

# LOW VOLTAGE SYSTEM INSTALLATION AND SETUP

The Tamblite series of low voltage luminaires and RF control system is designed for expansive and robust systems of accent and general lighting applications. System design consists of three sets of components:

## Power Supplies

Because the system operates at low voltage (12-36V), an external power supply is required. The power supply needs to be sized to power the type and quantity of luminaires required, and typically to exceed no more than 80% of its rated power.

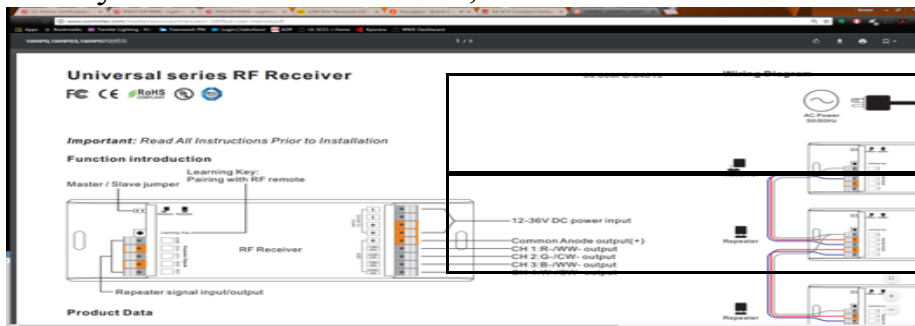
Eg: Installation requires:

- 16 Downlights @ 10W ea = 160W
- 6m Tape Light @ 12W/m = 72W

Total Draw = 232W, therefore the power supply should be sized at no less than 290W. The voltage of the power supply output must match the voltage required by the luminaire selected.

## Control System

The Tamblite RF control system can operate low voltage systems ranging from 12VDC to 36VDC. The base communication unit for the system is the RF receiver, indicated below.



The section outlined in red, is the input power terminal block. Power from the power supply is to be connected to the corresponding terminals (+ / -), and can be looped back out to a second receiver if necessary.

The section outlined in blue, is the output terminal block, and consists of a common positive (+) terminal, and 4 negative (-)

terminals demarked as:

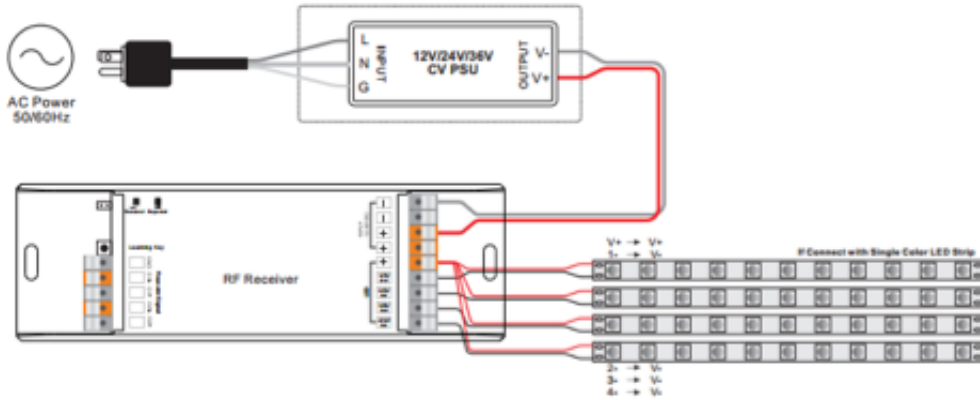
- CH 1/R/WW
- CH 2/G/CW
- CH 3/B/WW
- CH 4/W/CW

Depending on the type of luminaire selected, different output wiring configurations are required.

## Single Colour Dimming

If the system is single colour dimming (ie 3000K only), each channel is capable of running up to 5A of connected load. If using 12W/m 24V tape light, this means that each channel can run 10m of tape for a total of 40m.

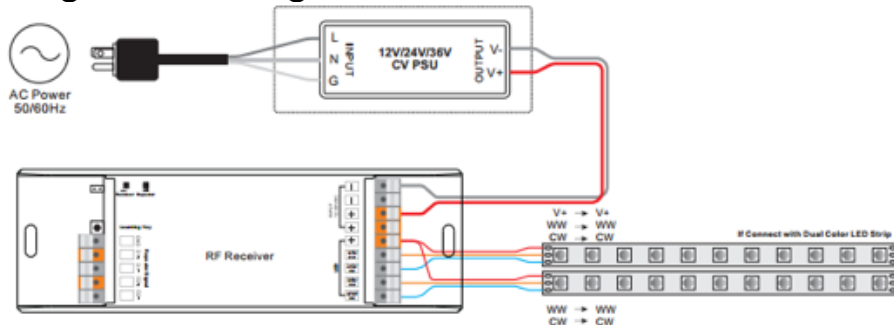
The wiring for this configuration is below.



