

Wireless Dimming | Wireless DMX | Wireless Motion

**RC4**  
Since 1991  
*Wireless*

RC4Magic Series 3

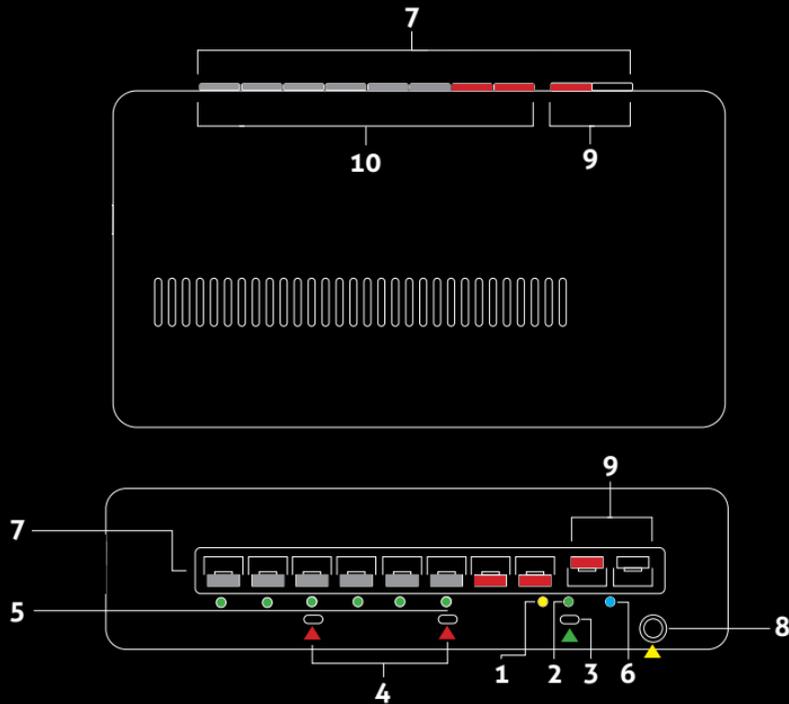
**DMX6dim-500**

High Power Six-Channel Wireless Dimmer

Quick Start Guide

Rev. 1.0

## RC4Magic DMX6dim-500



1. DMX Data Indicator
2. Function and COP\* Indicator
3. Function Button
4. SetABC and SetDEF Buttons
5. DimA - DimF Dimmer Indicators
6. RF Connect Indicator
7. Anderson PowerPole Connections for Power and Outputs
8. DMX In/Out Data Port
9. Power Input Connections (45A PowerPole)
10. Load Connections (2 x Common +, DimA - through DimF -)

\* COP means "Computer Operating Properly." This indicator always shows a blink pattern, proving that internal firmware is running. Different patterns indicate various modes and advanced settings.

## DMX6dim-500 Quick Start Guide

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Most RC4Magic DMX6dim-500 users will find all the information they need right here. Your DMX6dim-500 also has a wide variety of advanced features. You can find out more about them in the RC4 Knowledge Base at <http://rc4.info>.

**RC4Magic devices arrive ready to use. You probably do not need to change any settings. Just add DMX!**

## Registering Your Product

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Registration ensures you'll be notified of new firmware updates, and warranty claims can be resolved more quickly. Please complete your registration at: [www.rc4wireless.com/support/register/](http://www.rc4wireless.com/support/register/)

## Get in Touch

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**North Carolina, USA:** 1-866-258-4577 or 1-919-229-9950

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**Email:** [support@theatrewireless.com](mailto:support@theatrewireless.com)

**Website:** [www.rc4wireless.com](http://www.rc4wireless.com)

**Knowledge Base:** <http://rc4.info>

We're here to help!



**James David Smith**

President and Chief Product Designer  
RC4 Wireless

## DMX6dim-500 System Components

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To use your DMX6dim-500 wireless dimmer you will need:

- A DMX lighting console.
- An RC4Magic Series 2 or Series 3 DMXio Transceiver.
- A battery or DC power supply for the dimmer and loads you will be operating with it.
- Anderson PowerPole shells and pins (one set has been provided with your DMX6dim-500), and a crimping tool for those pins.

