounded so good.

Dianemo® Nerve Centre

The brains of the operation, which stores all your data and integrates all the different systems and devices in your home, allowing control from one easy-to-use interface.

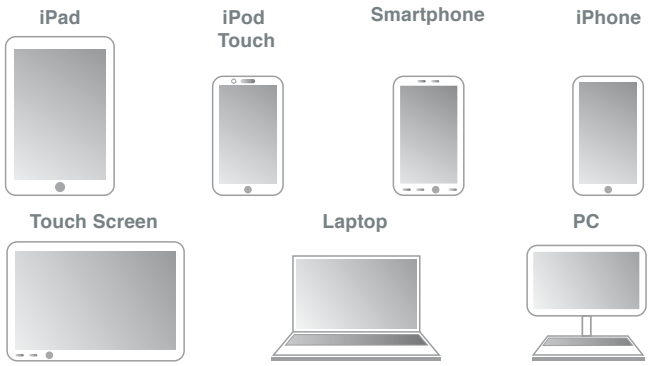
Home video recordings

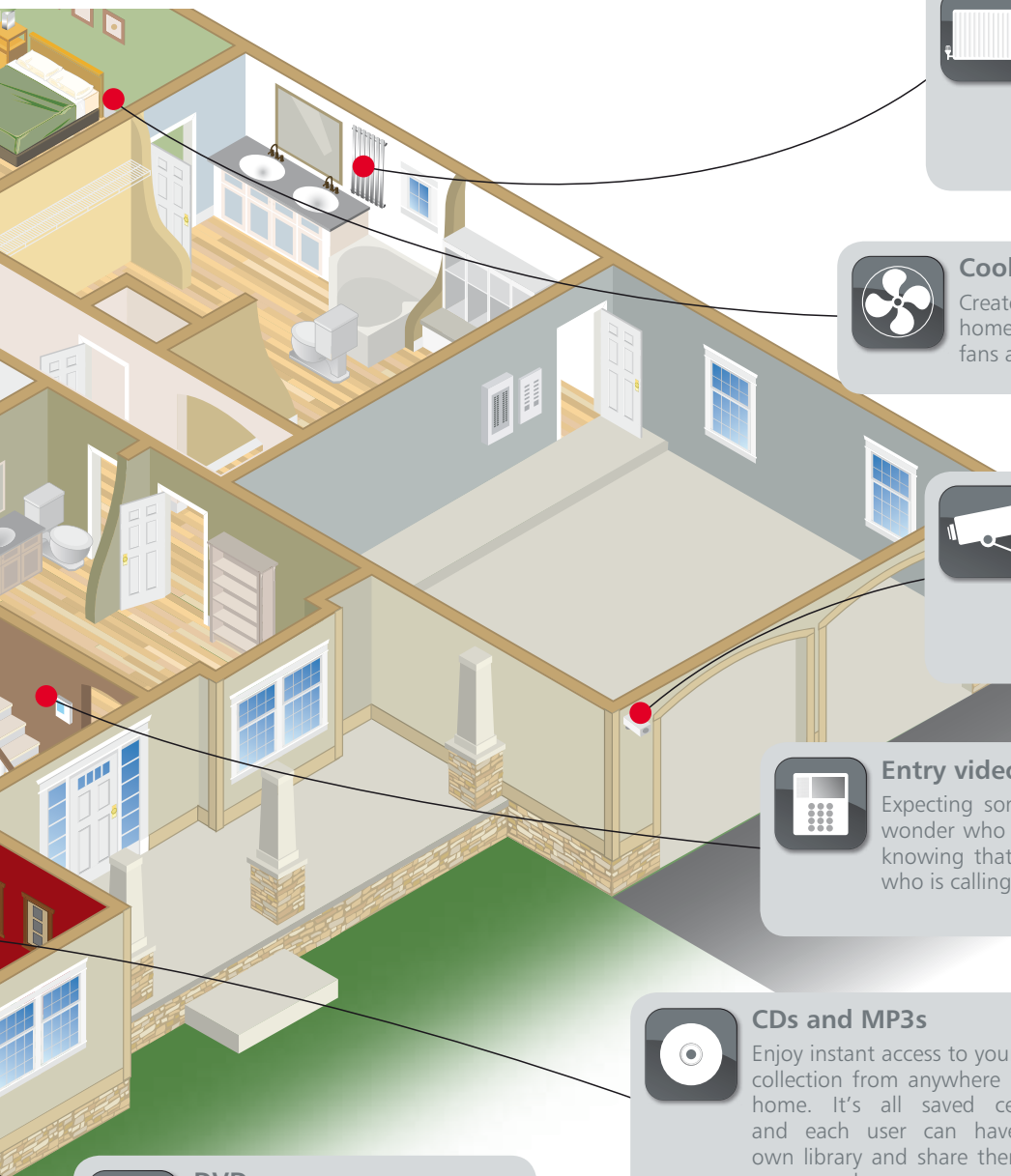
Stored centrally, just like the rest of your media. Share and enjoy your personal home videos throughout the house. Or restrict access to certain users only.

