Moodifier™ Constant Current Driver
&
Moodifier™ Constant Current Slave

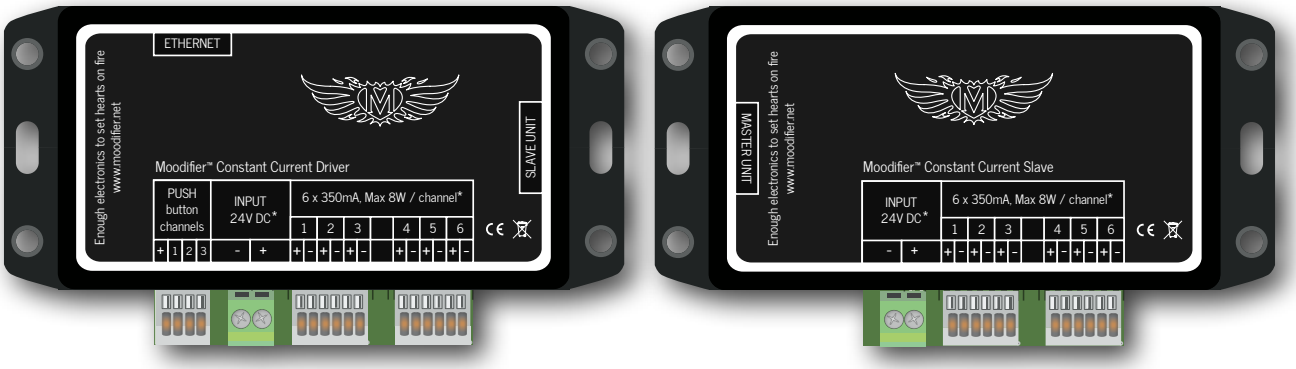


Table of content

Moodifier Constant Current Driver & Slave

The Moodifier Constant Current Driver and optional add on Slave unit controls and powers all types of LED lights that are ment to be drivven with 350mA contant current. The Moodifier™ Constant Current Driver & Slave units can power up to 75W each. When combined they can power a 150W of LED light on 12 individually controlled LED channels.

The Moodifier Constant Current Driver and Slave units are easily connected to each other with the included standard flat-cable.

Power supply, network, LEDs and other peripherals may only be connected according to the instructions that are printed on top of the Moodifier Constant Current Driver and Slave units. A faulty installation may cause harm and/or damage..

- **Do not short circuit any of the LED channels, it could destroy the Moodifier unit and invalidate the guarantee**
- **Do not mix up the plus and minus poles of the power supply, connecting the power supply with the wrong polarity can destroy the Moodifier unit and invalidate the guarantee**
- **Moodifier Constant Current Driver and Slave units may only be installed indoors**
- **Moodifier Constant Current Driver and Slave units may not be installed in wet or damp areas**
- **Moodifier Constant Current Driver and Slave units may not be encapsulated or enclosed in a way that prevents access to the units**
- **Constant Current Driver and Slave units should always have a fixed installation with good ventilation**

Despite that Moodifier Constant Current Driver and Slave are low voltage and low current units they should always be connected in a proper and professional way. You should always consult an authorised electrician if you are insecure on how the units are to be connected or if you are insecure if you are authorised to connect the units.

Power supply of 12-24 or 36 V DC

The Moodifier Constant Current Driver & Slave units are normally powered by 24V DC but they can be powered with 12-24V or 36V DC if special specifications are followed. The power output will increase with voltage according to:

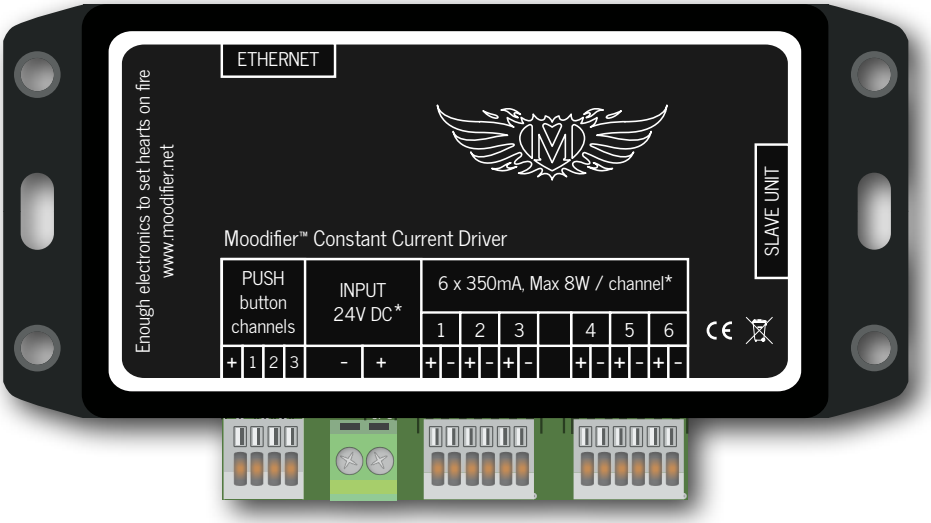
- 12V DC powers up to 25W of LED light for each unit, and a total of 50W for both Driver and Slave.
  Maximum load per LED channel at 12V DC: 0-4W
- 24V DC powers up to 50W of LED light for each unit, and a total of 100W for both Driver and Slave.
  Maximum load per LED channel at 24V DC: 0-8W
- 36V DC powers up to 75W of LED light for each unit, and a total of 150W for both Driver and Slave.
  Load range per LED channel at 36V DC: None or 9-12W (minimum LED power load per channel is 9W)