## RC4Magic Private Identities™

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RC4 Private Identities™, unique to RC4Magic wireless DMX systems, keep your data private and safe on a Virtual Private Network (VPN) separate from other systems, with robust resistance to signal loss and slow down.

Each Private ID transports a separate DMX universe. Multiple systems can operate at the same time for multiple wireless universes in the same space.

**Each new RC4Magic customer and project is assigned a unique set of Private ID codes — nobody else has your IDs.** They are marked on each device. Please note your private IDs below. When you add devices to your system, you must verify your IDs at time of purchase:

ID0 \_\_\_\_\_ ID1 \_\_\_\_\_ ID2 \_\_\_\_\_

ID3, code 999, is the RC4 Public ID. It is identical in all RC4Magic Series 2 and Series 3 devices ever made. Always use one of your private IDs when possible.

*Your Private ID0, the factory default, is ideal for most users.*

## Performing a Factory Reset

If someone else has used your DMX6dim-500, or you just want to get back to a known configuration, performing a factory reset is easy:

Power on the device. Wait until start-up is complete and the green COP indicator is blinking continuously.

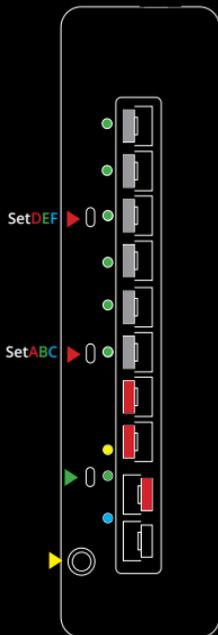
Press and hold the Function (Func) button, briefly tap (press and release) the SetA button, then release Func. The first four indicators will blink to confirm that factory settings are restored.

**NOTE: This process restores your RC4 Private IDentity™ to ID0.** It does not change the Unit Number if one has been assigned. Learn more about IDs on the next page. Learn more about Unit Numbers when using RC4 Commander configuration software.

### PRO TIPS:

Bending a single paper clip into a U shape will enable you to easily reach and press both buttons together.

If you are not sure what mode or setting you may have selected, you can always get back to a known starting point with a factory reset.



## Confirming and Setting an RC4 System ID

*All RC4Magic devices being used together must be set to the same RC4 System ID.*

On power-up, the currently selected System ID is indicated with a blink pattern on the DMX Data and COP indicators. The four different patterns are noted below.

*The factory default ID0 is indicated with a few rapid blinks of the yellow DMX Data LED on power-up. A factory reset will restore this ID setting.*

An ID can be selected by holding one button or a pair of buttons on power-up. The blink pattern for the newly selected ID will appear on the indicators. You can also confirm the currently selected ID at any time by cycling power and watching the blink pattern that appears at start-up.

To select ID0, hold the SetA button, apply power, and release the button when the blink pattern appears. To select ID1, hold the SetB button and apply power. To select ID3 (the public, not private, ID), hold both SetA and SetB and apply power. *NOTE: On 3-button devices, ID2 can only be selected with RC4 Commander software.*

**All RC4Magic Series 3 devices indicate IDs in the same way, making it easy to quickly confirm that all devices in your system are set correctly to work together.**

- ID0 (default), yellow blink. Hold SetA on power-up to select ID0.
- ID1, green blink. Hold SetB on power-up to select ID1.
- ID2, yellow and green blink together. *Cannot be selected manually.*
- ID3 (public), yellow and green alternate. Hold SetA & SetB on power-up to select ID3. *Note: ID3 is public and is less secure than Private IDs.*