Satellite TV

See what you want, when you want, where you want. Remotely schedule recording and playback, or pick up where you left off in another room. Monitor what the children are watching and set permissions for them.

controls





Heating

Save energy by assuming complete control over the temperature in any room. Set the heating to come on at pre-determined times, and even turn off if windows are opened or if no one is in the room.

Cooling

Create cool zones around your home, remotely activating ceiling fans and air conditioning.

Security

Monitor and protect your home with Alarms, CCTV, motion and smoke detectors. You'll have full access and control over the security system even remotely for complete peace of mind.

Entry video phone

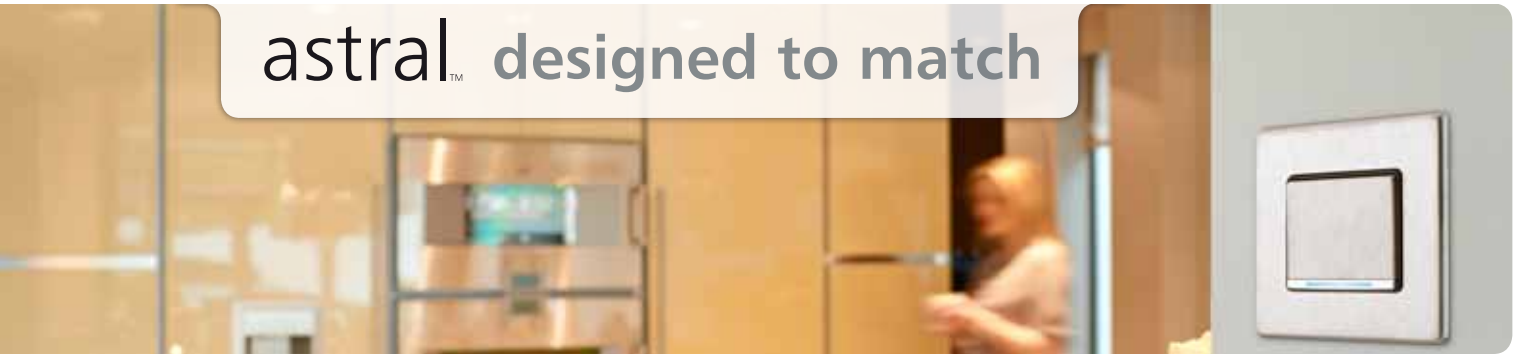
Expecting someone? No need to wonder who is at the door. Relax knowing that you can clearly see who is calling.

CDs and MP3s

Enjoy instant access to your music collection from anywhere in your home. It's all saved centrally, and each user can have their own library and share them with everyone else.

