

## Dimmer Switches

### Standards and approvals

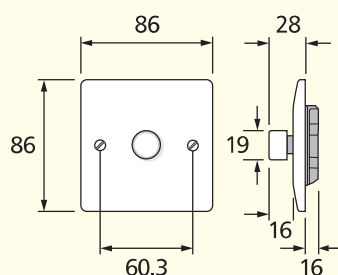
All CE marked Logic Plus™ dimmer switches comply with the EC Low Voltage Directive: 73/23/EEC, Electromagnetic Compatibility Directive 89/336/EEC

They also comply with BS EN 60669-2-1 and IEC 60669-2-1 (LED Intelligent Dimmer only)

\*Non-UK dimmer switches see note below



Dimensions (mm)



### Description

MK dimmer switches can fall into one of six categories:

- 1) Standard Dimmer Switches
- 2) Intelligent Dimmer Switches
- 3) Non-UK Dimmer Switches
- 4) CFL Lamp Dimmer Switches
- 5) LED Intelligent Dimmer Switches
- 6) LED Standard Dimmer Switches

#### Standard and LED Standard Dimmer Switches

Dimmer Switches belonging to this category employ simpler electronic circuitry and the CE marked products make use of thermal switches to conform to the very stringent requirements of the Standard BS EN 60669-2-1, for overload protection. They are only suitable for use with normal tungsten filament lamps with internal fuses, conforming to BS EN 60064: 1996 and BS EN 60432-1 Standards and do not have any added features, e.g. soft start, ability to control dimmable transformers for low voltage, etc.

LED Standard Dimmer switches have an optimised design for use with recommended lamp types only. Check MK web site for compatibility details.

**Standard and LED Standard Dimmer Switches are not suitable for use with transformers for Low Voltage Lighting or Fluorescent Loads, including Energy Saving Lamps.**

#### Intelligent and LED Intelligent Dimmer Switches

Dimmer Switches belonging to this category, employ the latest, state of the art, micro-controller based electronic circuitry and use current sensing to compute the load conditions. These products show progressive reaction to overload conditions, depending on the extent of overload as shown in the table below. List numbers belonging to this category are identified by the suffix letters LV, e.g. K1501 WHI LV. All MK Intelligent Dimmer Switches employ one pole change over switches to facilitate two way switching.

**MK Intelligent and LED Intelligent Dimmer Switches are not suitable for use with Fluorescent Loads, including Energy Saving Lamps.**

#### \*Non-UK Dimmer Switches

Dimmer switches belonging to this category only conform to the relevant parts of BS EN 60669-2-1. Loads suitable for use with standard dimmer switches above are also suitable for use with this category of dimmer switch.

#### CFL Lamp dimmer switches

Dimmer switches belonging to this category employ the latest, state of the art, micro-controller based electronic circuitry used in other intelligent dimmer switches. In addition they utilise control software to improve performance and life of dimmable compact fluorescent lamps.

**Only one Dimmer Switch can be used in a two-way switching circuit.**

### Technical specification

#### Electrical

Mains Supply Voltage:  
230V a.c. (Nominal)  
220V a.c. (Nominal, Non-UK)  
220V a.c. to 240V a.c. (For LED Intelligent Dimmer)

Mains Supply Voltage Range:  
216V a.c. to 253V a.c.  
200V a.c. to 250V a.c. (Non UK)  
198V a.c. to 264V a.c. (For LED Intelligent Dimmer)

Mains Supply Frequency:  
50Hz  $\pm$ 3Hz  
60Hz  $\pm$ 3Hz (Non UK)

Type of Loads:

#### Standard Dimmers:

Fused GLS Tungsten Filament lamps only to BS EN60064: 1996 and BS EN60432-1: 2000, rated at 230/240V

#### LED Standard Dimmers:

Use with good quality branded dimmable LED lamp types only. Check compatibility on MK web site for details.

