Moodifier™ Constant Voltage Driver
Moodifier™ Constant Voltage Slave

- DIN-rail series -

| Ethernet	off	6	5	4	3	2	1	+	+	+	Slave
			Push button inputs								

Moodifier Constant Voltage Driver

www.moodifier.net

6 LED channels @ 12-24V DC
Max 8.3A (3A / channel)

12-24V DC				1		2		3		4		5		6	
+	+	-	-	+	-	+	-	+	-	+	-	+	-	+	-

Master

Moodifier Constant Voltage Slave

www.moodifier.net

6 LED channels @ 12-24V DC
Max 8.3A (3A / channel)

12-24V DC				7		8		9		10		11		12	
+	+	-	-	+	-	+	-	+	-	+	-	+	-	+	-
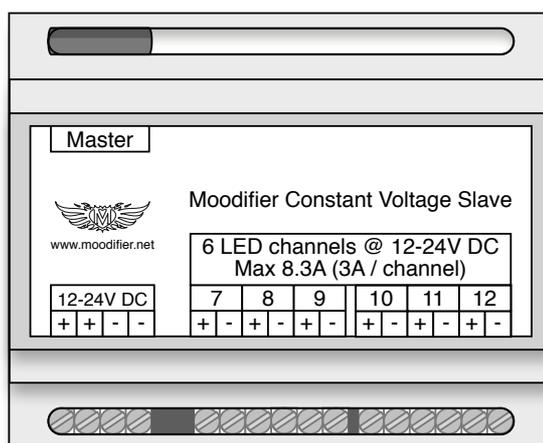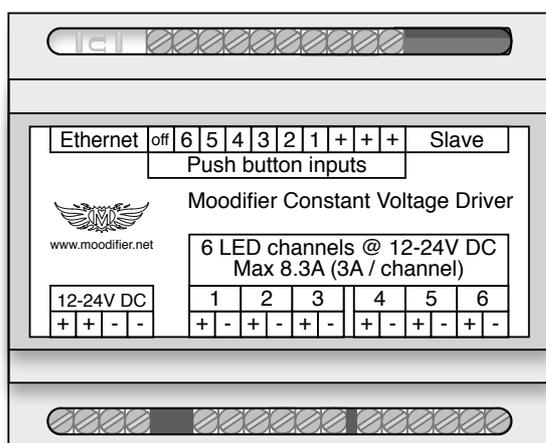
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Moodifier Constant Voltage Driver & Slave

The Moodifier Constant Voltage Driver and optional add on Slave unit controls and powers LED strips (RGB & single color), LED bars, LED track lighting, relays or any other 12-24V DC powered peripheral you want. The Moodifier™ Constant Voltage Driver & Slave units can power up to 200W (8.3A) each. When combined they can power a whopping 400W of LED light on 12 individually controlled LED channels.

The Moodifier Constant Voltage 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 Voltage driver and Slave units. A faulty installation may cause harm and/or damage.

All Moodifier units should always be installed in a way that ensures good ventilation so that open air can flow freely around the units.

- **Do not short circuit any of the LED channels, it will 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 will destroy the Moodifier unit and invalidate the guarantee**
- **Moodifier Constant Voltage Driver and Slave units may only be installed indoors**
- **Moodifier Constant Voltage Driver and Slave units may not be installed in wet or damp areas**
- **Moodifier Constant Voltage Driver and Slave units may not be encapsulated or enclosed in a way that prevents access to the units**

Despite that Moodifier Constant voltage 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.

The DIN-rail mounted Moodifier Constant Voltage Driver

Moodifier Constant Voltage Driver has the following connectors

- 1 Network port (Ethernet)
- 4 ports for connecting and daisy chaining a 12-24V DC power supply
- 1 port for connection of a Slave unit
- 10 sockets for connecting up to 7 wall mounted push buttons
- 12 sockets (6 channels) for connecting up to 200W of LED lights or other 12-24V DC powered equipment
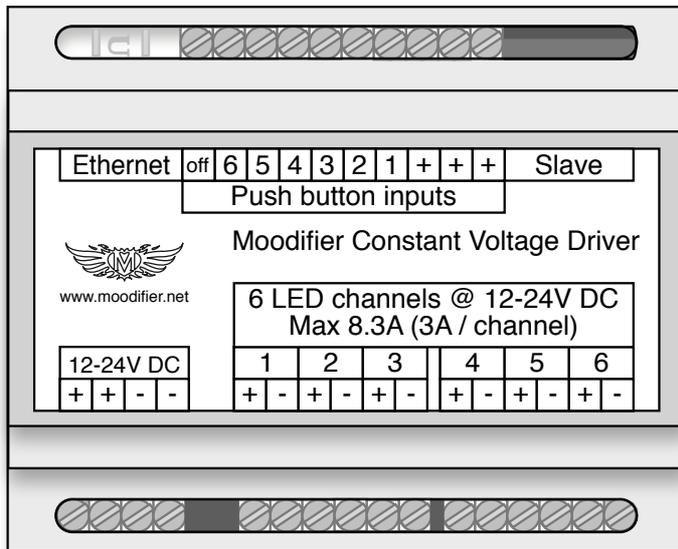
The DIN-rail mounted Moodifier Constant Voltage Driver seen from above with connectors facing up/down.