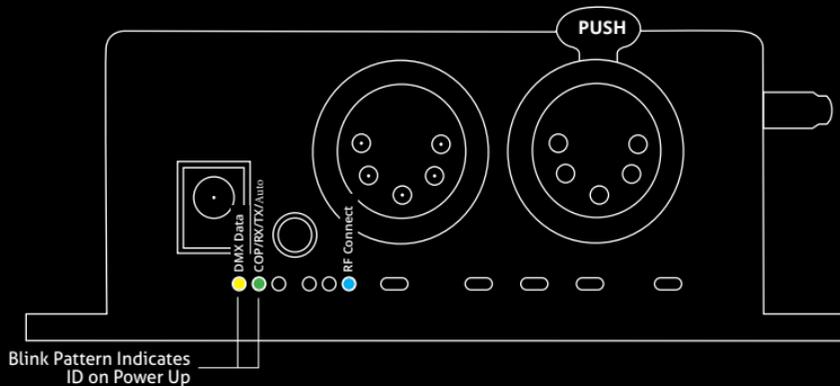
## Connecting with an RC4Magic DMXio Transceiver

All RC4Magic devices **configured on the same RC4 Private IDentity™** will automatically connect and form a VPN (Virtual Private Network). Confirm that each device in your system is labeled with the same RC4 Private IDentity™ codes, and that each device indicates the same System ID selection on power up (see page 7). The default is ID0, which is fine for most users.

When first powered up, or after a transmitter has gone off and then come back on line, **receivers can take up to 10 seconds to join the VPN**. This is normal, and it is usually much less than 10 seconds.

A DMXio transceiver in **Auto Mode (the default setting)** will automatically detect wired DMX data from your console and establish itself as the master transmitter.

**RC4Magic devices from a different system will not work with your RC4 Private IDs.** This is the key to RC4Magic data security and superior performance for all users.



## RC4Magic Indicator LEDs After Power-Up

The **COP** indicator blinks with different patterns to indicate various device modes. The **DMX Data** LED indicates that DMX data is present, either from a connected DMX controller, or from the VPN wireless link. If the yellow indicator is not active, no DMX data is present.

DMX Data: Yellow blinks with data packets and may appear irregular:

On DMXio transceivers operating in transmitter mode (see page 8), the RF Connect LED blinks slowly to indicate that a wireless VPN has been formed and the DMXio is the master transmitter:

DMXio, Transmit Mode COP Pattern:   
RF Connect:

## RC4Magic Series 3 (2.4GHz)

If your DMX6dim-500 has a **purple** and black label, it is part of an **RC4Magic Series 3 system operating in the 2.4GHz band**. The RF Connect indicator remains on (not blinking) while the DMX6dim-500 is searching for your VPN. It blinks quickly and continuously while your DMX6dim-500 is connected to your wireless VPN.

DMX6dim-500 RF Connect, Searching:   
Connected:

## RC4Magic-900 (900MHz)

If your DMX6dim-500 has a **blue** and black label, it is part of an **RC4Magic-900 system operating in the 900MHz band**. The RF Connect indicator is always blinking, and indicates only that the RF system is functional, not whether or not it has joined a VPN. Use the DMX Data indicator to confirm that streaming DMX is present.

DMX Data Received Wirelessly:

## Test the Wireless Link with Default Address Settings

When you receive your new DMX6dim-500, or after restoring default settings, it will be set to DMX channel 1 for dimmer A, and channel 2 for dimmer B.

**Before changing any settings, play with DMX levels for these channels to see your wireless dimmers work.** DimA and DimB LED indicators are connected to dimmer outputs to show you exactly what the dimmers are doing.

## Setting DMX Addresses and Curves with RC4 OneTouch™

RC4 OneTouch™ uses DMX channel levels to set parameters. To use it, the DMX6dim-500 must be paired with an RC4Magic DMXio transmitter, and *live DMX channel data must be streaming*.

**Begin with all channels in the DMX universe off, at zero (0).** This includes channels used for house-lights, and moving-light parameters like pan and tilt.

**Bring up one DMX channel. This will become the DMX6dim-500 starting address, and the level of the channel selects a dimmer curve.**

**Tap a dimmer Set button to capture settings.** They are now saved until you change them. Now you can return to using your DMX console normally.

### RC4 OneTouch™

The first channel up sets DMX Start. In this example, it is channel 74.

Level of DMX Start sets dimmer curve. Decimal 77 is 30%, selecting the ISL Slow curve for LEDs.