#### Intelligent Dimmers and

#### LED Intelligent Dimmers:

Fused GLS Tungsten Filament lamps to BS EN60064: 1996 and BS EN60432-1,2 rated at 230/240V. Dimmable wire wound or electronic Low Voltage Transformers of good quality. Can also be used with good quality mains voltage halogen lamps incorporating GU10 bases. Please check with lamp manufacturer to determine suitability.

In addition, LED Intelligent dimmers are suitable for dimmable LED bulbs rated at 220-240V for incandescent replacement.

Note: Transformer must be suitable for dimming using phase delay (leading edge) and NOT only phase cut (trailing edge) type of dimmers.

**Warning: These dimmer switches are not suitable for use with Fluorescent Lamps or Energy Saving Lamps.**

#### CFL lamp dimmers:

Dimmable compact fluorescent lamps rated at 220/240V.

#### Physical

Operating temperature:  
0°C to +40°C

IP rating:  
IP2XD

Max. installation altitude:  
2000 metres

## Dimmer Switches

### Features

**Intelligent and LED Intelligent Dimmer Switches** incorporate the following advanced features

- Suitable for dimming Low Voltage Halogen lamps via good quality, fully dimmable electronic or wire-wound transformers. In addition, LED Intelligent dimmer switches are suitable for dimmable LED bulbs for incandescent replacement.
- Can be used with good quality mains voltage halogen lamps incorporating GU10 bases. Please check with lamp manufacturer to determine suitability
- Load current sensing:  
These dimmers continuously monitor the load current to help protect against overheating in wire wound transformers and to prevent overloading of the dimmer for long term reliability.
- Soft Start, which gradually increases the light output from the load over 1 to 3 seconds after switch on. The Soft Start feature is also particularly beneficial when used to dim Mains Voltage Tungsten Halogen lamps which inherently have a very high inrush current at switch on

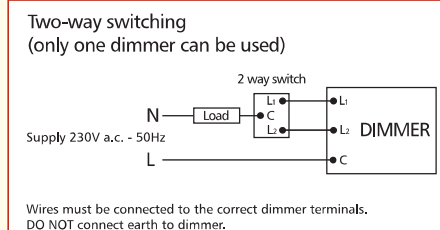
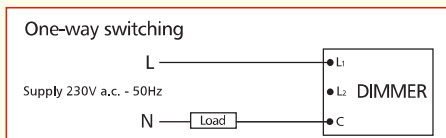
### Standard Dimmer Switches

- Suitable only for use with fused GLS Tungsten Filament lamps to BS EN 60064 and BS EN 60432-1
- One way dimmer switches incorporate manual soft start
- Incorporate thermal switches for protection against overload

### CFL Lamp dimmer switches

- Suitable only for use with compact fluorescent lamps designed specifically for dimming.
- Load current sensing: These dimmers continuously monitor the load current to help prevent overloading of the dimmer for long term reliability.
- Full brightness start to increase lamp life, the dimmer will reduce the light level to the level set within 2 - 3 seconds.
- Total connected load must not be less than the minimum power load rating of 11W.
- A maximum of 4 lamps only must be connected to each dimmer switch.

Please note the dimmer may be substituted for any of the Two-Way switches shown on page 51.



60-500W CIRCUIT	40-300W CIRCUIT	LED INTELLIGENT DIMMER
<b>Overload management:</b> 60-500W nominal 60-625W function without dimming > 625-1000W dim minimum level > 1000W switch off	<b>Overload management:</b> 40-300W nominal 40-375W function without dimming > 375-600W dim to minimum level > 600W switch off	<b>Overload management:</b> 40-300W nominal 40-375W function without dimming > 375-600W dim to minimum level > 600W switch off