The DIN-rail mounted Moodifier Constant Voltage Slave

Moodifier Constant Voltage Slave has the following connectors:

- 4 ports for connecting and daisy chaining a 12-24V DC power supply
- 1 port for connection to the driver (master) unit
- 12 sockets (6 channels) for connecting up to 200W of LED lights or other 12-24V DC powered equipment
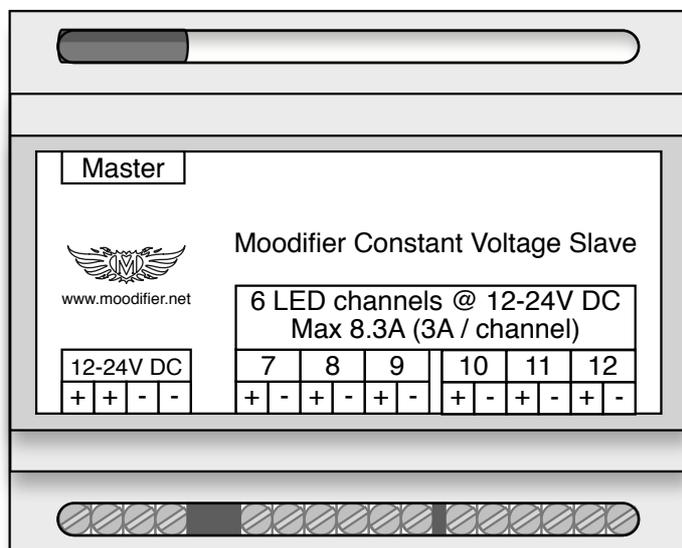
The DIN-rail mounted Moodifier Constant Voltage Slave seen from above with connectors facing up/down.

Main features

- Network (Ethernet 10/100 Base-T)
- 6-12 individually controlled 12-24V DC LED-channels (6 channels on the Driver and 6 channels on the Slave)
- Up to 16.6A in total, 8.3A on the Driver unit and 8.33A on the Slave unit.
- Up to 400W of power, 200W on the Driver unit and 200W on the Slave unit (at 24V)
- 0-100% dimming in 250 steps
- Up to 6 user defined light scenes for wall mounted push buttons
- Pulse width modulated and flicker-free dimming
- Adjustable PWM frequency (480Hz - 4.8kHz)
- Easy to use and feature rich 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, by day / time and sunrise / sunset.
- 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
- User defined default light setting for power up or after power failure
- Status reporting (ip number, temperature, voltage, PWM frequency, power output per channel)

Master and Slave units.

