PARTS / TOOLS NEEDED:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RGBW Bluetooth Controller</td>
<td></td>
</tr>
<tr>
<td>RGB or RGBW Lighting</td>
<td>(Varies)</td>
</tr>
<tr>
<td>Double Stick Tape</td>
<td>Optional (not provided)</td>
</tr>
<tr>
<td>Alcohol Wipes</td>
<td>(not provided)</td>
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</tbody>
</table>

Safety Instructions
- Disconnect power before installing, adding or changing any component.
- To avoid a hazard to children, account for all parts and destroy all packing materials.
- Do not install any luminaire assembly closer than 6” from any combustible materials.
- Positive (+) inputs require a fuse if the attached wire leads are not rated to handle the max current.

1. **INSTALL:** Determine the installation location for your controller. Make sure to consider the size of the controller when determining your location. Note, it will require room for access and for wiring. Once determined the single zone controller can be attached with double stick tape.
   - First clean the back of the module and the install location with alcohol wipes (not provided). Place the double stick pads (not provided) on the back of the module as shown below. Remove the paper and stick the module in place.
   - Do not install in an area where the controller will get wet.

2. **WIRING DIAGRAM:** Follow the wiring diagram below to wire the module to your system.

   ![Wiring Diagram](image)

   **Outputs**
   - Zone 1
     - (+) Black
     - Red
     - Green
     - Blue
     - White
     - 4A Max per RGBW Wire
       (See recommended color above)

   **Inputs**
   - Black - 12-24V DC IN [-]
   - Red - 12-24V DC IN [+] (Max 192W)

3. **WIRING CONSIDERATIONS:**
   - Don’t power the controller or lights until all connections are made.
   - It is recommended that strain relief be added on all wires to prevent any damage to the lights.
   - If fuses are not included on the RGBW controller then ITC recommends including fuses on each zone output (+) wire.
   - If installing a flexible lighting product, do not install the end caps in the mounting track or it may damage the light.
   - To test the lights, select the single color fade for each of the colors, red, green and blue on the HaoDeng app. This test will show whether there are wiring issues.

For warranty information please visit www.itc-us.com

3030 Corporate Grove Dr • Hudsonville • MI • 49426
Phone: 616-396-1355 • www.itc-us.com • sales@itc-us.com • DOC#: 710-00016 Rev G • 12/17/18
1. **Download App:** Search “HaoDeng” in the App store or the Google Play Store and click install. Depending on your operating system, Android or iOS, your screen layout may differ slightly from the following screenshots.

2. **Open App:** Turn on the Bluetooth on your phone or tablet and open the app.

3. **Find Device:** Once you open the app, you will need to select “Create a Mesh Network”. This will allow you to connect to the controller. If it does not connect right away you may need to turn power off to the controller and turn it back on or hold the button on the controller until the lights flash three times.
   You can also customize the name of the controller to make it easier to find if you have multiple controllers.

4. **Color & Brightness:** Click the device you want to control and it will bring up a screen where you can adjust the color and brightness. Color can be adjusted by pushing anywhere on the color wheel and brightness can be adjusted by sliding the yellow bar left or right.
   The white color can be adjusted by pushing the warm button and clicking anywhere on the color wheel.
   Note, the RGB and white channels cannot be used at the same time.
   If you need to return to the devices list simply press the lines and dots in the upper left.

   ![Color wheel screenshot]
5. Timer: The timer feature allows you to set the lights to turn on or off at a certain time.

6. Functions: There are many effects pre-loaded on the app from single color fades to multi-color fades. You can also select the speed of the fade by sliding the yellow bar left or right.

7. Music: The controller has the ability to change the lights to the beat of music. Push the play button and select your desired music. Please note, music must be installed on your phone or tablet, the controller will not work with streaming programs.

8. Custom Effects: You can customize your effects by selecting the color, jumping, strobe, etc.

9. Disco: If you select the microphone option the lights will change based on the sounds your phone picks up.

10. Camera: Using the camera feature you are able to take a picture of a favorite color and the lights will match that color.
Installation Considerations for Preventing EMI Noise

WHAT IS EMI NOISE?

Electromagnetic interference (EMI) is any unwanted signal which is either radiated (thru air) or conducted (thru wires) to electronic equipment and interferes with the proper operation and performance of the equipment.

All electrical/electronic components that have varying or switching currents, such as RGB lighting, create Electromagnetic interference (EMI noise). It is a matter of how much EMI noise they produce.

These same components are also susceptible to EMI, especially radios and audio amplifiers. The unwanted audible noise that is sometimes heard on a stereo system is EMI.

DIAGNOSING EMI NOISE

If EMI is observed the following steps should help isolate the problem.

1. Turn off LED light(s)/controller(s)
2. Tune the VHF radio to a quiet channel (Ch 13)
3. Adjust the radio’s squelch control until the radio outputs audio noise
4. Re-adjust the VHF radio’s squelch control until the audio noise is quiet
5. Turn on the LED light(s)/controller(s) – If the radio now outputs audio noise then the LED lights may have caused the interference.
6. If the radio does not output radio noise then the problem is with another part of the electrical system.

PREVENTING EMI NOISE

Once the EMI noise is isolated the following steps can be used to help prevent and lessen the effect of the noise.

CONDUCTED & RADIATED SOLUTIONS

GROUNDING (BONDING) : How each component is connected and routed to power ground is important. Route the ground of sensitive components back to the battery separately. Eliminate ground loops.

SEPARATION : Physically separate and mount the noisy components away from sensitive components. In the wire harness, separate the sensitive wires from the noisy wires.

FILTERING : Add filtering to either the device creating the noise or the sensitive device. Filtering may consist of power line filters, common-mode filters, ferrite clamps, capacitors and inductors.

RADIATED SOLUTIONS

SHIELDING :
Shielded cables can be used. Shielding the component in a metal enclosure is also an option.

If you continue to experience EMI issues please contact your ITC sales representative.