## Tunable White

If the system is tunable white, the receiver is capable of running two separate sets of tunable fixtures. Channels 1 and 3 are designed to operate the “warm white” LED’s, and channels 2 and 4 are designed to operate the “cool white” LED’s. If using 12W/m 24V tape (ie 6W/m WW, 6W/m CW), this means that each set of terminals (CH 1+2 / CH 3+4) can handle 20m of tape for a total of 40m.

The wiring for this configuration is below.

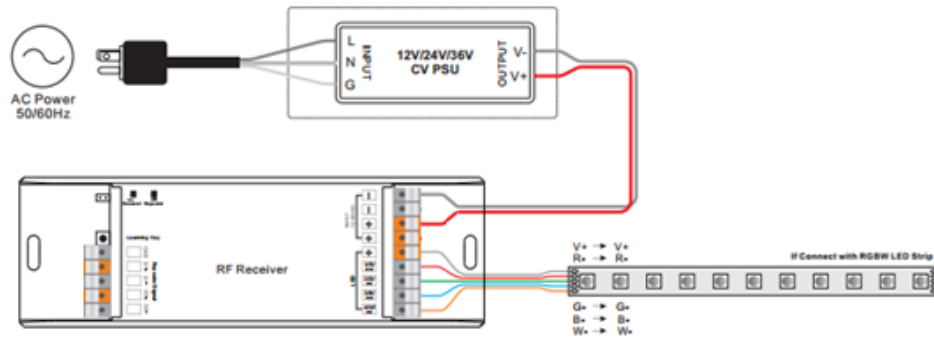


## RGB+W

If the system is RGB+W, sizing the receiver is done by selecting

the highest wattage draw LED (typically the White channel). If the luminaire being run is 12W/m tape light at 24V comprised of 2W/m Red, 2W/m Green, 2W/m Blue, 6W/m White, then sizing of the system is designed around 6W/m. Given this, with a channel capable of handling 5A of power at 24V, the receiver can run 20m of the selected RGB+W tape total.

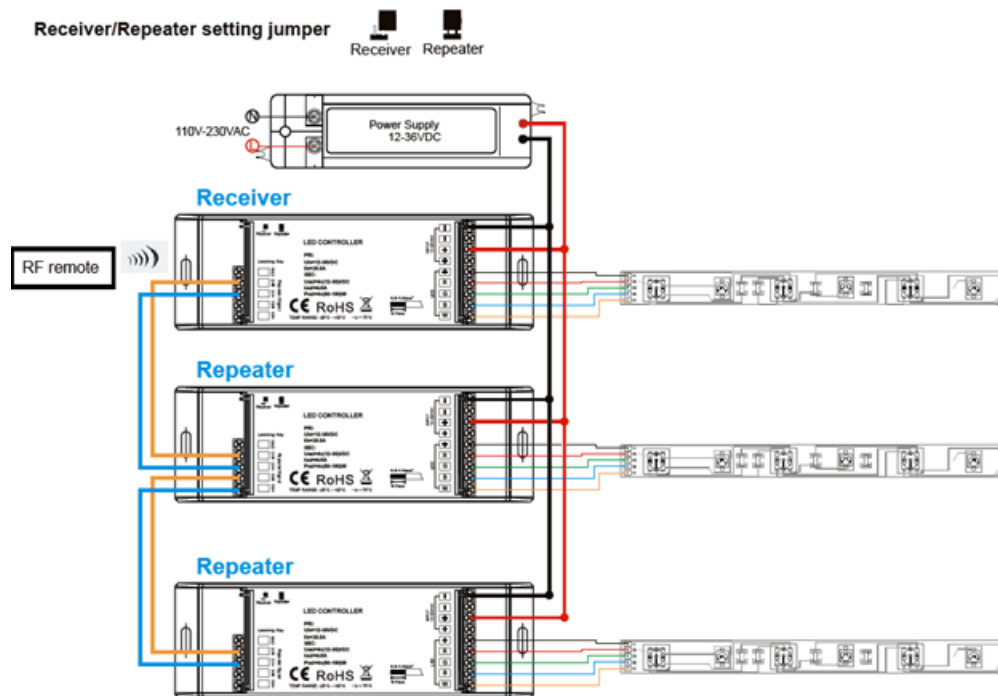
The wiring for this configuration is below.



## Large Scale Systems

Receivers can also be daisy-chained in order to use a common power supply and provide multiple zones of control, or to provide power and control injection points for large scale systems.

This would be accomplished using the wiring below.



In this configuration, only the first receiver needs to be within range of the control device, as the signal is repeated out via cable. Note that the voltage of the repeater signal is the same as the input to the receiver.

## Controllers

While the receiver is universal and able to handle single colour dimming, tunable white, and RGB+W, the controller needs to be selected specific to the system type you wish to control.

Style	Single Colour Dimming	Tunable White	RGBW
Wall Controller	TLCN-CWDM43	TLCN-CWTW42	TLCN-CWRGBW30
Hand-Held Remote	TLCN-CRDM	TLCN-CRTW	TLCN-CRRGBW

Wall controllers are designed to be installed in a single gang box, and fed with 120-240V power. Communication between the wall controller and the receiver is done over Radio Frequency (RF), and as such the controller and receiver do not need to be on the same circuit, or connected electrically in any way. There is however a limit of 30m (100') required between the receiver and controller in order to maintain a strong consistent communication signal.