For further information see Technical specifications.
General descriptions in this manual assume that the units are powered with 24V DC unless stated otherwise.

The Moodifier Constant Current Driver

Moodifier Constant Current Driver has the following connectors

- 1 Network port (Ethernet)
- 1 port for connecting a 12-24V or 36V DC power supply
- 1 port for connection of a Slave unit
- 4 sockets for connecting up to 6 wall mounted push buttons
- 12 sockets (6 channels) for connecting up to 75W of LED lights or other 350mA constant current powered equipment

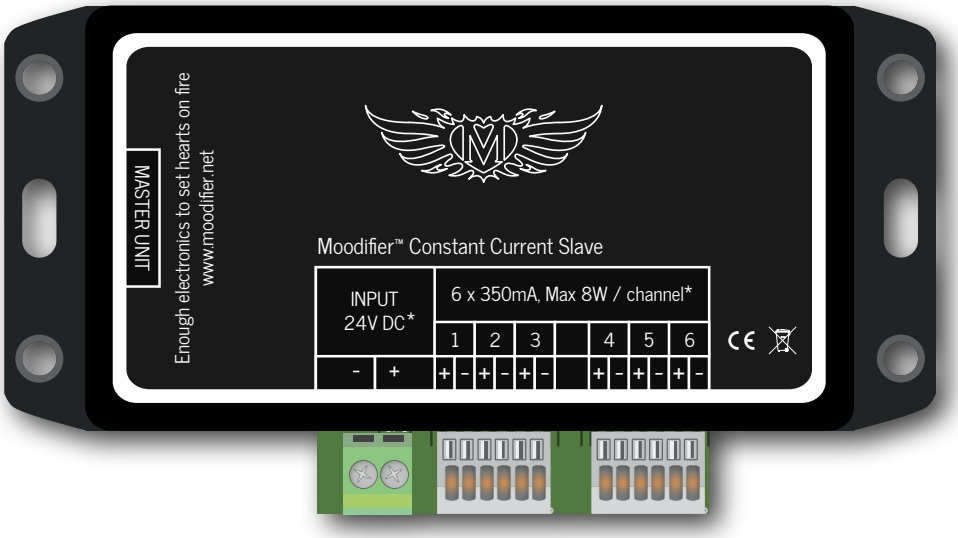


Moodifier Constant Current Driver seen from above with connectors facing down..

The Moodifier Constant Current Slave

Moodifier Constant Current Slave has the following connectors:

- 1 port for connecting a 12-24 or 36V DC power supply
- 1 port for connection to the Driver unit
- 12 sockets (6 channels) for connecting up to 75W of LED lights or other 350mA constant current powered equipment



Moodifier Constant Current Slave seen from above with connectors facing down..

Main features

- Network (Ethernet 10/100 Base-T)
- 6-12 individually controlled 350mA constant current LED-channels (6 channels on the Driver and 6 channels on the Slave)
- Up to 150W in total, 75W on the Driver unit and 75W on the Slave unit.
- 0-100% dimming in 250 steps
- Variable dim/transition-speeds.
- Easy to use and powerful software for controlling lights and create user defined light settings
- Unlimited number of user defined light settings
- Organise light settings in user defined zones
- Automation through scheduling of light settings
- Password protected and easy to use web interface for remote access of all light settings and zones
- Remote control all lights with iPhone, iPad and iPod
- Remote control all lights with Android phones and tablets
- Remote control all lights with any web browser
- Music sync in 100Hz (the lights colour and intensity is synchronised to follow the music in realtime)
- Video and screen sync in 30Hz (the lights colour and intensity is synchronised to the video/screen)
- Automated light shows
- Up to 6 user defined light scenarios for standard wall mounted push buttons
- User defined default light setting for power up or after power failure
- Pulse width modulated and flicker-free dimming
- Adjustable PWM frequency (480Hz - 4.8kHz)
- Status reporting (ip number, temperature, voltage, PWM frequency, power output per channel)
- Overheating protection (Moodifier Constant Current Driver only)

