Setup Functions Guide **MMTM/PB**

LEDsmart+™

Push Button Minute Timer

Programmable between 1 minute and 30 minutes with built in multi-way control

Timer Setup

The LEDsmart+ push button timer has a number of useful functions which can easily be set up by entering setup mode and following the four easy steps.

The TIMEOUT PERIOD should always be set up. The other settings are optional, depending on the application. To set the timeout period now, go to the next page.

Timer Setup Functions

Function	See Part
Setting the **Timeout period**	A
Setting **Maximum Brightness**	B
Setting **Advanced Timer Features**	C
Setting **Off State LED Feature**	D
Converting from minute to hour timer	E
Setting **MultiMate™ Mode**	F
Factory Defaults **Reset**	G

A: Entering Setup Mode

If the timer has been powered up for **LESS THAN 15 MINUTES** see **A1**.

If the timer has been powered up for **MORE THAN 15 MINUTES** see **A2**.

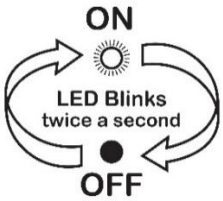
Once in Setup Mode, options are selected by a series of 'clicks' of the push button. Each 'click' should be within 1 second of the previous click.

A1: Timer has been powered up via mains 240Vac for LESS THAN 15 MINUTES

Step 1 Press and hold the button for 10 seconds
Note: Connected lights will dim up or down, this is normal

Step 2 The white LED Indicators will blink ON/OFF twice per second. This indicates that the timer is now in Setup Mode

Note: If more than one LEDsmart+ minute timer is connected in parallel, all these timers will now enter setup mode. The blink ON/OFF will also be seen on all other LEDsmart+ minute timers connected in parallel



In the unlikely event that other LEDsmart+ devices connected in parallel do not enter setup, exit and try again.

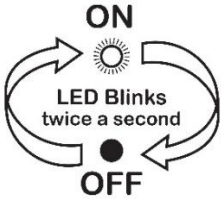
Step 3 The timer is ready for the settings to be adjusted as required. Go to the relevant setup function instructions

A2: Timer has been powered up via mains 240Vac for MORE THAN 15 MINUTES

Step 1 Press and hold the button for 30 seconds
Note: This resets the Setup Entry time back to 10 seconds (for the next 30 minutes)
Note: Connected lights will dim up or down, this is normal

Step 2 The white LED Indicators will blink ON/OFF twice per second. This indicates that the timer is now in Setup Mode

Note: If more than one LEDsmart+ minute timer is connected in parallel, all these timers will now enter setup mode. The blink ON/OFF will also be seen on all other LEDsmart+ minute timers connected in parallel



In the unlikely event that other LEDsmart+ devices connected in parallel do not enter setup, exit and try again.

Step 3 The timer is ready for the settings to be adjusted as required. Go to the relevant setup function instructions

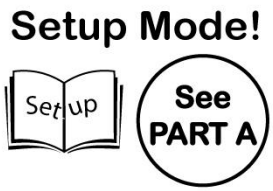
B: Setting the Timeout Interval

The Minutes timer allows a timeout duration of between 1 to 30 minutes in increments of 1 minute.

Out of the box (factory defaults), the time out interval is set to 15 minutes.

To change the time out interval from the default 15 minutes, follow the steps below.

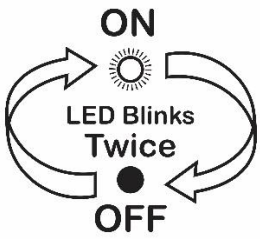
Step 1 Enter into the timer **Setup Mode - See PART A**



Step 2 Click the push button **2 times**

Step 3 The LED Indicator will **blink 2 times**

Note: To cancel/exit do nothing for 30 seconds



Step 4 To set the time out interval, push and hold the button and count the number of blinks. **Each blink of the indicator adds 1 minute to the minute timer**

Step 5 When the number of blinks counted equals the number of minutes required, release the button

The time out interval is saved and setup will exit automatically

Note

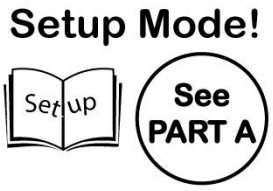
- During normal use the indicator will blink when the timer is turned on to indicate it is in time out mode
- Trying to select a time interval of 0 will result in setting 1 minute timeout
- The timeout period on Minute Timers connected in parallel need to be set individually. The same timeout is not automatically set across units

C: Setting Maximum Brightness

The maximum brightness level provided by the timer can be set to suit customer requirements.