Remotes by comparison are hand-held and battery powered so allow for more flexibility in terms of position of controller to receiver.

In order to pair a control unit with a given receiver, please follow the below steps:

1. Press and release the “learning key” on the receiver.
2. Within 3 seconds, press the required zone key, and then run your finger around the control wheel of the desired controller.
3. The LED's connected to the paired receiver should flash to indicate that they are now paired.

Note: when using the remote as a control device, ensure that the remote is powered on before attempting to pair the unit. The red LED indicator near the top of the remote should be lit. These devices auto-power off to conserve battery life.

## Luminaires

For all low voltage LED luminaires, it is very important to maintain polarity throughout the installation. LED's only allow current to pass through in one direction, so when they are installed in the reverse polarity they will simply not operate. This is especially important to check for tape light installations as it is easy to have a section of tape flipped around by accident, causing the section to not light up.

Polarity gets more challenging the higher the number of conductors. In all cases, there will be a single positive (+ve or

red marking), and then a negative conductor *per control channel*. In the case of tunable white (TW), there will be two negative conductors, one for the Cool White channel, and one for the Warm White channel. In the case of RGB+W, this changes to four (R + G + B + W). If the polarity gets shorted (+ve to -ve), most power supplies have built in short-circuit protection, however this can damage your driver.

## Tape Light

Tape light polarity is indicated on the PCB (Printed Circuit Board) of each section of tape. Please see below:

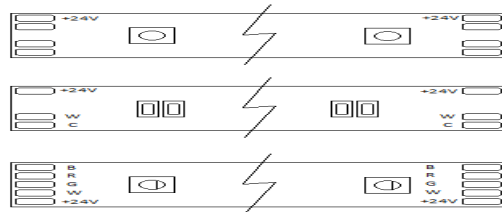


Figure 1: Single Colour Tape

There are two positive and two negative terminals for the single colour tape light. Either or both of the two may be connected provided that at least one +ve and one -ve are connected to the appropriate terminals. Only the positive terminal side is marked (+24V).

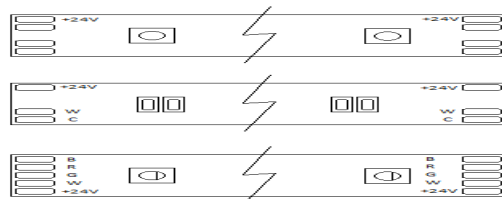


Figure 2: Tunable White Tape

There is a single positive terminal (denoted +24V), and then a single terminal for each of the warm white (denoted “W”), and cool white (denoted “C”). The negative terminals must be connected to the appropriate output terminal (marked WW for warm white, and CW for cool white) on the receiver.

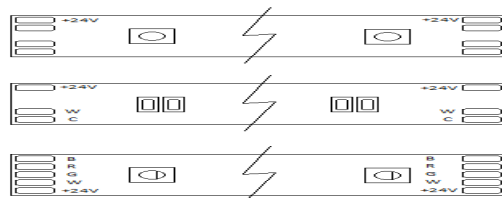


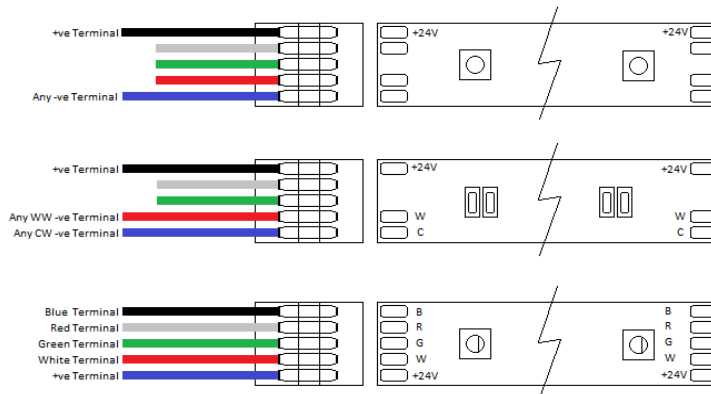
Figure 3: RGBW Tape

Each terminal is distinct on the RGBW tape light, with +24V denoting the positive feed, and then R denoting Red, G denoting Green, B denoting Blue, and W denoting White. Each must be connected to its corresponding output terminal on the receiver. If you are providing power to the tape light using the TLTP-

5W50T (Cold Tail) accessory, the following diagram denotes which wire should be connected to what terminal on the receiver to provide power. Conductors without a label should be capped separately.

Depending on which end of the tape reel you are powering, the colour coding of the wiring polarity changes. In general, the colour of the conductor does not necessarily equate to the colour of the LED it controls. The different colours of wire are in place to enable differentiation between conductors rather than to provide visual identification of the colour they control.

#### Powered End



#### Powered End

