



LED lighting is becoming more widely used but until recently LED light sources have given low lighting levels and predominantly been used for local effect lighting. As the levels of lighting have been low the necessity to dim LEDs has been a low priority.

LED Lamps capable of replacing 20-35w Tungsten halogen lamps are now being developed and the requirement for control and dimming has become more important. These LED lamps are considerably more efficient than tungsten and have long lamp lives making this light source increasingly popular despite the expense.

All LED lamps need an associated driver unit to limit the current driving the LED. Some newer lamps integrate the driver into the base of the lamp but many use a separate driver unit. Often there are drivers not able to be dimmed however some options are now becoming dimmable. There are two types of LED drivers;

1) Constant current, generally used for high wattage LEDs where the LEDs are wired in series.

2) Constant voltage where low wattage LEDs are wired in parallel.

The following list shows the different control options available from Rako.

1. Constant current single channel 18w.
2. Constant current three channel 36w.
3. Constant voltage single channel 80w.
4. Constant voltage three channel 80w.
5. DMX (for drivers requiring a DMX control input).
6. 0-10v (for drivers requiring a 0-10v control input).
7. Mains dimmed using trailing edge dimmer.
8. Non dimmed switching.

Single channel modules or outputs have the facility of 4 scenes, off plus manual raise/lower.

With modules designed for 3 colour LEDs the raise/lower buttons act as cycle start/stop buttons controlling a scrolling cycle through the 4 colours assigned to each of the scene buttons.

APPLICATION SHEET

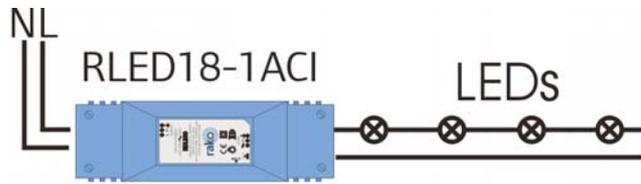
RAKO CONTROLS

CONTROLLING LED LIGHTING WITH RAKO DIMMERS AND MODULES

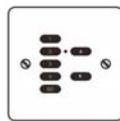
CONTROL METHOD 1 - Rako's wireless constant current 18w driver can be set to different current settings to suit the LEDs being controlled.

Options - 350mA, 500mA, 600mA and 700mA.

Up to 10 LEDs can be wired in series to a maximum of 18w.



Single channel 18w LED Driver

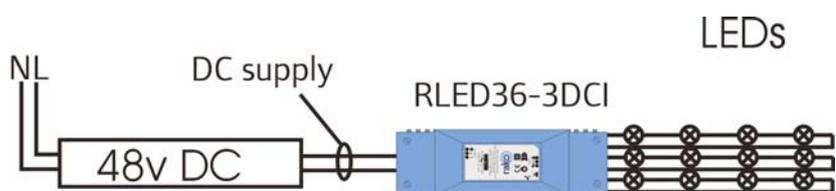


Controlled from Rako wireless panel or wired system via Rako Bridge

CONTROL METHOD 2 - Rako's constant current 3 channel 36w driver is designed to control 3 colour RGB LED fittings.

The module works in conjunction with a DC power supply between 12-48v and up to 36w.

The different colours are wired in series to a maximum of 12 and not exceeding 12w on any one channel.



3 channel RGB constant current 36w LED Driver



Controlled from Rako wireless panel or wired system via Rako Bridge

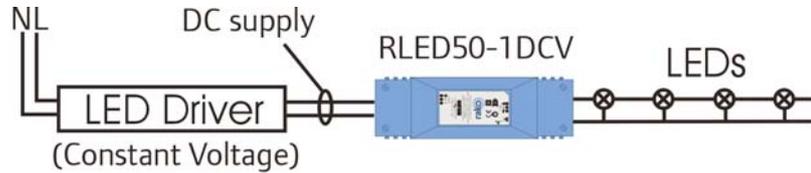
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RAKO CONTROLS

CONTROLLING LED LIGHTING WITH RAKO DIMMERS AND MODULES

CONTROL METHOD 3 - Dimming constant voltage single channel 50w.

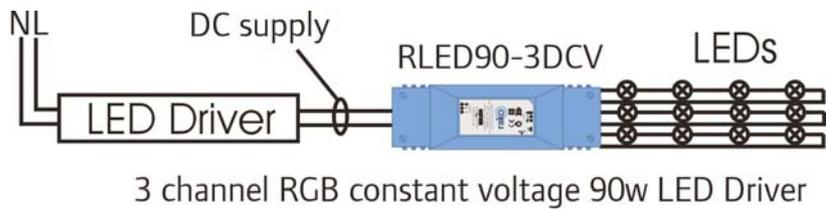
Light fittings using constant voltage LEDs generally use a standard DC power supply. These power supplies have a fixed output and Rako's RLED receiver fits between the power supply and the LEDs.



Controlled from Rako wireless panel or wired system via Rako Bridge

CONTROL METHOD 4 - Dimming constant voltage 3 channel 90w.

This version is the same as that described above but will control 3 sets of LEDs and is designed for 3 colour LED fittings.