Note that when lamps are near to full brightness, it is difficult to see changes in dimming level. Therefore, when setting up maximum brightness, it is recommended that the lamp is slowly dimmed up to a point where no further changes in brightness can be seen, and the maximum level set at this point.

Step 1 Enter into the timer **Setup Mode - See PART A**

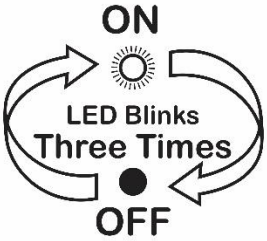


Step 2 Click the push button **3 times**

Step 3 The LED Indicator will **blink 3 times**

Note: To cancel/exit do nothing for 30 seconds

Note: If more than one dimmer is connected to the same load, all dimmers connected to this load will now blink 3 times



Step 4 Push the button to achieve the required maximum brightness level

Note: To cancel/exit do nothing for 30 seconds

Step 5 Click once to save & exit

Note: If more than one LEDsmart+ device is connected in parallel, the minimum brightness levels **only needs to be set in one device.** The setting is automatically saved to all other devices connected in parallel

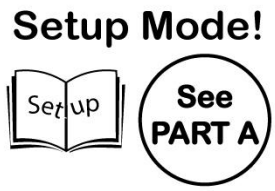
In the unlikely event that other LEDsmart+ devices connected in parallel do not enter setup, exit and try again.

D: Setting Advanced Timer Mode

The advanced timer mode provides an optional advanced warning to the user that the lights will shortly turn off automatically.

When the advance timer is enabled, at time out the lights are dimmed to 50% over a 4 second period and are held at this 50% level for 5 minutes. After this 5 minutes, the lights are turned off automatically.

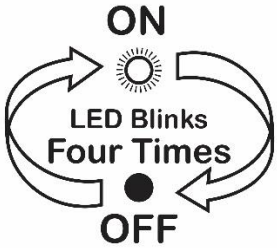
Step 1 Enter into the timer **Setup Mode - See PART A**



Step 2 Click the push button **4 times**

Step 3 The LED Indicator will **blink 4 times**

Note: To cancel/exit do nothing for 30 seconds



Step 4 To enable the advanced timer mode
Push and hold the button until the lamps(s) turn ON

To disable the advanced timer mode
Push and hold the button until the lamps(s) turn OFF (default)

Note: To cancel/exit do nothing for 30 seconds

Step 5 Click once to save & exit

Note that during this Advanced Timer 5 minute warning period:-
- The LED indicators will blink at a faster rate
- A tap of the push button will restore the load to 100% ON and the timer will restart
- A long press of the push button will turn the load OFF.

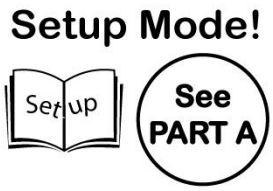
E: Setting Off State Indication

When the timer is switched off, the white LED indicators in the timer can be set to glow or turn off.

By Default, the white LED indicators are set to glow when the timer is turned off.

To set the LED indicators to turn off when the timer is off, follow the steps below.

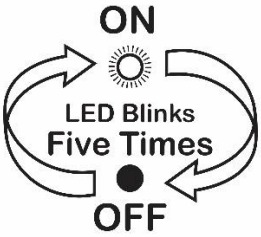
Step 1 Enter into the timer **Setup Mode - See PART A**



Step 2 Click the push button **5 times**

Step 3 The LED Indicator will **blink 5 times**

Note: To cancel/exit do nothing for 30 seconds



Step 4 To set Indicator to glow on when timer is off
Push the button until the lamp(s) turns ON

To set Indicator to turn off when timer is off
Push the button until the lamp(s) turns OFF

Note: To cancel/exit do nothing for 30 seconds

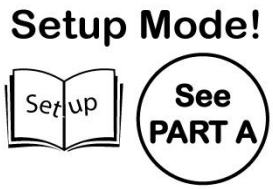
Step 5 Click once to save & exit

F: Convert Minute to Hour Timer

If required, this minute timer can be converted to a standard LEDsmart hour timer, with a time out settable between ¼ hour and 7½ hours, in ¼ hour increments.

To convert to an hour timer, follow the steps below.