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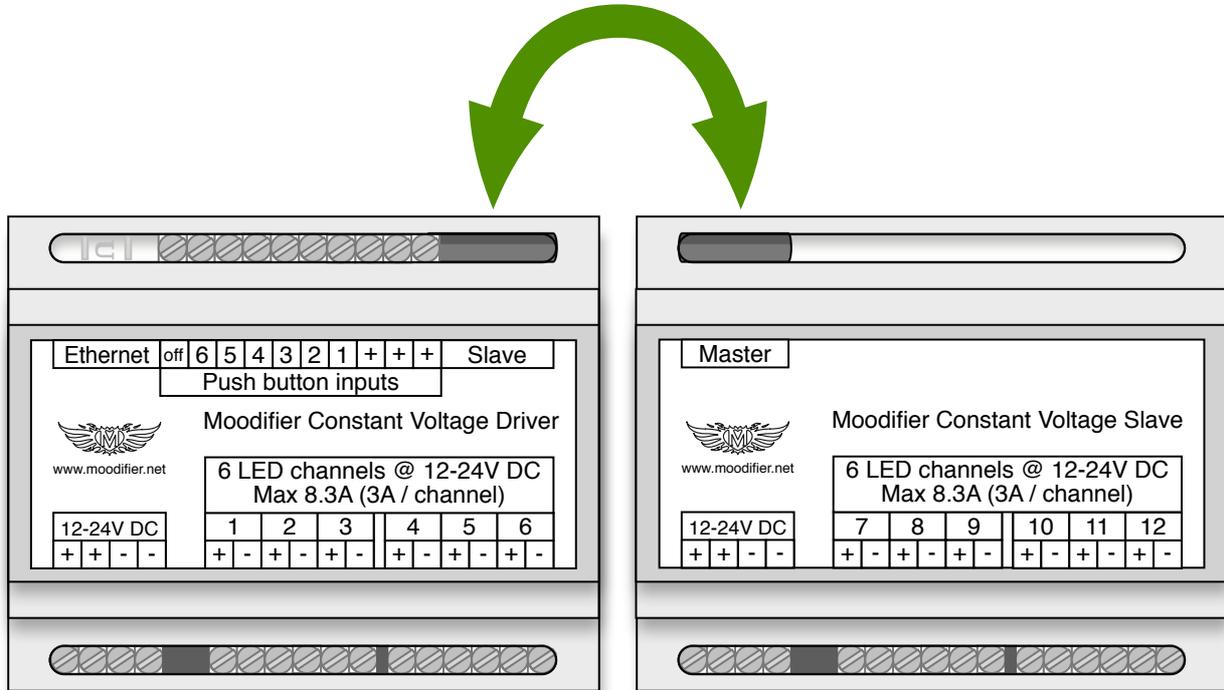
You can connect 2 types of slave units to the Moodifier Constant Voltage Driver, a Moodifier Constant Current Slave unit or a Moodifier Constant Voltage Slave unit. This adds great flexibility when designing your lighting since it enables a wide range of options for both constant current and constant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

Connecting the power supply

The Moodifier Constant voltage Driver and Slave units must be powered by a 12-24V 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. A power supply that delivers 200W per unit at 24V DC or 100W per unit at 12V DC (8.3A) is needed for full armament.

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

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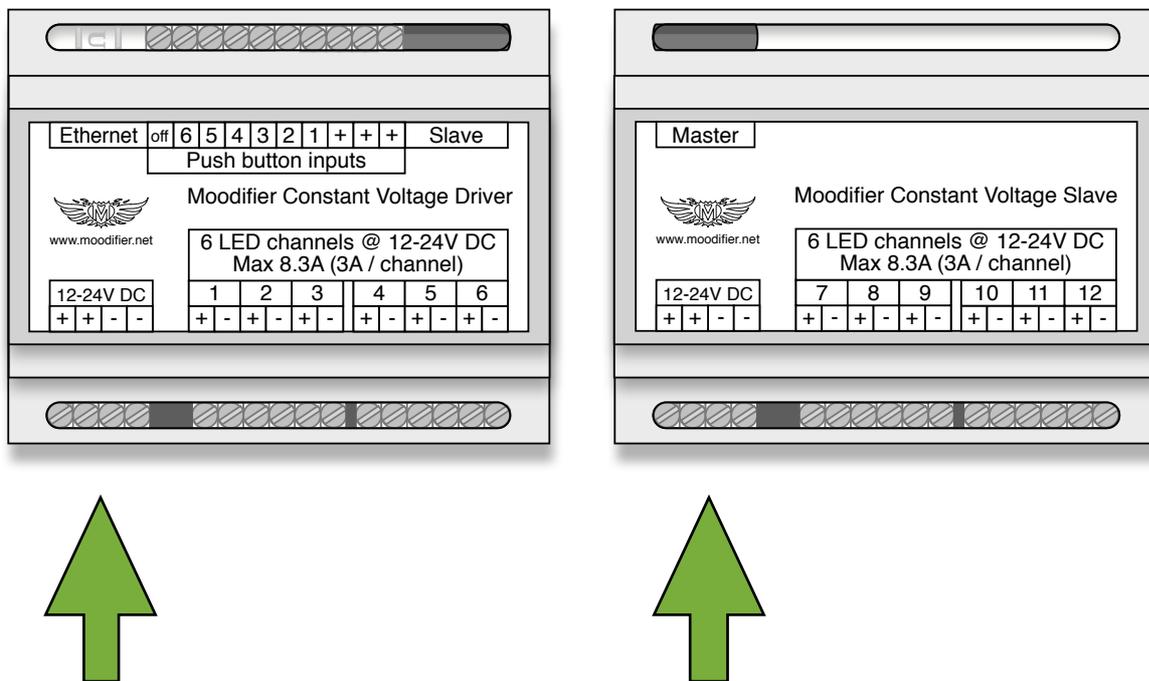

By putting a standard wall switch that cuts the power to the power supply you will get a master power on/off switch for the device. Use the Moodifier application to set the default light setting that is activated whenever the unit is powered up or after power failures.

