ILLUMIDEL

IllumiDEL Pixel Lighting System

Installation Manual

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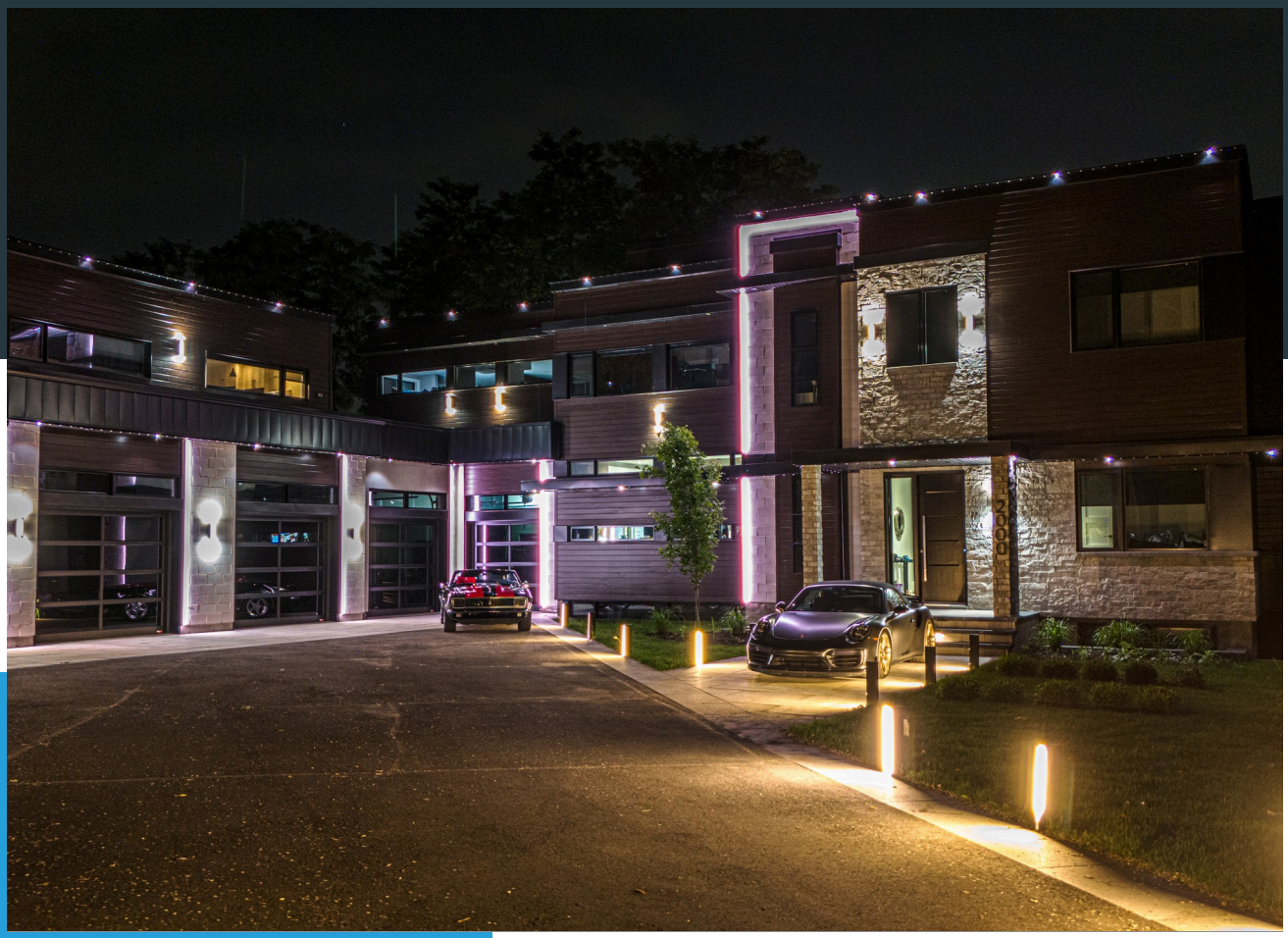
1. Introduction

Welcome to IllumiDEL

The IllumiDEL architectural lighting system combines innovation, performance, and design. This installation guide is designed to assist you step by step to ensure a successful and durable installation.

What you will find in this manual:

1. A complete overview: Specifications and safety guidelines.
2. Step-by-step instructions: A structured approach for smooth installation.
3. Troubleshooting and maintenance: Practical tips to maximize the longevity of your system.
4. Dedicated support: Our contact details for any technical assistance.



2. Specifications

- **Product Name**: IllumiDEL Pixel Lighting System
- **Input Voltage**: AC100-240V
- **Output Voltage**: 24V
- **Power**: 5A per output (450W/3 outputs and 600W/5 outputs)
- **Lighting Capacity:**
  - **Per Output**: MAXIMUM 90 lights
  - **Total per Box (450W/600W)**: 450W / 270 lights and 600W / 450 lights
- **Dimensions**: 292 x 206 x 105.5 mm
- **Signal Outputs (Data)**: 8

3. Safety Guidelines

To ensure optimal operation and prevent risks:

1. Wire Connection Before Power: Connect all wires before plugging in the power supply.
2. Wire Preparation: Strip the wires approximately 10-12 mm for proper electrical contact.
3. Correct Polarity: Always connect the positive wire (+) to the positive connector and the negative wire (-) to the negative connector.
4. Cable Fixing: Do not screw into wires during installation to avoid damage.
5. Connection Insulation: Ensure all connections are properly insulated.
6. Power Disconnection Before Maintenance: Always unplug the power box before performing maintenance.
7. Environmental Conditions: Use equipment in suitable conditions (temperature and humidity).
8. Avoid Overloads: Do not connect more than 90 lights per output to avoid overloads.