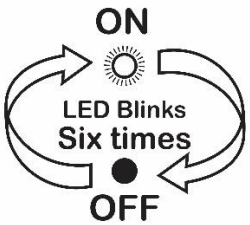
Step 1 Enter into the timer **Setup Mode - See PART A**



Step 2 Click the push button **6 times**

Step 3 The LED Indicator will **blink 6 times**

Note: To cancel/exit do nothing for 30 seconds



Step 4 To change operation to hour timer mode
Push and hold the button until the lamps(s) turn ON

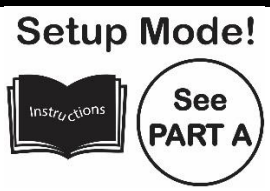
To change operation to minute timer mode (Set minute timer mode)
Push and hold the button until the lamps(s) turn OFF (default)

Note: To cancel/exit do nothing for 30 seconds

Step 5 Click once to save & exit

G: Setting Multimate™ Mode

Step 1 Enter into the timer Setup Mode - See PART A

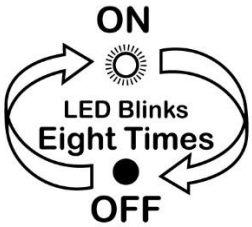


Step 2 Click the push button 8 times

Step 3 LED will blink 8 times

a. If the MultiMate™ function is currently Disabled, lamp(s) connected to the dimmer will now turn OFF
b. If the MultiMate™ function is currently Enabled, lamps(s) connected to the dimmer will now turn ON

Note: To cancel/exit do nothing for 30 seconds



Step 4 To Enable MultiMate™ (Default) push-and-hold the button until the lamp(s) turns ON

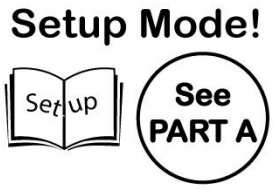
To Disable MultiMate™ push-and-hold the button until the lamp(s) turns OFF

Note: To cancel/exit do nothing for 30 seconds

Step 5 Click once to save & exit

H: Resetting to Factory Default

Step 1 Enter into the timer **Setup Mode - See PART A**



Step 2 Click the push button **10 times**

Step 3 The timer will automatically exit Setup Mode once reset

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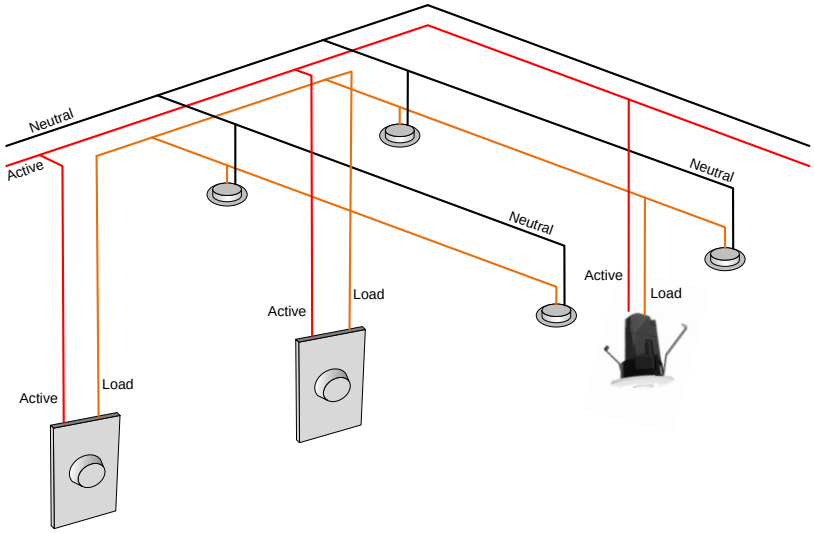
INTRODUCTION

LEDsmart+ dimmers, timers, switches and occupancy sensors include MultiMate™ technology. These devices have revolutionised multiple point control of lighting whilst using conventional wiring practices.

Even when not used for multi-way control, their superior compatibility with LED lighting loads makes them the best wall plate lighting controls in the market.

MULTIMATE™ TECHNOLOGY

MultiMate™ is the technology inside the range of high quality LEDsmart+ dimmers, timers, switches and occupancy sensors. It allows multi-way control of lighting loads without the need for an expensive control system. MultiMate™ technology is suitable for both new and retrofit installations.



MultiMate™ technology enables multiple LEDsmart+ two-wire devices to be wired in parallel when two-way, three-way or multi-way dimming and switching is required.

When connected in parallel, LEDsmart+ dimmers, timers, switches and occupancy sensors allow dimming and switching of connected lighting loads from multiple locations without any additional wiring. No strapper wires, dedicated remote switch wiring or control bus is required.

HOW MULTIMATE™ WORKS

MultiMate™ products use a patented method of communicating with each other using the mains wiring. By this means dimmers, timers, switches and occupancy sensors can communicate on/off, level, and settings to other LEDsmart+ products on the same circuit.