If you need more sophisticated wall switch you can connect up to 6 wall mounted push buttons to the push button inputs.

Powering master and slave units with different power supplies and/or at different voltages.

Master and slave units that are connected to each other should always use a common ground.
If you need to power an interconnected master and slave unit at different voltages, or using different power supplies of the same voltage, you need to make sure that the two units are commonly grounded. This is easily accomplished by connecting a wire between the two units ground (-) connectors.

Ethernet	off	6	5	4	3	2	1	+	+	+	Slave

Push button inputs

Moodifier Constant Current Driver

www.moodifier.net

6 x 350mA. Max 8W / channel*

24V DC*				1		2		3		4		5		6	
+	+	-	-	+	-	+	-	+	-	+	-	+	-	+	-

Master

Moodifier Constant Voltage Slave

www.moodifier.net

6 LED channels @ 12-24V DC
Max 8.3A (3A / channel)

12-24V DC			7		8		9		10		11		12	
+	+	-	+	-	+	-	+	-	+	-	+	-	+	-

24V DC Power supply

12V DC Power supply
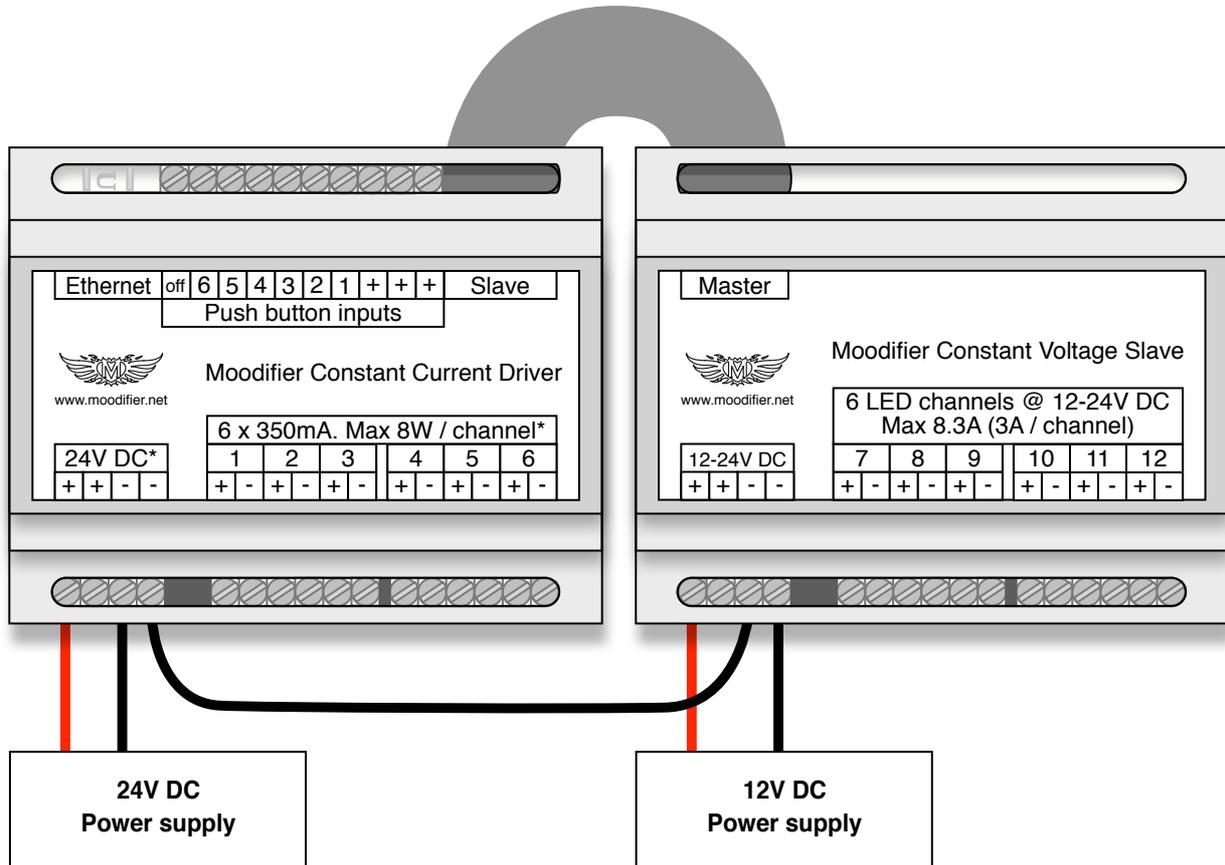
Interconnected Master and Slave units running different voltages and power supplies with common grounding.