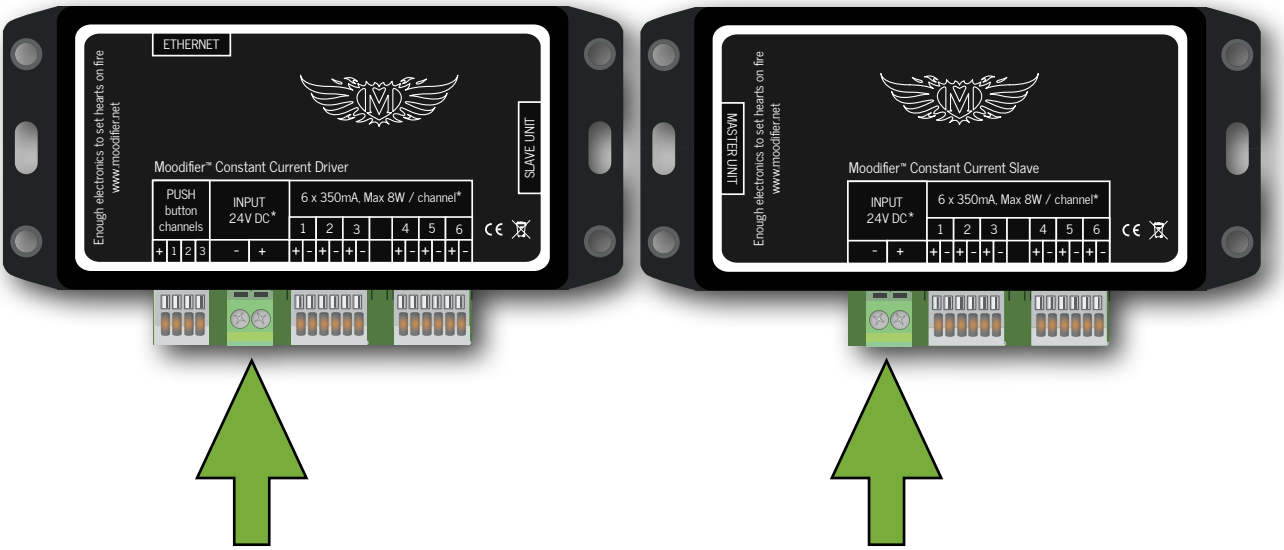
Connecting the power supply

The Moodifier Constant Current Driver and Slave units must be powered by a 12-24 or 36V DC power supply (sold separately).

The power supply needs to be able to provide enough power to drive all LEDs and other peripherals that are connected to the device.

The 12-24 or 36V DC power supply is easily connected by plugging it in to the appropriate connectors on the Moodifier Constant Current Driver and Slave units.

Do not mix up the plus and minus poles of the power supply, connecting the power supply with the wrong polarity will destroy the Moodifier unit and invalidate the guarantee.

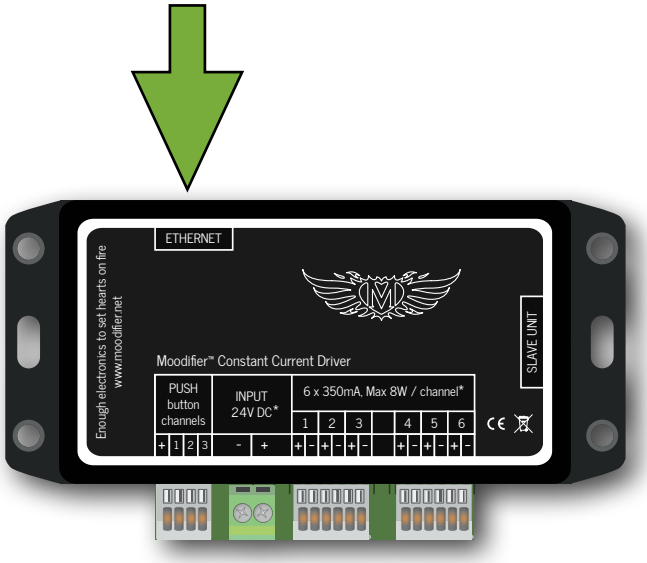


By putting a standard wall switch that cuts the power to the power supply you will get a master power on/off switch for the device. Use the Moodifier application to set the default light setting that is activated whenever the unit is powered up or after power failures.