DVD

Enjoy instant access to your centrally saved movie collection, and view from any TV in your home with the added peace of mind provided by the parental control feature.



astral™ designed to match

These pages present just some of the options available in the MK astral™ range. For the full product portfolio please visit astral.mkelectric.com

Finishes – Metal

Brushed Stainless Steel

Lacquered Brushed Steel

Polished Chrome

Polished Brass

Finishes – Plastic

Titanium

Charcoal

Champagne

White

In addition to the standard finishes, MK's Design Service Team can deliver custom colours to your exact requirements,for example matching finishes like Satin Gold, Antique Brass, and Textured Copper to sockets and other wiring devices from the Aspect, Edge, Albany Plus or even Echo range.

Switch and Dimmer Fascias

1 Gang Switch

2 Gang Switch

1 Gang Dimmer

2 Gang Dimmer

Primary Controllers

Remote Control

1 Gang Battery Controller

2 Gang Mains Controller Module

Switch and Dimmer Modules

1 Gang Switch Module

2 Gang 300W Dimmer Module

1 Gang LED/Fluorescent Dimmer Module

Accessories

Security PIR Detector

Blind Control Module

Plug-through Switch/ Dimmer Module

Smart Interface

MK astral™ can be installed into existing lighting circuits without the need for additional wiring. All MK astral™ products fit a 35mm British Standard back box, have familiar electrical connections for rapid installation and are compatible with most types of lamps, including standard incandescent, LED, halogen and compact fluorescent (neutral may be required).

For a full product listing and technical and installation specifications please refer to the MK Electric Catalogue, downloadable Specification Guide or Library App, or visit astral.mkelectric.com

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All information is subject to change without notice and may be regionally dependent. E&OE

astral.mkelectric.com

CEDIA CUSTOM ELECTRONIC DESIGN & INSTALLATION ASSOCIATION

ANDROID APP ON Google play

Download the new App from MK Electric.

Available on the App Store

MK by Honeywell

Reference UKMK047-0612a-EN
June 2012

MK Simple Fit Sensors

Providing cost effective presence detection for lighting control. Simple Fit sensors are easy to install and can deliver energy savings of up to 90%*

K5015 and K5016

- Presence detection by passive infrared
- Passive photocell holds light off in bright ambient conditions
- External programming dials enable quick adjustment of time and lux levels
- Off delay adjustable between 5 seconds and 40 minutes following the last observed movement after which the lights switch off
- PIR Lens provides 360 degree detection
- Detection Range of up to 6m diameter at 25˚C at 2.5m mounting height
- Mounting Height: Recommended ceiling mount 1.8m to 3m
- Loading up to 6 Amps (1500W) of any type of load (including fluorescent lights)
- Ability to wire more than 1 sensor in parallel to a load

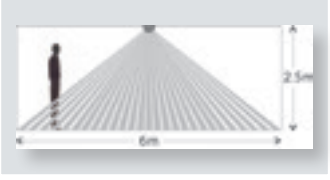
K5015
Flush Ceiling Mount PIR Sensor

- Spring Clips enables ease of installation in plasterboard ceilings

K5016
Surface Ceiling or wall Mount PIR Sensor

- Screw and Plug Fixings, can be mounted direct to the ceiling or on to a square pattress box (K2160 WHI)

- **New lens provides improved presence detection**



Cone shaped detection pattern. Optimum mounting height of 2.5m, gives detection diameter of 6m

*Typical energy savings through sensors installed in bathrooms
Source: E Source Energy Business Intelligence

KEY

- Advanced presence detection by passive infrared (PIR) technology
- Active presence detection by Ultrasonic or microwave technology
- Off delay in minutes following the last observed movement after which lights switch off
- Passive photocell holds lights off when area becomes occupied in bright ambient conditions
- Regulating photocell adjusts luminaire output to maintain constant light levels
- Active photocell switches lights on and off according to ambient conditions
- Detection pattern and range in meters under normal operating conditions
- One Switch Dimming. Manual input to adjust light level or turn luminaires on or off
- Hand-held Controllers provide local user override
- Infrared programming enables easy commissioning and re-commissioning
- Dual circuit option (switching or switching and dimming) available
- Scene setting – lights switch on to a pre-programmed scene when area becomes occupied

