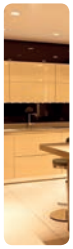
MK Dimmers

Compatibility Guide

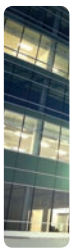
Introduction

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

Technical Advice

Tech Helpline Tel 01268 563720

Tech E-mail mk.technical@honeywell.com

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												
K1511 WHI	Single	-	-	-	65-450W	-	-	-	-	-	-	-
K1531 WHI	Single	-	-	-	40-250W	-	-	-	-	-	-	-
K1532 WHI	Double	-	-	-	40-250W	-	-	-	-	-	-	-
K1533 WHI	Double	YES	-	-	40-250W	-	-	-	-	-	-	-
K1534 WHI	Single	YES	-	-	40-250W	-	-	-	-	-	-	-
K1535 WHI	Single	YES	-	-	65-450W	-	-	-	-	-	-	-
K1525 WHI	Single	YES	-	-	-	-	-	-	11-300W	-	-	4
K1526WHI	Single	YES	-	-	-	-	-	-	-	8-48W**	-	10
K1527 WHI	Double	YES	-	-	-	-	-	-	-	8-48W**	-	10
K1523 WHI	Single	YES	-	-	40-300W	40-240W	40-240VA	-	-	4-70W	-	10
K1524 WHI	Double	YES	-	-	40-300W	40-240W	40-240VA	-	-	4-70W	-	10
K1501 WHILV	Single	YES	-	-	60-500W	60-400W	60-400VA	-	-	-	-	5TF
K1521 WHILV	Single	YES	-	-	40-300W	40-240W	40-240VA	-	-	-	-	4TF
K1522 WHILV	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												
K24301	Single	YES	-	-	60-500W	60-400W	60-400VA	-	-	-	-	5TF
K24521	Single	YES	-	-	40-300W	40-240W	40-240VA	-	-	-	-	4TF
K24522	Double	YES	-	-	40-300W	40-240W	40-240VA	-	-	-	-	4TF
MK EDGE												
K14301	Single	YES	-	-	60-500W	60-400W	60-400VA	-	-	-	-	5TF
K14302	Double	YES	-	-	60-450W	60-360W	60-360VA	-	-	-	-	5TF
K14521	Single	YES	-	-	60-300W	40-240W	40-240VA	-	-	-	-	4TF
K14522	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.

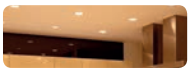
Can I use both LED and LV halogen lamps on one dimmer?

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.

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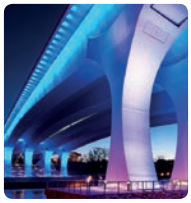


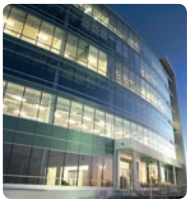

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Reference UKMK353-0912a-EN
September 2012