If you need more advanced push button light scenarios you simply connect up to 6 wall mounted push buttons to the push button channels.

Connecting to the network (LAN/Internet)

The Moodifier Constant Current Driver connects to the network with a standard ethernet cable. The device may also be connected to a Wifi-network by using a Wifi-adaptor from Netgear[1] (sold separately).



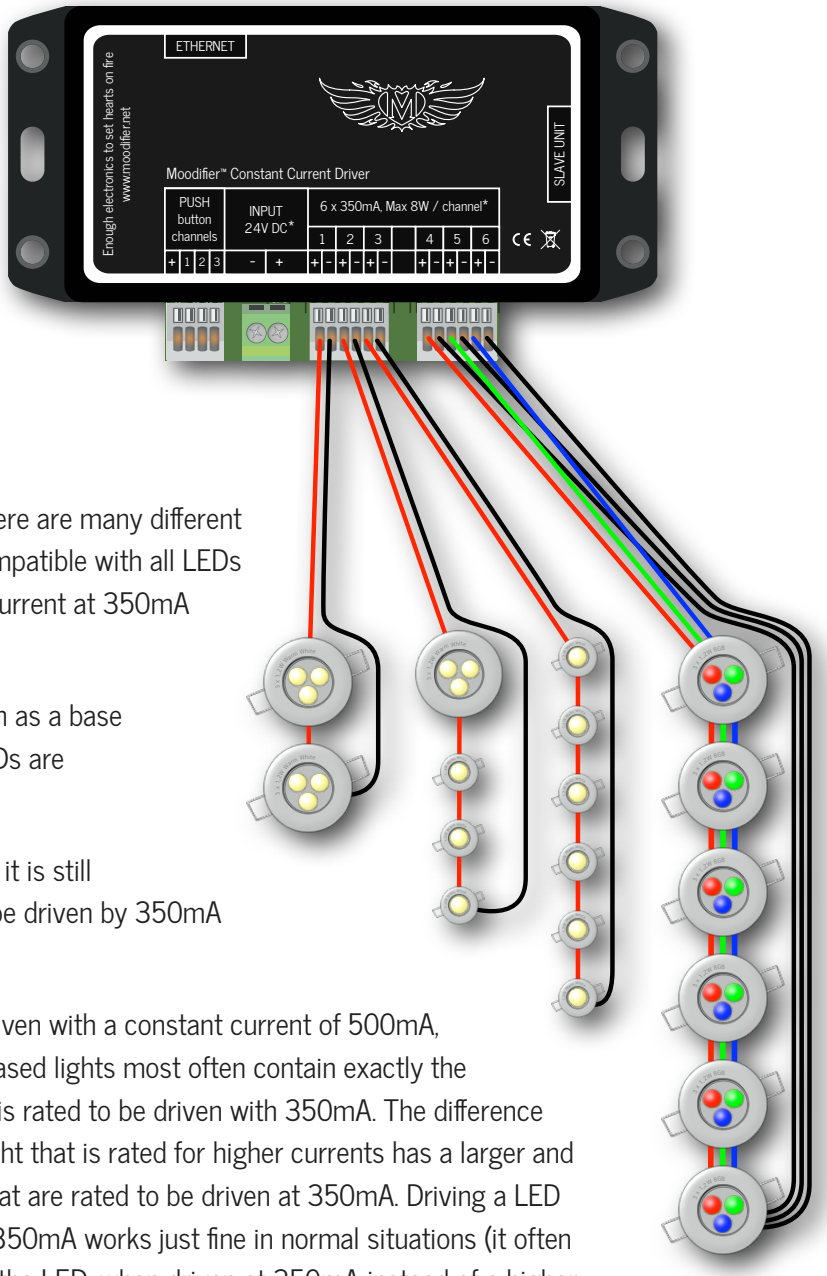
The Moodifier Constant Current Driver will auto-configure itself on the network with DHCP. Once the unit is connected to the network and powered on it will be ready and available on the network. Use the Moodifier application to auto-detect Moodifier devices on the network. Once a Moodifier device is detected on the network you can start to control the lights that are connected to it.

1 http://www.netgear.com/home/products/wireless-adapters/high-performance/WNCE2001.aspx

Connecting LEDs and LED lights

The Moodifier Constant Current Driver and Slave both have 6 individually controllable LED-channels where LEDs should be connected in series. Each LED-channel delivers a constant current of 350mA with a power of 8W when powered at 24V DC.