MK PIRs

IMAGE	LIST NO.	DESCRIPTION												
	K5015	Simple Fit PIR with Photocell – Flush 6 Amp	✓		0-40	✓			10m					
	K5016	Simple Fit PIR with Photocell – Surface 6 Amp	✓		0-40	✓			10m					

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Reference UKMK299-0312-EN
March 2012

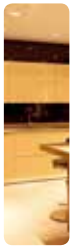
MK Dimmers

Compatibility Guide

Introduction

MK Electric is the UK's market leader for electrical wiring devices. We offer a comprehensive portfolio of dimming solutions suitable for a wide range of applications and lamp technologies. The lighting market is rapidly changing, with innovation bringing developments in lamp capabilities and functionality .

The information contained within this guide is designed to provide an overview of MK Electric's portfolio and compatibility. For the latest information, we advise to always consult lamp manufacturer's websites and technical installation instructions.



Understanding Lamp Types

INCANDESCENT/TUNGSTEN FILAMENT
 Traditional lamp type, gradually being phased out and replaced with new low energy lamps.
COMPACT FLUORESCENT
 A type of discharge lamp with integrated ballast. Some CFL's are dimmable. Typically 25% of the energy consumption of standard incandescent lamps, for the same amount of light. CFL's rely on having full mains voltage applied to "start". Dimmable CFL lamps can suffer shortened life by cold starting at a minimum brightness level. To overcome this, the MK CFL dimmers are designed to apply full voltage to the lamp at the initial switch on, before lowering the voltage to the preset dimming level. This enhances CFL lamp life.
FLUORESCENT
 Available in various shapes and sizes. These require an external ballast to drive the lamp. Typically 15-20% of the energy consumption of standard incandescent lamps. Fluorescent lamps are only dimmable using special ballasts and analogue or digital controllers. MK's Grid Plus 1-10V analogue controller can be used in conjunction with 1-10V compatible ballasts. The ballast then controls the power supplied to the lamp hence providing dimming control.
LOW VOLTAGE HALOGEN
 A type of incandescent lamp distinguished by its higher filament operating temperature, slightly lower energy consumption of 70-80% and enhanced colour properties compared to incandescent lamps. Low voltage tungsten halogen lamps require a transformer to supply the correct voltage to the lamp. These transformers must be compatible with the chosen dimming control. MK Electric's intelligent dimmers incorporate load sensing software that can modify performance to suit, most low voltage halogen transformers.
LED
 LED lamps use electronic components. Light-Emitting Diodes to efficiently convert electricity to light. Typically they have 10% of the energy consumption and 20-100 times the lifetime of standard incandescent lamps. LED Lamps are available in dimmable and non-dimmable versions, various colour temperatures and colour quality. Whilst LED lamps are the newest and most efficient lighting solution, they can differ widely in their performance levels. Premium brand manufacturers have led the way, supplying high quality lamps which are most consistently compatible with dimming switches.

Understanding dimming technologies

Dimming lamps require a reduction of the power into the device to produce a reduction of the intensity of the light source. As well as dimming for comfort or effect, by using low energy lamps together with a dimming functionality, you can significantly reduce energy costs within a building. With many different lamp types and technologies available, sourcing the correct dimmer can be challenging as different lamp technologies require different dimmers.

Leading Edge (LE, R or RL) is the most commonly used method for lamp dimming and is frequently used for standard incandescent, mains halogen, LV halogen, CFL and LED. Trailing Edge (TE) is often used for electronic loads designed for TE dimming, such as electronic transformers for LV halogen and is also suitable for standard incandescent and mains halogen. Both methods reduce the power into the lamp providing dimming control, but to get the best performance and avoid compatibility issues you need to select dimmer products that most closely suit your installation needs. Transformers should be marked to indicate LE or TE compatibility.