Controlled from Rako wireless panel or wired system via Rako Bridge

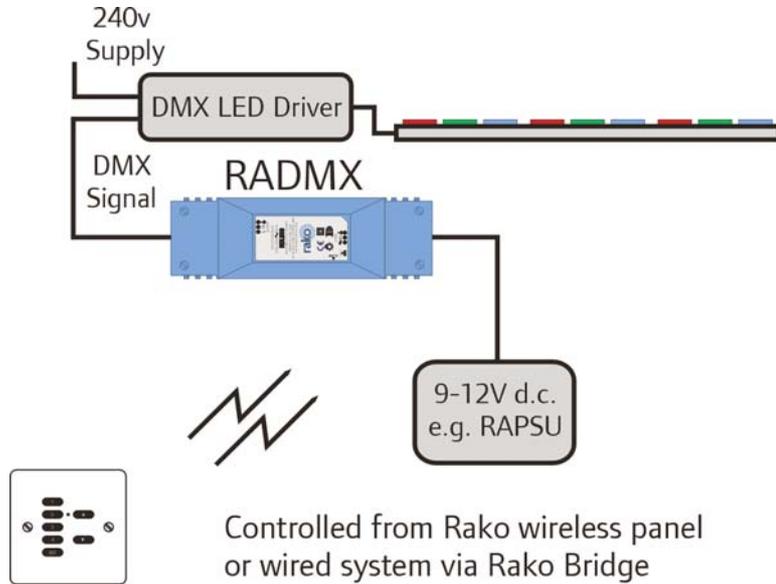
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CONTROLLING LED LIGHTING WITH RAKO DIMMERS AND MODULES

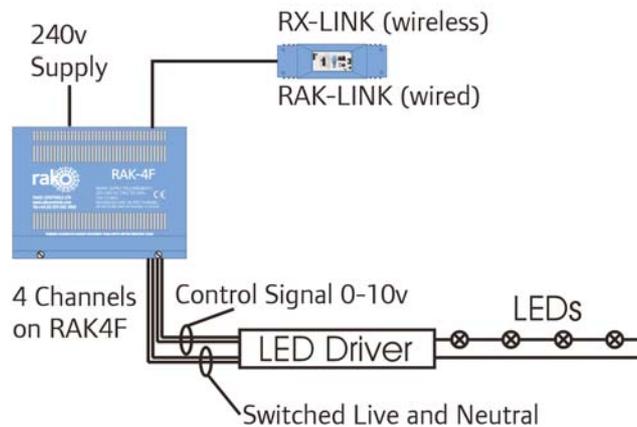
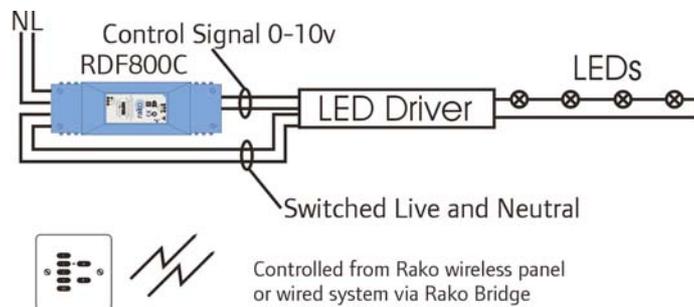
CONTROL METHOD 5 - DMX controlling DMX LED driver.

Many fittings with three colour LEDs use a driver that requires theatrical control method called DMX . Rako’s RADMX unit is used to control these DMX drivers.



CONTROL METHOD 6 - Dimming 0-10v drivers.

A number of led drivers have been introduced using the fluorescent 0-10 analogue control method. In addition to the mains wiring a 0-10v control pair is required between controller and driver. Rako’s RDF800C module and RAK-4F rack option are both suitable for this method of control.



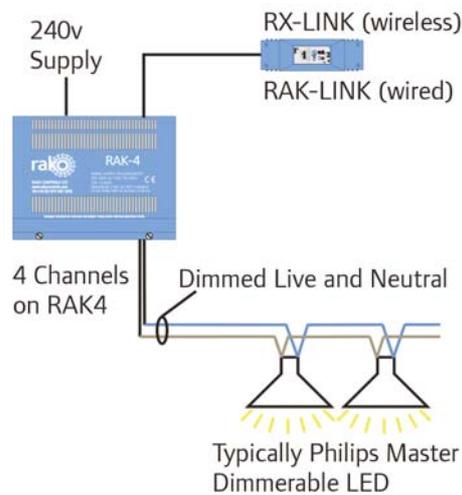
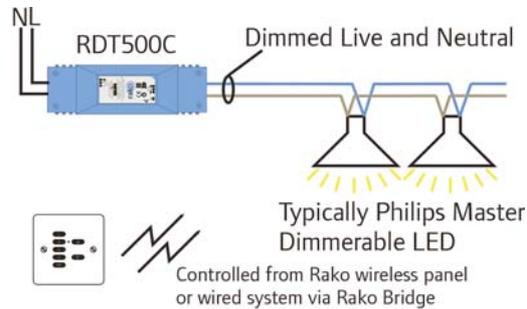
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RAKO CONTROLS

CONTROLLING LED LIGHTING WITH RAKO DIMMERS AND MODULES

CONTROL METHOD 7 - Mains dimmed using trailing edge dimmers.

LED fittings designed to work from conventional mains dimming can be controlled by Rako's RDT500C module or RAK-4 rack option. Both are trailing edge dimmers that offer smoother, silent dimming that is kinder to the electronic driver. It also has the added advantage of working with small loads as low as 1w. LED lighting loads can be too small for conventional dimmers.



CONTROL METHOD 8 - Non dimmed Switching

LED fittings that have a non-dimmable driver can be controlled using Rako's RDS800C module or RAK-4 and RAK-4F rack options.