Channels below Start **MUST** be at zero (0)

DMX Lev: 0 0 0 0 0 0 0 0 ... 0 0 0 ...

DMX Chan: 1 2 3 4 5 6 7 8 ... 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 ...

## Assign the DMX Starting Address

**Begin with all channels in the DMX universe off, at zero (0).** This includes channels used for house-lights, and moving-light parameters like pan and tilt.

**Bring up the DMX channel that will be the DMX6dim-500 starting address. Set it to 30% (Decimal 77) for a curve that is optimized for smooth LED dimming.**

**Tap the SetABC button to capture settings.** They are now saved until you change them. Proceed to setting other dimmers, or return to using your DMX console as you normally do.

**A channel level of 30% selects one of several different curves. Other curves are explained on page 13.**

## Subsequent Channel Assignment

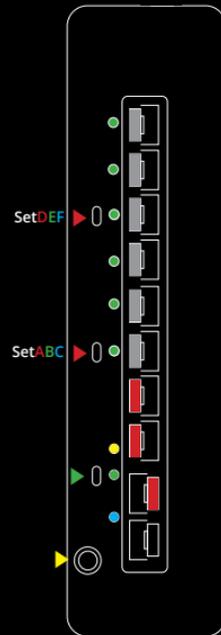
When you set DimABC, all 6 dimmers are automatically set sequentially. For example, if you have set DMX channel 74 for DimA, DimB is now assigned to channel 75, DimC is on 76, and so on, all the way up to DimF being set on channel 79.

## Non-Sequential Channel Assignment

Each set of 3 dimmers, ABC and DEF, are always sequential, but the two sets do not have to be.

If you want DimDEF to be set to DMX addresses 11, 12, and 13, bring up 11 @ 30% (for the LED curve) at the board and press the SetDEF button.

Remember: SetABC assigns all 6 dimmers sequentially. Always use SetABC first, then SetDEF differently if you need to.



## Connecting Your Lamps, LEDs, Motors and More\*

To really use your DMX6dim-500, you must connect a lamp, LED, motor, or other load to each dimmer. **Be sure to remove power while making connections.**

The **red** output connections are positive (+), the **grey** connections are negative (-).

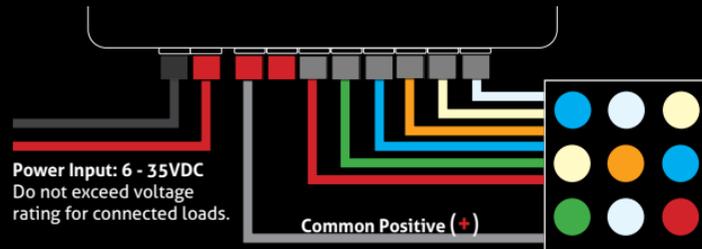
**Dimming occurs on the negative side. The positive connections are all connected together inside the DMX6dim-500.**

## Anderson PowerPole Connectors

PowerPole shells are available in a range of colors. Pins are available with 15A, 30A, and 45A ratings. If you are running your DMX6dim-500 at close to the maximum rated power handling, you **MUST** use 45A pins at the power input. Do not exceed 45A in total for the 6 combined dimmer loads.

Each dimmer output can deliver up to 10A of dimming power, but you cannot run all 6 channels at 10A because this exceeds the input power limit. If all channels are loaded equally, the maximum load per channel is 7.5A.

The legend on the back of your DMX6dim-500 provides part numbers of commonly used shells and pins. A complete set of shells and pins is also available directly from RC4 Wireless.



## Dimming and Controlling Multicolor LEDs

The illustration on page 12 shows an RGBATD (T is tungsten or warm white, D is daylight or cool white) color mixing LED device. There are 7 wires: a grey wire for the 12V common positive (+), and six colored wires, red/green/blue/amber/tungsten/daylight, for the six unique negative loads. The color of the common positive may vary, it is not always grey.

The common positive wire should be connected to either of the (+) terminals. All of the (+) terminals are connected together inside the DMX6dim-500. The two (+) terminals make it easy to connect two RGB light sources, each with their own common positive wire.