Dimming considerations

How many lamps?

Every dimmer has a defined operating voltage and power rating. Overloading a dimmer with too many lamps or transformers is likely to result in failure to illuminate, flickering or delays in dimming. Lamps might display ‘stepping’ in lumen (light) output at points within the dimming range and occasionally an incompatible lamp or LV transformer may cause a buzzing in the dimmer.

Some lamp types cause high currents when they are initially turned on. For these types MK dimmers have a limit on the maximum amount of lamps that can be connected to any one dimmer. Also with LED lamps in particular exceeding the maximum number of lamps in a circuit may cause the dimming range to be compressed such that the minimum lumen (light) output is too high, which will negate the dimming functionality.

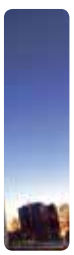
For example: The MK LED Dimmer has a maximum load of 70W for LED Lamps or 300W incandescent lamps. If using 12W LED lamps, the maximum number of lamps would be 5. However if using 4W LED lamps only. 10 Lamps may be used giving 40W total load. The maximum number of lamps and the maximum power allowance must never be exceeded.

Low Power Dimming

Dimming LED Lamps with a low power rating (up to 6W) can be problematic due to the design of the dimmer relying on a minimum load to perform the dimming operation. Dimmers designed for use with LED lamps will indicate the minimum wattage of the lamps that must be connected to the dimmer, to operate effectively.

High Power Dimming

When an installation requires the specification of a dimmer to control larger lighting loads, the MK Electric High Power Dimmer will meet your requirements. The High Power Dimmer includes a host of different functions, enabling lighting scene control, stairwell lighting and push button dimmer with memory. For applications up to 3000 Watt loads, an installation can be specified to include a Master and up to 2 Slaves.



MK astral™

MK astral™ offers a simple to install, cost-effective, reliable and flexible, wireless control system for retrofit or new build projects that uses the very latest in automated home technology and which delivers ultimate control from within the home or remotely. MK astral™ automates home lighting, fans and blinds. Components simply form a high-speed network over which wireless communication paths are established: conveniently control any light, from any point within the home, without wiring them together.

MK astral™ can also be included as part of a larger home automation system, that controls heating, security and home entertainment.

For the ultimate, reliable experience MK astral™ leverages the simplicity, intuitiveness, and robustness of the Apple® iPad, iPod touch and iPhone, with the free MK astral™ App with 3 differently styled interface options to choose from (an MK astral™ standard remote control is also available).

To find out more visit http://astral.mkelectric.com

MK Echo™

Imagine switch technology and automated systems that need no wiring, use no batteries and are effortless to install and commission. Echo™ is an innovative range of entirely wireless, batteryless and self-powered switches and controls which can work together offering even more convenience and energy saving opportunities.

Echo™ enables you to create your own automated control system for a domestic or commercial environment. With the ability to incorporate a range of transmitters from switches, temperature sensors and presence detectors, alongside a range of receivers, the installer can create a flexible system which can deliver safety, comfort, cost savings and energy efficiency for the building owner or user.