Connecting a Moodifier Constant Current or Constant Voltage Slave unit

Connecting a Moodifier Constant Current Slave unit will provide 6 extra constant current LED channels. Connecting a Moodifier Constant Voltage Slave unit will provide 6 extra constant voltage LED channels. The slave unit can be powered with the same or a different voltage than the Master unit as long as the units use a common grounding. This adds great flexibility when designing your lighting since it enables a wide range of options.

For more information about the Moodifier DIN-rail mounted Constant Current units visit: www.moodifier.net/hardware/din-rail-constant-current-driver

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

Connecting to the network (LAN/Internet)

The Moodifier Constant Voltage 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).

Ethernet	off	6	5	4	3	2	1	+	+	+	Slave
				Push button inputs							

Moodifier Constant Voltage Driver

www.moodifier.net

6 LED channels @ 12-24V DC Max 8.3A (3A / channel)					
1	2	3	4	5	6

12-24V DC			
+	+	-	-

1		2		3		4		5		6	
+	-	+	-	+	-	+	-	+	-	+	-
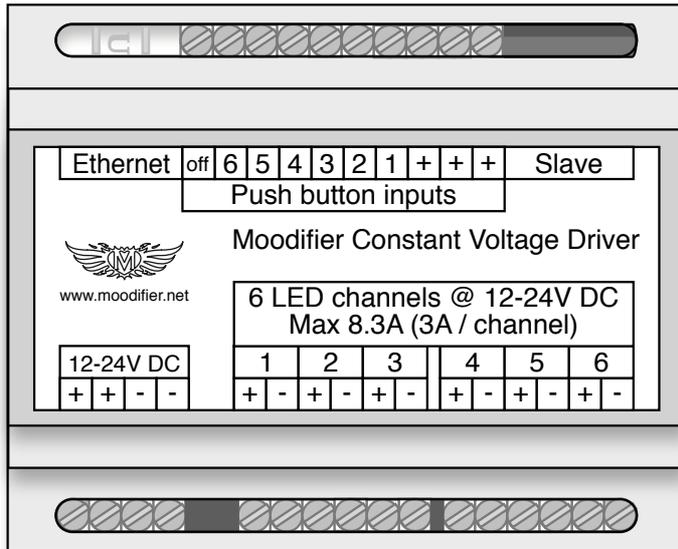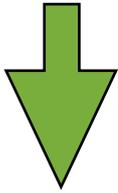
The Moodifier Constant Voltage Driver will auto-configure itself on the network with DHCP. Once the unit is connected to the network and powered on it will be ready and available on the network. Use the Moodifier application to auto-detect Moodifier devices on the network. Once a Moodifier device is detected on the network you can start to control the lights that are connected to it.

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

Connecting LED lights and other peripherals

The Moodifier Constant Voltage Driver and optional add on Slave unit controls and powers LED strips (RGB & single color), LED bars, LED track lighting, relays or any other 12-24V DC powered peripheral you want.

The Moodifier Constant Voltage Driver can power up to 8.3A on 6 individually controlled LED channels, but if you need more than 6 channels or more power you can attach a Moodifier Constant Voltage Slave unit to get another 6 individually controlled LED channels and double the power output.

Do not short circuit any of the LED channels, it will destroy the Moodifier unit and invalidate the guarantee.

LED strips, LED bars, track lighting and other 12V-24V DC constant voltage peripheral should always be connected in parallel to the positive (+) and negative (-) connectors of the LED channels on the Moodifier Constant Voltage Driver and Slave units.

Common 12-24V DC LED lights

LED stands for "Light Emitting Diode". There are many different types of LEDs. The Moodifier Constant Voltage Driver and Slave units are compatible with all LEDs that are meant to be driven by a 12-24V DC constant voltage power source.

When choosing LEDs or LED based lights it is important to check that they are built to be driven by a 12-24V DC constant voltage power source. You also need to match the power supply 12V or 24V DC to the lights that are connected to the units. Using a 12V DC power supply will make the unit output 12V DC and using a 24V DC power supply will make the unit output 24V DC.