Dimming happens on the **grey** negative (-) terminals.  
The red wire should be connected to the **grey** (-) terminal for DimA.  
Green should be connected to the **grey** (-) terminal for DimB.  
Blue connects to the **grey** (-) terminal for DimC.  
Amber to DimD.  
Tungsten (warm white) to DimE.  
Daylight (cool white) to DimF.

If using two RGB fixtures or LED devices, connect the first one to DimA, B, and C, and connect the second to DimD, E, and F.

\* DimC, D, E, and F on the DMX6dim-500 can control a variety of devices including solenoids, relays, servo motors, and much more. DimA and B are intended for LED dimming only.

## Choosing Other Dimmer Curves or Profiles

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The DMX6dim-500 default is the ISL dimmer curve, which is best for LEDs. This is also the curve that is selected with RC4 OneTouch™ when the DMX level is at 30%.

There are dimmer curves for different kinds of lamps, motors, and more. Detailed information can be found online by searching dimmer curves at <http://rc4.info/>.

The most common curves are selected using these DMX channel levels and RC4 OneTouch™ with the Set buttons as outlined on page 9:

<b>Non-Dim</b>	<b>100%</b> (80% or higher) Use for relays, solenoids, air valves, etc.
<b>Linear</b>	<b>70%</b> (60 - 79%) For incandescent, halogen, tungsten lamps.
<b>ISL Fast</b>	<b>50%</b> (40 - 59%) For LEDs when fast blinks and flashes are required. RC4 Digital Persistence™ is disabled.
<b>ISL Slow</b>	<b>30%</b> (20 - 39%) Best for typical LED applications, with RC4 Digital Persistence™. For super smooth 19-bit dimming. (default setting)

## Advanced Features

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The DMX6dim-500 is a multifaceted device for users of all experience levels. The features below can be explored further at <http://rc4.info/> or by asking us for help at [support@rc4wireless.com](mailto:support@rc4wireless.com):

- RC4 Commander software, available for Mac OSX and Windows, provides a rich user interface for configuring multiple RC4Magic devices remotely.
- The DMX6dim-500 can also be configured with an RDM controller, via a wired connection to the DMX/RDM data port. Wireless RDM is not supported.
- Using a small adaptor cable, the DMX6dim-500 can be used as a wireless data receiver to deliver DMX to other devices. It can also be used as a wired DMX dimmer: the miniplug DMX port becomes an input when the device is not linked to a transmitter.
- When using the DMX6dim-500 for cinema (motion picture capture), PWM frequencies can be adjusted for the smoothest dimming without banding or other artifacts.
- The DMX6dim-500 has a wide variety of dimmer curves that can ring telephones, position servo motors, and more (using DimC, D, E, and F).
- Using the RC4 Flkr Effects Engine™, you can create many unique effects including candle flicker, analog tv screen noise, welding spark, and much more.
- An HSL (Hue/Saturation/Level) processor can be enabled, making it easy to find a specific color and dim it up and down without color variation.

## Caring for Your DMX6dim-500

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- **The DMX6dim-500 should not be used with AC power or with any voltage higher than 35VDC.** Doing so will severely damage the device and is extremely dangerous for the operator.
- Do not exceed the maximum total power handling of the DMX6dim-500, which is 45A. That is 500W at 12V, 1000W at 24V, shared across the six dimmer channels.
- Always use a fuse or circuit breaker at the source of power and always use an appropriate wire size for the fuse rating. For example, if using a 40A fuse, use wire that can safely carry 40A.
- The DMX6dim-500 should be kept away from excessive heat, cold, dust and moisture.
- Do not immerse in water or other fluids.
- Dimmers generate heat when operating. Allow space for air to move around the unit for cooling, especially when using high-current loads.

**The DMX6dim-500 is a high-power, high-current device. Failing to observe appropriate safety precautions can result in fire or other risk. RC4 Wireless cannot be held responsible or liable in such cases. Operate the DMX6dim-500 at your own risk.**