To find out more visit www.mkelectric.co.uk

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Dimming Chart

Product Group & Part Number	Single / Double Dimmer	Multi-Way Switching?	Multi-Way Dimming?	Wireless Switching	Lamp Types							Max lamps or transformers per circuit
					Standard Incandescent	Mains Halogen	LV Halogen Leading Edge	LV Halogen Trailing Edge	Dimmable CFL*	Dimmable LED	1-10v Analogue	
MK LOGIC PLUS												
K1511WHI	Single	-	-	-	65-450W	-	-	-	-	-	-	-
K1531WHI	Single	-	-	-	40-250W	-	-	-	-	-	-	-
K1532WHI	Double	-	-	-	40-250W	-	-	-	-	-	-	-
K1533WHI	Double	YES	-	-	40-250W	-	-	-	-	-	-	-
K1534WHI	Single	YES	-	-	40-250W	-	-	-	-	-	-	-
K1535WHI	Single	YES	-	-	65-450W	-	-	-	-	-	-	-
K1525WHI	Single	YES	-	-	-	-	-	-	11-300W	-	-	4
K1526WHI	Single	YES	-	-	-	-	-	-	-	8-48W**	-	10
K1527WHI	Double	YES	-	-	-	-	-	-	-	8-48W**	-	10
K1523WHILV	Single	YES	-	-	40-300W	40-240W	40-240VA	-	-	4-70W	-	10
K1524WHILV	Double	YES	-	-	40-300W	40-240W	40-240VA	-	-	4-70W	-	10
K1501WHILV	Single	YES	-	-	60-500W	60-400W	60-400VA	-	-	-	-	5TF
K1521WHILV	Single	YES	-	-	40-300W	40-240W	40-240VA	-	-	-	-	4TF
K1522WHILV	Double	YES	-	-	40-300W	40-240W	40-240VA	-	-	-	-	4TF
MK GRID PLUS												
K4501xxxLV	N/A	YES	-	-	40-220W	40-180W	60-400VA	-	-	-	-	3TF
K4500xxxLV	N/A	YES	-	-	60-400W	60-320W	60-320VA	-	-	-	-	5TF
K4499xxxLV	N/A	-	-	-	-	-	-	-	-	-	YES	4 Ballasts
K4511xxxLV	N/A	YES	-	-	40-220W	40-180W	40-180VA	-	-	4-70W	-	10
MK ASPECT												
K24301xxx	Single	YES	-	-	60-500W	60-400W	60-400VA	-	-	-	-	5TF
K24521xxx	Single	YES	-	-	40-300W	40-240W	40-240VA	-	-	-	-	4TF
K24522xxx	Double	YES	-	-	40-300W	40-240W	40-240VA	-	-	-	-	4TF
MK EDGE												
K14301xxx	Single	YES	-	-	60-500W	60-400W	60-400VA	-	-	-	-	5TF
K14302xxx	Double	YES	-	-	60-450W	60-360W	60-360VA	-	-	-	-	5TF
K14521xxx	Single	YES	-	-	60-300W	40-240W	40-240VA	-	-	-	-	4TF
K14522xxx	Double	YES	-	-	40-300W	40-240W	40-240VA	-	-	-	-	4TF
K14523***	Single	YES	-	-	-	-	-	-	-	8-48W**	-	-
K14524***	Double	YES	-	-	-	-	-	-	-	8-48W**	-	-
MK ALLOY												
K5306xxx	Single	YES	-	-	40-250W	-	-	-	-	-	-	-
K5307xxx	Double	YES	-	-	40-250W	-	-	-	-	-	-	-
K5301xxx	Single	YES	-	-	60-500W	-	-	-	-	-	-	-
K5306xxxLV	Single	YES	-	-	40-300W	40-240W	40-240VA	-	-	-	-	4TF
K5307xxxLV	Double	YES	-	-	40-300W	40-240W	40-240VA	-	-	-	-	4TF
K5301xxxLV	Single	YES	-	-	60-500W	60-400W	60-400VA	-	-	-	-	5TF
MK ECHO												
K5436R	Single	YES	YES	-	60-210W	60-210W	60-210W	-	-	-	-	-
MK ASTRAL												
LDM31UC	Single	YES	YES	YES	25-300W	25-300W	35-300VA	35-300VA	-	***	-	-
LDM32UC	Double	YES	YES	YES	25-300W	25-300W	35-300VA	35-300VA	-	***	-	-
LDM61UC	Single	YES	YES	YES	25-600W	25-600W	35-600VA	35-600VA	-	***	-	-
LFD51UC	Single	YES	YES	YES	-	-	-	-	-	-	6AX	10 Ballasts
LFD52UC	Double	YES	YES	YES	-	-	-	-	-	-	6AX	10 Ballasts
MK HIGH POWER DIMMER												
K1400	N/A	YES	YES	-	60-1000W	60-1000W	50-900VA	-	-	-	-	-
K1401M	N/A	YES	YES	-	60-1000W	60-1000W	50-900VA	-	-	-	-	-
K1401S	N/A	YES	YES	-	60-1000W	60-1000W	50-900VA	-	-	-	-	-
K1402M	N/A	YES	YES	-	60-1000W	60-1000W	50-900VA	-	-	-	-	-
K1402S	N/A	YES	YES	-	60-1000W	60-1000W	50-900VA	-	-	-	-	-