LEDs and LED lights should always be connected, in series, to the positive and negative connectors of each LED-channel on the Moodifier LED driver. To the right is an image of how different types of LED lights are to be connected to the Moodifier Constant Current Driver.



Common LED lights

LED stands for "Light Emitting Diode". There are many different types of LEDs. Moodifier LED driver is compatible with all LEDs that are meant to be driven by constant current at 350mA and above.

350mA constant current has been chosen as a base current by the LED industry and most LEDs are compatible with 350mA.

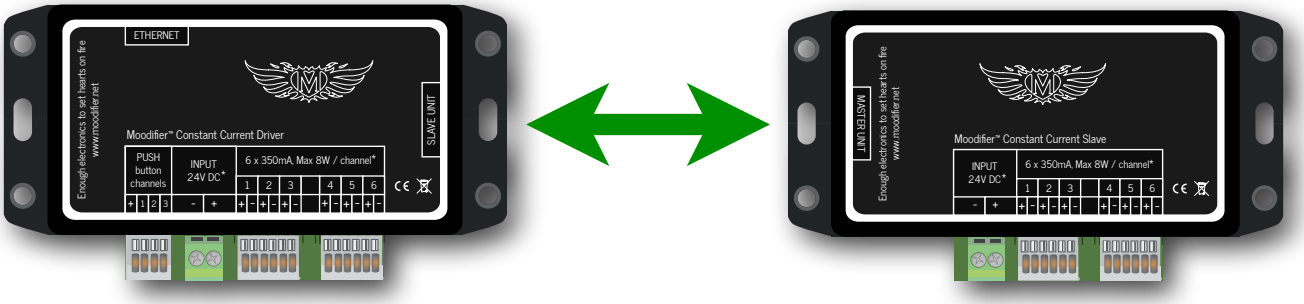
When choosing LEDs or LED based lights it is still important to check that they are built to be driven by 350mA constant current.

Some LED based lights are rated to be driven with a constant current of 500mA, 550mA, 600mA or 700mA. These LED based lights most often contain exactly the same LEDs as in an LED based light that is rated to be driven with 350mA. The difference between the two is that the LED based light that is rated for higher currents has a larger and more effective heat sink than the lights that are rated to be driven at 350mA. Driving a LED based light that is rated for 700mA with 350mA works just fine in normal situations (it often contains the same LEDs). The lifespan of the LED, when driven at 350mA instead of a higher current, is also greatly extended due to to that the LED is running cooler.

LED based lights ate available in a plethora of models, shapes and colours, above we have chosen to illustrate a few common types of downlights with a few different combinations of LEDs. Moodifier is also capable of driving many other models of LED based lights.

Master and Slave units.

The Moodifier Constant Current Driver has a socket where you can connect a slave unit to expand with more channels, more power and more lights. The Slave unit is easily connected with a standard flat cable (included with slave units).



You can connect 2 types of slave units to the Moodifier Constant Current Driver, a Moodifier Constant Current Slave or a Moodifier Constant Voltage Slave. This functionality adds great flexibility when designing your lighting since it enables a wide range of options for both constant current and constant voltage based LED lights.

Connecting a Moodifier Constant Current Slave unit

Connecting a Moodifier Constant Current Slave unit will give you 6 extra constant current LED channels. The constant current slave unit can be powered with the same or a different Voltage than the Master unit. The Master unit can be powered by 12V and the Slave by 36V, or they can both be powered by 24V. This adds great flexibility when designing your lighting since it enables a wide range of options.

Connecting a Moodifier Constant Voltage slave unit

Connecting a Moodifier Constant Voltage Slave unit will give you 6 extra constant voltage LED channels. The constant voltage slave unit can be powered with the same or a different Voltage than the Master unit. The Master unit can be powered by 24V and the Slave by 12V, or they can both be powered by 24V. This adds great flexibility when designing your lighting since it enables a wide range of options.