If you intend to use LED lights or peripherals that are powered by both 12V DC and 24V DC simultaneously you can use a 24V DC power supply for the Moodifier Constant Voltage Driver and a 12V DC power supply for the attached Moodifier Constant Voltage Slave.
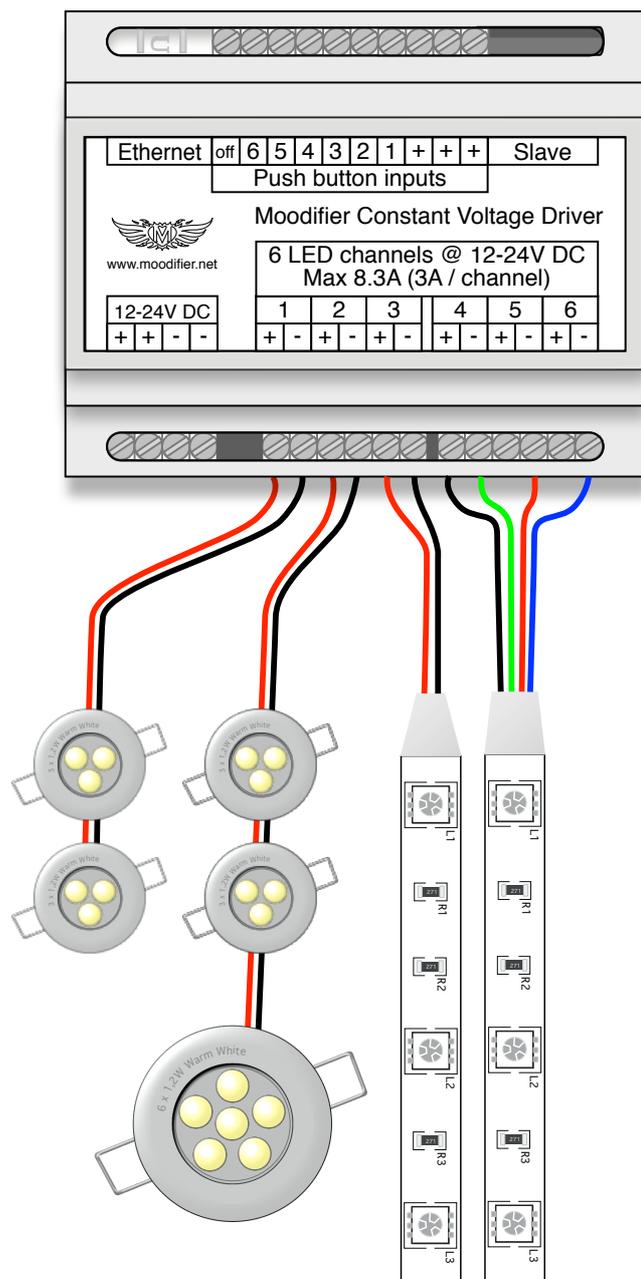
12V DC vs. 24V DC

One benefit of using a 24V light instead of a 12V is that the installation will be less vulnerable to voltage drop in the cable or strip. A voltage drop in the cable or strip can cause LEDs at the end of the cable/strip to not light up as bright, and you end up with uneven light output throughout the cable/strip. Another benefit of using 24V LED strip instead of 12V is that you i can have twice as many LEDs/lights on any given driver/power supply. This is because the limiting factor is the max rated current for the driver/power supply.

The conclusion is that 24V is preferred, and you should choose a 24V LED/strip in favour of a 12V if possible.

LED bars, spotlights and LED track lights.

LED bars and track lighting also come in both 12V and 24V versions. They are usually produce white light and have two connecting cables, one + and one -.

LED strips (tape)

LED strips usually come in rolls of 5 meter. They can be either 12V or 24V and usually consume 7.2 or 14.4 Watt per meter.

They come in both RGB (Colored) and white light versions. The RGB LED strip have 4 connecting cables, 1 + cable for the main power and a return - cable for each of the colors red, green and blue. White LED strip only has two cables one + and one -.

Connecting LED strips

RGB (colored) LED strip has 4 cables. One + cable and 3 - cables. Connect the + cable to one of the + output channel socket on the Moodifier unit and each of the three - cables to a separate return channel (1, 2, 3 or 4, 5 , 6).

Each of the channels can be individually controlled and that will color-mix the red, green and blue LEDs to 16 million different light colors.

White LED strips have two cables. One + and one - cable. Connect the + cable to the + connector of one LED channel on the Moodifier unit and the - cable to the corresponding - connector.