INSTALLATION

In normal cases, existing switches can be removed and replaced by MultiMate™ dimmers, timers, switches and occupancy sensors. Please refer to the installation instructions for common wiring methods used for 1-way, 2-way, 3-way and other configurations.

TROUBLESHOOTING

Like all products, sometimes there can be problems caused by the electrical behaviour of the building wiring, or that of the lighting loads. This document describes some cases found from real-world product experience and their solutions.

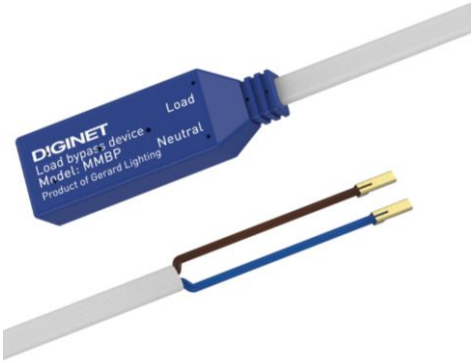
Each of the following pages describes a problem and solution. In some case additional product(s) may be required.

APPLICABLE PRODUCTS

Dimmers:	MMDM/PB & MMDM/RT
Timers:	MMTM/PB & MMTH/PB
Switches:	MMSW/PB
Occupancy Sensors:	MMSE/PR

FLICKERING OR FLASHING WHEN OFF OR AT LOW DIMMING LEVELS

Modern LED lighting has revolutionised high brightness low power lighting.



Unfortunately, some LED loads can have problems with dimmer compatibility. This can be observed when lamps flicker or flash when set to low dimming levels or when a MultiMate™ device is set to the OFF condition.

The MMBP load bypass is wired across the lamp. It will resolve almost all issues associated with dimming of LED lighting, including:

- Lamp glow when turned off;
- Flickering or pulsing of the lamp when turned off or to low dimming levels; and
- Flickering or pulsing of the dimmer LED status indicators.

Solutions for lamp flickering at low dimming levels

Solution 1: Use the setup functions of the dimmer, timer, switch or occupancy sensor to adjust the MINIMUM dimming level to a higher value. Refer to the product installation guide for details.

Solution 2: Fit a load bypass device – order code MMBP.

Solution 3: In extreme cases, both the MMBP and a raised minimum level may be needed.

Solutions for flickering or pulsing of dimmer LED status indicators.

Solution 1: Fit a load bypass device (MMBP).

Solution 2: Newer model dimmers introduce CLM mode. Use the setup guide for your product and activate CLM mode.

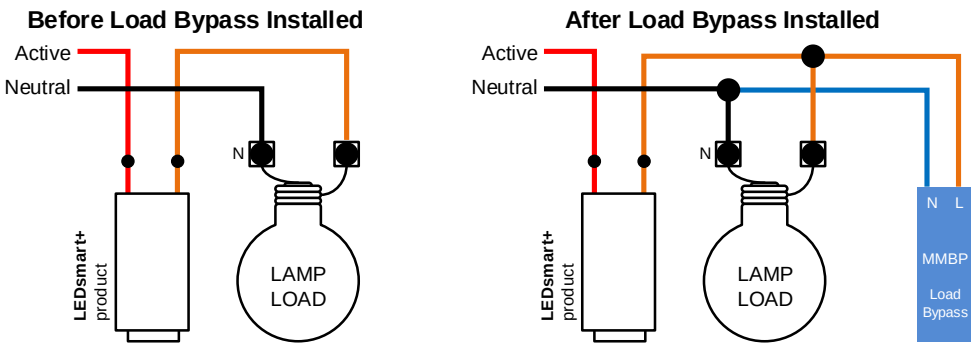
Solution 3: In extreme cases, both the MMBP and enabling CLM mode may be needed.

Solutions for lamp flickering or flashing when turned OFF

Fit an MMBP load bypass. It is designed for this issue. Similar products are also available from other manufacturers.

How to install the MMBP load bypass device

The MMBP load bypass device is installed ***in parallel with the load, across the switched Active and Neutral***, as shown in the diagram below.



Caution: Do not wire the MMBP across the dimmer terminals. This will not be effective.

CROSSTALK

Crosstalk happens when several MultiMate™ circuits are installed in the same building, and adjustments on one circuit cause interference on another circuit. The interference may be observed as:

- Lighting changes on one circuit cause lighting changes (on / off / change of level) on some other circuit; or
- Lighting changes on one circuit cause another circuit to turn off.