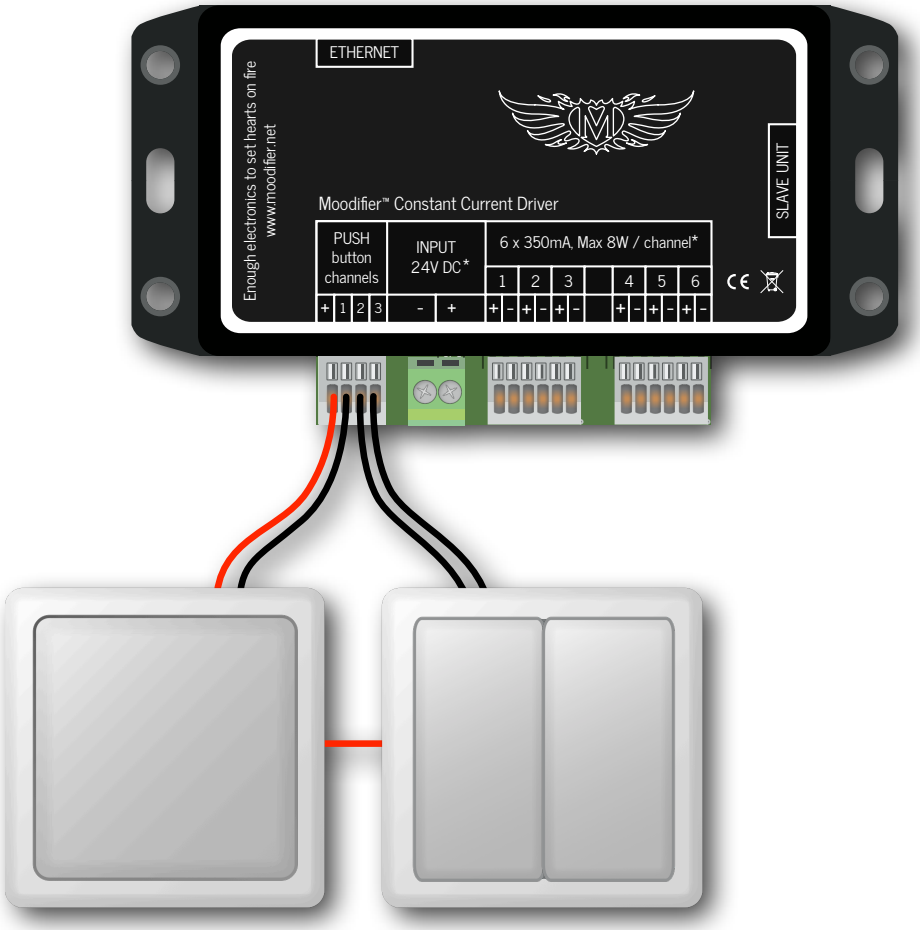
For more information about the Moodifier Constant Voltage units visit:
http://www.moodifier.net/hardware/constant-voltage-driver

Connecting traditional wall mounted push buttons

The Moodifier Constant Current Driver has 4 connectors (PUSH button channels) for connection of up to 6 standard wall mounted push buttons. A push on each button activates/de-activates a user defined light scenario. Holding in the push button will enable dimming of the user defined light scenarios (0-100%). These push buttons enables you to control the Moodifier lighting in a traditional way with standard wall mounted buttons. The push buttons makes the Moodifier Constant Current Driver fully operational as a stand alone unit without being connected to a network. The Moodifier application makes it easy to alter and customise what should happen when each push button is pressed.

Push button 1-3

By closing a circuit between + and any of the 1, 2 or 3 push button channels a signal is sent to the Moodifier Constant Current Driver that activates or deactivates the light setting that is set for that push button. Each push button can be set to activate and de-activate its own light scenario. Dimming of the light scenario is achieved by holding in the push button. Use the Moodifier application to set the light scenario that each push button should activate/de-activate.



Moodifier LED with 3 connected push buttons that each activates/de-activates its own light scenario.

Push button 4-6

By closing a circuit between + and two push button channels simultaneously you can connect and use another 3 push button functions that activates/de-activates another 3 light scenarios. Use the Moodifier application to set the light scenario that each push button should activate/de-activate. Closing all 3 push button channels at the same time turns all the lights off.

Technical specification

Moodifier Constant Current Driver

Connections

- 1 Network port (Ethernet)
- 1 power supply port.
- 12 connectors to connect 6 LED control channels
- 4 connectors for connecting up to 6 push buttons.
- 1 connector for connecting a slave unit.

Technical data

Power supply	12-24 or 36V DC
LED channels	6
Current per LED channel	350mA
Max load per LED channel @ 12V	0 - 4W
Max load per LED channel @ 24V	0 - 8W
Min/Max load per LED channel @ 36V	0 or 9 - 12.5W (min 9W)
Push button functions	6
Network	Ethernet 10/100
PWM Frequency	480Hz - 4.8kHz (adjustable)
Overheat protection	Yes
Conforms to European EMC regulations	Yes
CE marked	Yes
Dimensions (LxWxH)	112 (136) x62x30mm
Ambient temperature (operation)	0-35°C

Moodifier Constant Current Slave

Connections:

- 1 power supply port.
- 12 connectors to connect 6 LED control channels
- 1 connector for connection to master unit.