Connecting wall switches

The Moodifier Constant Voltage Driver has 10 connectors for connection of up to 6 wall mounted momentary push buttons (normally open). A push on each button activates/de-activates a given light scene. Holding in the push button will enable dimming of the light scenes (0-100%). By default each of the 6 push button inputs will control LED channel 1 through 6, 0-100%, but you can easily use the Moodifier software to define your own custom light scene for any given push button. The set light scenes are remembered after a power cut so there is no need for reset after power failures. The push button inputs enables you to control the Moodifier lighting in a traditional way with standard wall mounted push buttons. The push buttons makes the Moodifier Constant Current Driver fully operational as a stand alone unit if the IP-network goes down or is disconnected.
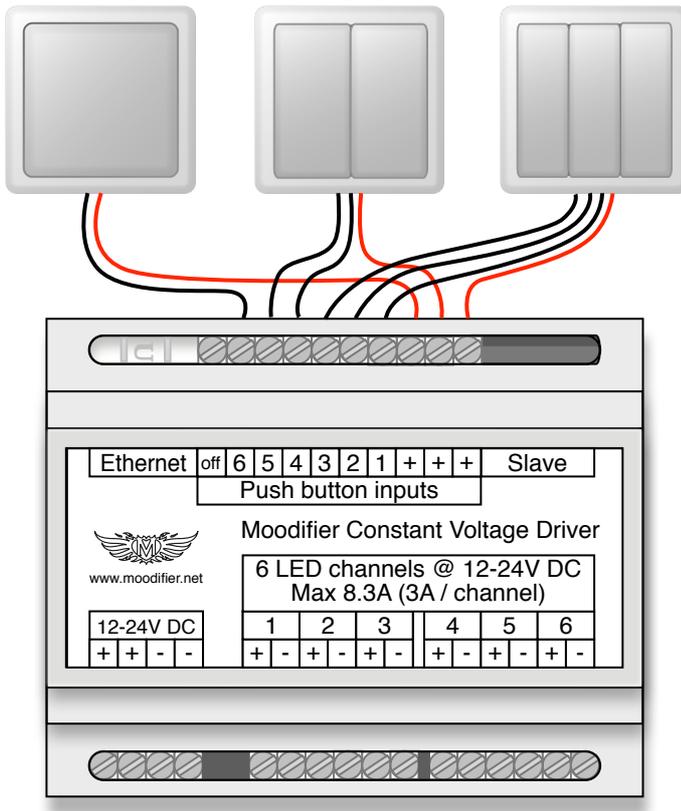
Moodifier Constant Voltage Driver with 6 connected push buttons that each activates/de-activates its own light scene.

Push button 1-6

By closing a circuit between any of the three + connectors and any of the 1, 2, 3, 4, 5 or 6 push button channels a signal is sent to the Moodifier Constant Voltage Driver that activates or deactivates the light scene that is set for that push button. Each push button can be set to activate and de-activate its own light scene. Dimming of the light scene is achieved by holding in the push button.

Connecting multiple Moodifier units to a single push button

One push button can be wired to control multiple Moodifier units. If doing so you will first need to make sure that all the Moodifier units use a common ground. This is easily accomplished by connecting a wire between the Moodifier units ground (-) connectors.