xxx = denotes numbers required for decorative finish ie Brushed Chrome = BRC. TF = Transformers

* Premium branded dimmable CFL lamps manufacturers recommended. ** Product optimised for specific Philips LED lamp types only.

*** Contact technical helpline for advice.

Frequently Asked Questions About Dimmers

My dimmer makes a loud humming noise when it is switched on?

Depending on the brightness setting of the dimmer the power to the lamp may be switched at the peak point in the AC mains supply. This sudden change in voltage can cause magnetic vibration of components within the dimmer and / or lamps and transformers. MK dimmers are designed to minimise this noise however loads up to the maximum rating of the product will accentuate the effect. MK Astral dimmers use newer technology that virtually eliminates available humming.

I have been told my dimmer needs extra wiring is this true?

Older buildings may not have wiring suitable for certain types of dimmers and dimming applications. In particular an installation may be missing Earth or Neutral wiring and the services of a qualified installation engineer should always be sought. MK Astral may require Neutral wiring in order to function with certain lamp types.

How do I know if my dimmer is overloaded, what happens?

A qualified competent installer will ensure that each dimmer is not overloaded, however in the event lamps are replaced with types and ratings not originally intended then suitable protection is incorporated to prevent overloading. Some products have a staged shut down and restrict power initially before fully closing the output from the dimmer under extreme overload conditions. If a dimmer behaves in this way then first check that the total lighting load is not in excess of the product rating. If in any doubt always consult a qualified electrician.

I have Grid Plus frontplates with dimmer modules fitted but my installer says I cannot fit more to provide dimming on other lighting circuits, why?

Grid Plus frontplates can accommodate large numbers of switches in a small space, however dimmers dissipate larger amounts of heat during operation and a qualified installer will need to consider the total number of dimmer modules, the lamp load being dimmed per switch and the position on the frontplate to minimise thermal overload. By adhering to these requirements reliable operation can be assured.

I have replaced my lamps and the new ones flicker, this wasn't a problem with the old ones, why?

The most likely cause for lamps flickering in this situation is incompatibility of the new lamp/s with existing units or with the dimmer fitted. If the dimmer is only specified to work with certain lamp types then compatibility issues can exist when incorrect types are fitted. MK recommend the use of premium branded dimmable LED lamps.

I have bought an LED lamp that does not state dimmable on it or any related packaging, can I still use it?

It can be overlooked but LED / CFL and LV halogen transformers must be of a dimmable type in order to work across the dimming range. Use of none dimmable types is not recommended and can damage the lamp or dimmer.

Can I use both LED and LV halogen lamps on one dimmer?

No, use of different lamp types outlined in this guide are not allowed on the same dimmer circuit.

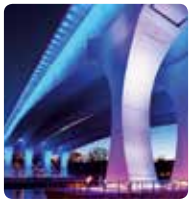
I want to have a 2 way switching circuit in my hallway / landing. Can I have dimming control from both switch points?

Not with a conventional wired dimmer in this situation only one dimmer can be incorporated in the circuit. However, it is possible to create this functionality using MK Echo and Astral products. Please consult a qualified installer for more details.

*The content within this guide is correct at time of publication.

Notes

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