Technical data

Power supply	12-24 or 36V DC
LED channels	6
Current per LED channel	350mA
Max load per LED channel @ 12V	0 - 4W
Max load per LED channel @ 24V	0 - 8W
Min/Max load per LED channel @ 36V	0 or 9 - 12.5W (min 9W)
PWM Frequency	480Hz - 4.8kHz (adjustable)
Overheat protection	Yes
Conforms to European EMC regulations	Yes
CE marked	Yes
Dimensions (LxWxH)	112 (136) x62x30mm
Ambient temperature (operation)	0-35°C

Planing your lighting

In order to get the maximum value and pleasure from your Moodifier lighting it is important to plan how you want your lighting to work. Each LED channel on the Moodifier Constant Current Driver and Slave can be controlled individually (switched on/of or dimmed)

If you want to be able to light up a wall or some other part of a room individually you should dedicate one or more LED-channels for that purpose.

If you want to colour-change the lighting with RGB lights that have 6 wires (one positive and negative for each colour, red, green and blue) you need to dedicate 3 LED-channels for that purpose. Keep in mind that coloured light is not visible unless it hits a surface. If you want to colour a room with light you should direct the lights to the walls and ceiling, not to the centre of the room. A good comparison is to think of it is as if you were painting with light.

By planning your lighting well you are able to create unique mood-setting atmospheres with astonishing effects.

Electric cable recommendations

When connecting LED lights to the Moodifier Constant Current Driver and Slave units it is recommended that you use a copper cable with a diameter of about 0.51mm = area of 0.205mm2 = AWG 24 or wider. A standard cat5/ cat5e ethernet cable will do fine in most cases for cable lengths of up to 20-25 meters (40-50 meters back and fourth).

Smart wiring & installation

Using an 8 wire (4 wire pairs) cable you can connect 4 Moodifier LED channels with one cable. Each LED channel can power up to 8W of LEDs. Using the Moodifier MMT series of LED downlights you can connect up to 2 LED downlights to each LED channel. The 4 channels and cable pairs will let you connect up to 8 MMT LED downlights with the same cable.

How to connect 4 LED channels in one 8 wire cable

Presuming you are installing the Moodifier MMT (3.5W) series of LED downlights.

Simply pull out an 8 wire cable (4 pairs) from the Moodifier Constant Current Driver/Slave unit to where up to 8 LED lights are located. Pull the cable from one light to the next. Leaving a spare 50 cm of cable at each light location makes it easier to connect the lights later.

Connect the 4 wire pairs to 4 LED channels on the Moodifier Constant Current Driver/Slave unit, keep note of the wire colors that connects to the positive and negative poles (+ / -).

At the first light, carefully peal off the outer cable sealing so that the inner isolated wires are exposed. Cut one of the positive wires and serially connect the first LED light to it.

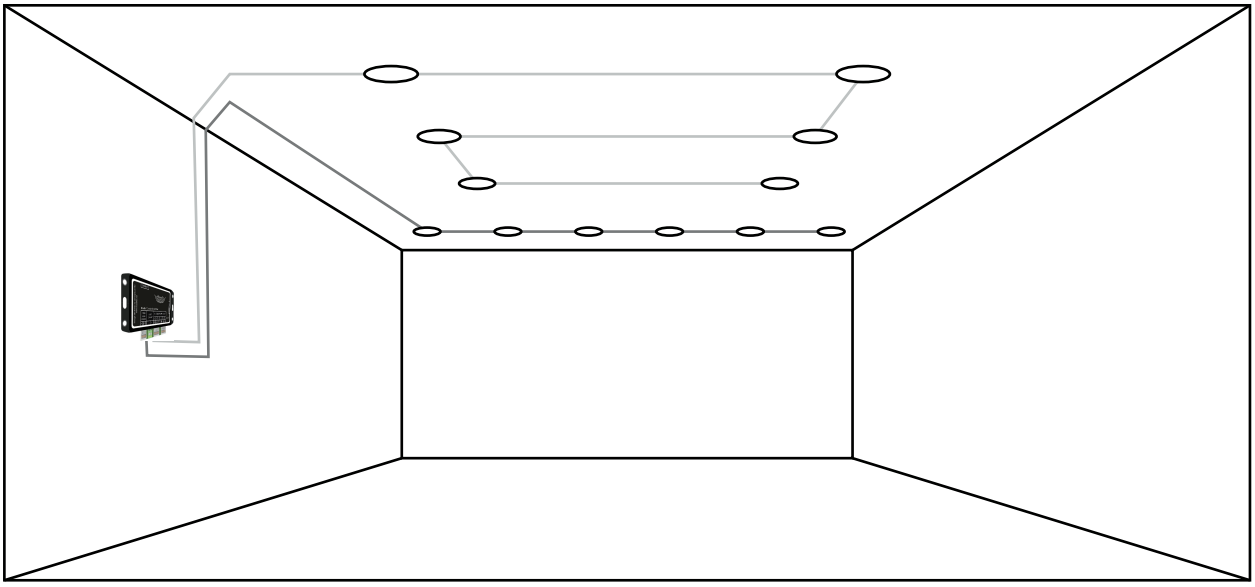
At the second light carefully peal off the outer sealing so that the inner wires are exposed. Cut the positive and negative wires of the wire pair that the first light was connected to and close the serial wire connection of the first and second light.