LOAD TYPES AND LOADINGS						
Dimmer Series	Dimmer Size (1 gang)	Rating			Max No. of Transformers and LEDs (total rating must not exceed MAX.VA rating of dimmer)	
		GLS and mains voltage halogen	Electronic or wire wound LV transformers	LED	Transformers	LEDs
INTELLIGENT DIMMER SWITCHES	single dimmer	40-300W	40-240W/VA	-	4	-
	double dimmer	2 x 40-300W	2 x 40-240W/VA	-	4 per dimmer	-
	single dimmer	60-500W	60-400W/VA	-	5	-
LED STANDARD DIMMER SWITCHES	single dimmer	-	-	8-48W	-	10
	double dimmer	-	-	2 x 8-48W	-	10 per dimmer
LED INTELLIGENT DIMMER SWITCHES	single dimmer	40-300W	40-240W/VA	4-70W	4	10
	double dimmer	2 x 40-300W	2 x 40-240W/VA	2 x 4-70W	4 per dimmer	10 per dimmer

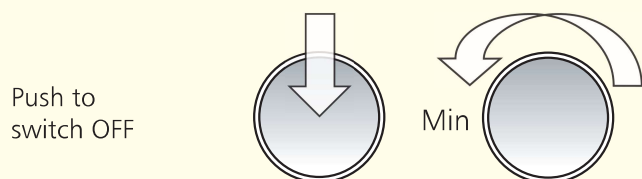
Do not connect more than the maximum number of transformers stated for each dimmer.

## Minimum Brightness Adjustment for LED Intelligent Dimmers

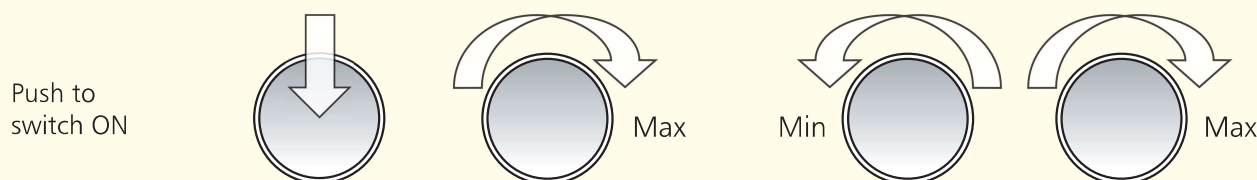
The light output of some LED lamps may appear to be too dim or invisible when the dimmer knob is at the minimum dim level. Follow the steps below to adjust the minimum brightness level. This feature is primarily for adjusting the minimum brightness level of the LED lamp although it can be used for other load types. For a double gang dimmer, the light level of each gang has to be adjusted separately.

### Step 1 Access To Programming Mode

1. Push the dimmer knob so that it is in OFF state.
2. Set the dimmer knob to minimum level.



3. Turn on the dimmer and immediately rotate the knob 3 times in full rotary span within 5 seconds.



NOTE: - Wait for 3 seconds, the lamp will then dim to minimum before automatically brightening to about 30% level.

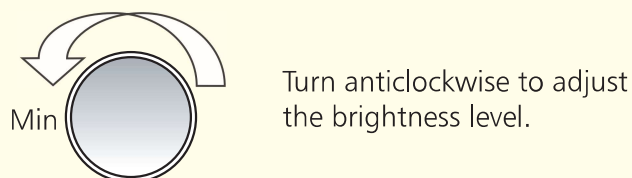
Turning/pushing the dimmer knob before the end of automatic brightening will end access to programming mode

4. Dimmer enters programming mode.

### Step 2 Adjust Brightness Level and Exit Programming Mode

5. Rotate the dimmer knob anticlockwise to adjust the lamp to the desired brightness level.

NOTE: - Some LED lamps may not work properly if the brightness level is set too low thus it is recommended to keep the brightness level of the lamp at a visible level. The dimmer will exit programming mode automatically without saving the new setting if there is no dimmer knob movement for 15 seconds. The dimmer will restore its factory default light level.



6. Confirm the new setting and exit programming mode by turning OFF the dimmer.



### Step 3 Success indication (Programming Complete)

7. The next time the dimmer is turned on the lamp will automatically brighten to the maximum level before dimming to the brightness level corresponds to the knob level.