If a lighting load is flickering or flashing at low dimming levels or when turned off (and no dimmer / timer / switch is being adjusted) the most likely cause is a poorly designed lighting load. In that case, please refer to the section "Flickering or flashing when off or at low dimming levels".

Causes

If the mains supply has a high source impedance, this can cause crosstalk: where the communication of one set of dimmers interferes with adjacent dimmers – especially if the different dimmer circuits share a common active feed to the same switch plate.

Reasons for High source impedance may include one or a combination of:

- Old substation or local step-down transformer running close to maximum capacity;
- Long cable run from step down transformer to building;
- High resistance terminations on active feeds and/or neutral returns; and
- Neutral returns from a common active feed having significantly different run lengths back to the switchboard – good practice would be to link together neutral returns from a common active feed as close as possible to the loads.

A best practice is for wiring from the distribution panel to the multi-way control location to use twin & earth cabling, keeping active & neutral together for as long as possible. This results in the lowest supply impedance. Long runs of single-cable active wiring and separate neutral wiring should be avoided.

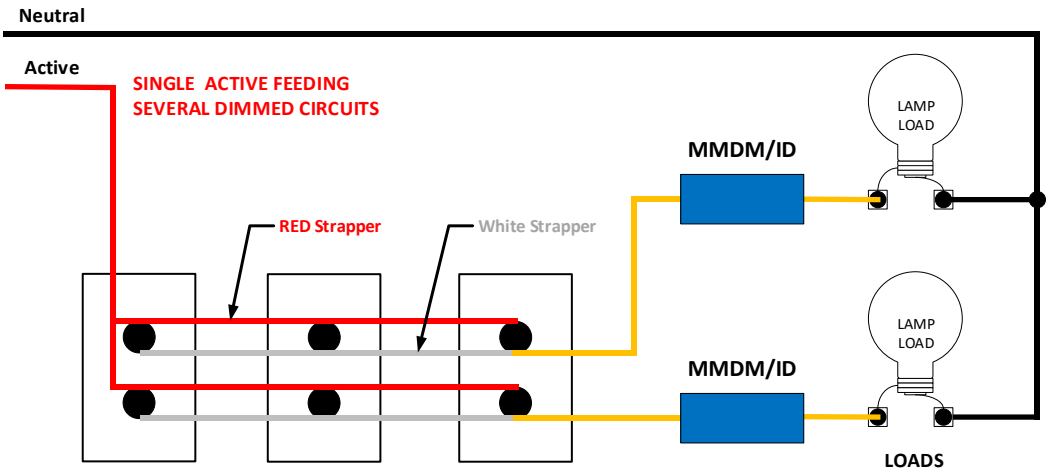
Solution when the Multi-way function is not required

If the multi-way dimming function is not being used: follow the directions in the product Setup Guide to disable the MultiMate™ operation. This prevents the dimmer / timer / switch / sensor from sending and receiving the MultiMate™ commands.

Change this setting for all affected dimmers in the building when multi-way dimming is not needed.

Solution when the Multi-way function is required

When the multi-way dimming function is required, an inline MMDM/ID Inductive Decoupler may be required – these should be connected between the last dimmer in the control chain and the load.



FANS, FLUORESCENT LIGHTING AND NON-DIMMABLE LOADS

MultiMate™ dimmers, timers, switches and occupancy sensors are designed to control dimmable lighting loads.

Sometimes these products need to control non-dimmable loads, for example fluorescent lighting, non-dimmable LED lamps, or bathroom exhaust fans.

Direct wiring of these loads to MultiMate™ products may cause incorrect function of the load or the MultiMate™ product.

To Control fans and non-dimmable loads

The MMSR MultiMate™ Slave Relay presents a dimmable load to MultiMate™ devices. When the dimmer level exceeds a threshold, the relay is operated and switches on a non-dimmable load.

Combinations loads are possible on a dimmer: a dimmable LED load may be used on the same circuit as non-dimmable loads. In this case, when the dimmer level is higher than a threshold, the relay is operated to switch the non-dimmable load(s) on and the dimmable load will continue to respond normally. This is shown in the wiring diagram below.

Properties of the MMSR Slave Relay

The Slave Relay has voltage-free contacts, and is rated at 10AX. SELV load control is possible when using the isolating barrier that is included.

The Slave Relay is suitable for use with trailing edge phase control dimmers. The Slave Relay can satisfy the load requirements of LEDsmart+ dimmers / timers / switches or occupancy sensors by itself. Using an additional dimmable lighting load is optional.

How to wire in the MMSR Slave Relay