The push button is then connected so that, when pushed, it closes a circuit between **one** of the Moodifier units push button + ports and a given push button return channel on each Moodifier unit. The push button will then control the given push button channel on each Moodifier unit. See wiring diagram below.
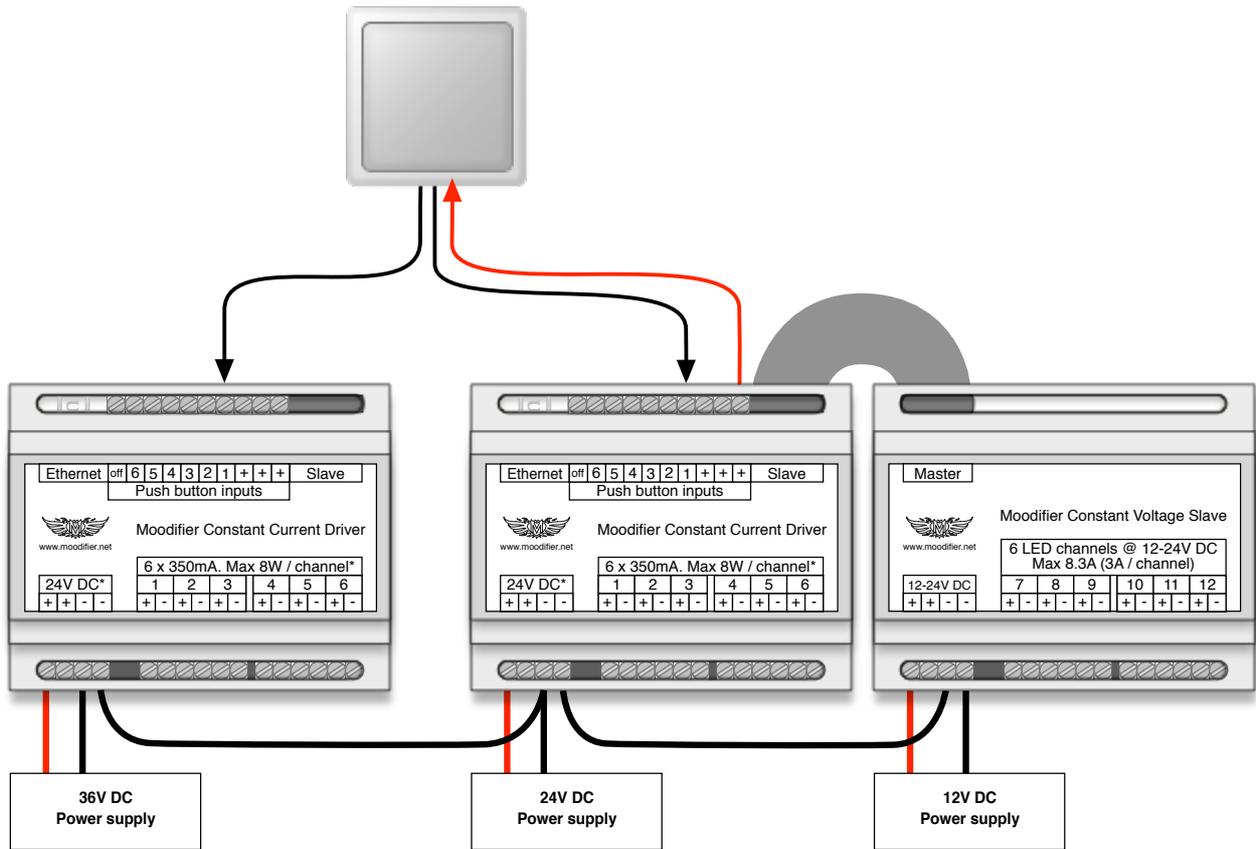
The "off" push button connector

By closing a circuit between + and the "off" connector, all lights of the unit will be turned off.

Technical specification

Moodifier DIN-rail mounted Constant Voltage Driver

Connections

- 1 Network port (Ethernet)
- 4 ports for connecting and daisy chaining a 12-24V DC power supply
- 1 port for connection of a Slave unit
- 10 sockets for connecting up to 7 wall mounted push buttons
- 12 sockets (6 channels) for connecting up to 200W of LED lights or other 12-24V DC powered equipment

Technical data

Power supply	12-24V DC
LED channels	6
Max current per unit	8.3A
Max current per channel	3A
Push button functions	6
Network	Ethernet 10/100
PWM Frequency	480Hz - 4.8kHz (adjustable)
Over current protection	Yes (10A glass fuse)
Overheat protection	Yes
Conforms to European EMC regulations	Yes
CE marked	Yes
Dimensions (WxHxD)	104x85x60mm
Ambient temperature (operation)	0-35°C

Moodifier DIN-rail mounted Constant Voltage Slave

Connections:

- 4 ports for connecting and daisy chaining a 12-24V DC power supply
- 12 sockets (6 channels) for connecting up to 200W of LED lights or other 12-24V DC powered equipment
- 1 connector for connection to master unit.

Technical data

Power supply	12-24V DC
LED channels	6
Max current per unit	8.3A
Max current per channel	3A
Push button functions	N/A
Network	N/A
PWM Frequency	480Hz - 4.8kHz (adjustable)
Over current protection	Yes (10A glass fuse)
Overheat protection	No
Conforms to European EMC regulations	Yes
CE marked	Yes
Dimensions (WxHxD)	104x85x60mm
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 as if you were painting with light.

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

Electric cable recommendations

When connecting LED lights to the Moodifier Constant Voltage Driver and Slave units it is recommended that you use a copper cable with a diameter of about 1mm = area of 0.75mm2 = AWG 18 or wider for cable lengths of up to 8-10 meters (16-20m back and fourth) and a cable with a diameter of about 1.38mm = area of 1.5mm2 for longer cable lengths.

Software

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