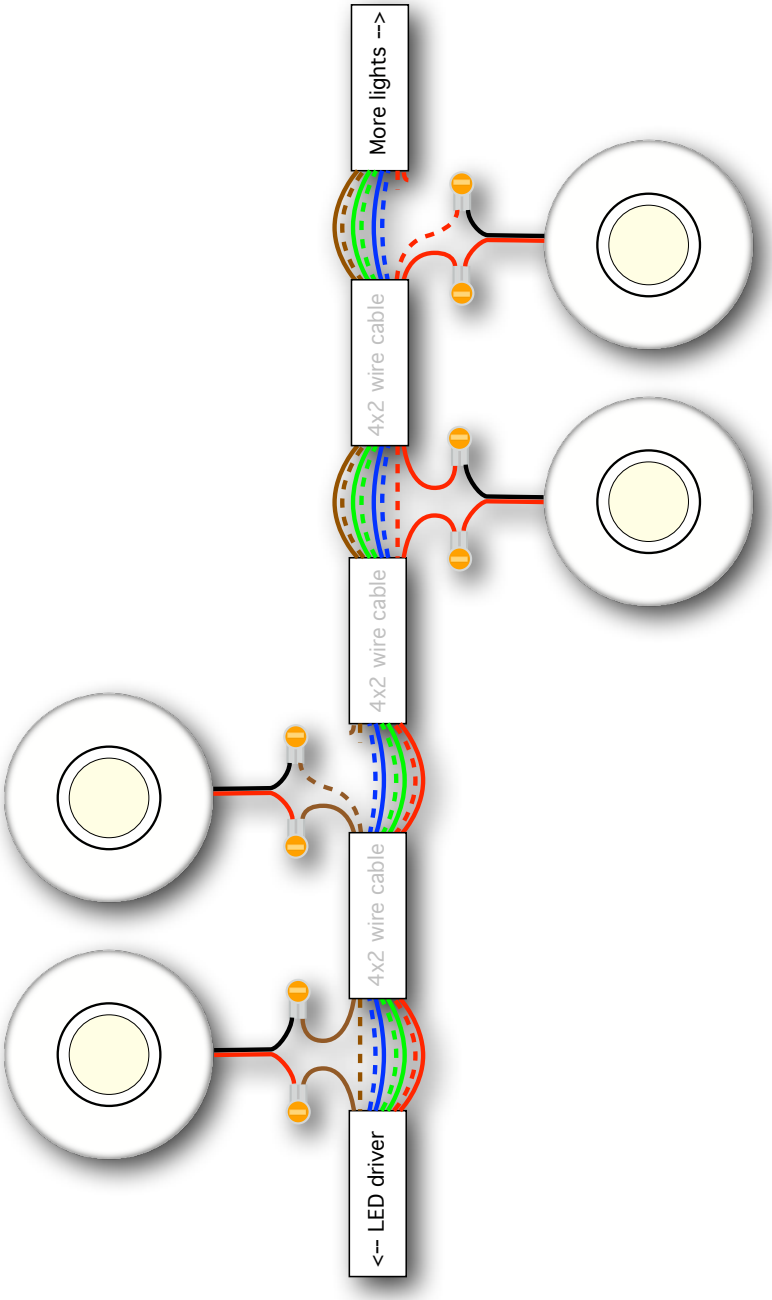
Proceed to the third and fourth lights and repeat the procedure using a different wire pair than the first two lights were connected to.

Repeat the procedure for the fifth/sixth and seventh/eighth lights.

If you are only connecting one light to any of the channels you simply close the serial wire connection for that LED channel with the first light.

Se cable and wire connection images below




More lights -->
4x2 wire cable
4x2 wire cable
4x2 wire cable
<-- LED driver

Software

The Moodifier applications are available as free downloads on:
http://www.moodifier.net/software/

http://www.moodifier.net