4. Tools and Accessories

Tools needed:

1. Ladders:

- **4-5 ft stepladder**: For low heights.
- **Telescopic stepladder**: For intermediate areas requiring flexible access.

2. Extension Ladders:

- **24' ladder**: For medium heights.
- **32' ladder**: For high or hard to reach areas.

3. Drill and Screws:

- **Function**: To secure the product to the soffit.
- **Tip:** Drill pilot holes in rails to simplify installation.

4. 30 mm Metal Drill Bit:

- **Function**: Drills perfectly round holes for lights in metal or similar materials.

5. Triangular Bracket:

- **Function**: Provides stable support for tight angles during rail installation.

6. Extension Cables:

- **Specifications**: Copper cables, 16-18 AWG stranded.
- **Recommendations**: 18/6, 16/4 or 14/4 cables can carry two or three power supply assemblies without data.

7. Wire Stripper:

- **Function**: For secure wire stripping.

8. Electrical Tape, Heat Shrink Tubing, or Solderless Connectors:

- **Function**: Ensures secure cable connections.

9. WAGO Connectors:

- **Function**: Secure wire connectors for assembling multiple cables.

10. Loom Tubing:

- **Function**: Protects cables from wear, moisture, and damage.

11. 1/2” Clips for Loom Tubing

- **Function**: Securely fix loom tubes onto surfaces.
- **Recommendation**: Ideal for organizing cables.

12. Aluminum Scissors

- **Function**: Precise and clean cuts for aluminum rails.

13. Square (Ruler)

- **Function**: To draw straight lines and ensure precise angles during cuts.

14. Measuring Tape

- **Function**: For accurate measurements of rails, lights, and accessory positioning.

15. Pencil and Black Sharpie Marker

- **Function**: To mark fixation points or cutting areas with precision.

16. Pliers

- **Function**: For handling cables and electrical components.

17. Tool Belt

- **Function**: To organize and keep necessary tools accessible during installation.

18. White, Black, Beige Silicone and ‘Duck Seal’

- **Function**: These materials are used to seal holes created when drilling through a structure into a building interior.
- **Benefit**: Prevents water, air, or insect infiltration through these openings.

Accessories:

- **IllumiDEL 24V Controller (450W/600W)**: Converts 120V to 24V and controls lights.
- **IllumiDEL Rails and Lights**: Installed on soffits, customizable sizes and colors available.
- **Extension Cables**: Extend connections between lights.
- **T-Power Injection Connector**: Prevents voltage drops over long distances.

4.1 Installation Steps

For a successful and organized installation, follow these steps.

Choosing the Optimal Placement for the Power Box

To ensure reliable and optimal performance of the IllumiDEL lights, follow these recommendations:

1. Choosing the Location:

- Install the power box in an easily accessible location for maintenance and near a 120V outlet.

2. Maximum Distance:

- Place the power box within 30 feet of the first light.
- This reduces voltage loss and ensures stable power for uniform lighting.

3. WiFi Signal:

- Verify the WiFi signal reaches the power box.
- **How to check**: Use a smartphone or another connected device to test the signal strength at the box location.
- **Tip: If the signal is weak, consider moving the IllumiDEL box closer to the router or using a WiFi amplifier.**

4. Options for Longer Distances:

- **Larger Cables**: Use cables with a larger cross section (lower AWG) to minimize voltage loss.
- **Additional Power Boxes**: For large installations, divide circuits into multiple zones, each powered by its own box.

By checking the WiFi signal and following these guidelines, you ensure a high performing and durable installation of your IllumiDEL system.

STEP 1: PREPARING THE LIGHTS AND ALUMINUM RAILS

Inserting Lights into the Rails:

- Insert each pixel light individually into the aluminum rail.
- Apply moderate pressure until you hear a “click,” confirming the pixel is securely in place.
- Continue methodically along the rail for each pixel.

Caution:

- Follow the arrows on the lights to ensure the correct data flow direction.
- Connections start from the power box to the first pixel.

Visual Inspection:

- Ensure each pixel is aligned and firmly secured for a professional look and lasting installation.

Cutting and Shaping:

- If cutting or end caps are needed, make adjustments before installation.
- Use aluminum cutting tools for a clean, precise cut.

STEP 2: POSITIONING AND FIXING THE RAILS

Alignment:

- Carefully place the rails under the soffit or fascia, depending on the chosen location.
- Ensure they are straight and aligned with other architectural elements for an aesthetic result.
- **Tip: Keep rails as far from walls as possible to make them more discreet during the day and achieve a cleaner linear finish.**

Fixing with Screws:

- Use 16 mm (⅝”) screws.
- Screw at regular intervals (approximately every 3 pixels) to ensure a strong fixation and prevent rail deformation.
- Ensure screws are tight but avoid overtightening to prevent damage.

Stability:

- Once rails are fixed, test their stability with light pressure. Rails should remain immobile and perfectly aligned.

Reminder:

- **Pre-Preparation**: Perform all necessary adjustments (cutting, end caps) before fixing the rails.
- **Matching Screws**: Choose screw colors that match the fascia or soffit for a discreet, professional finish.

STEP 3: STARTING AT THE OPPOSITE END

- Begin installation at the opposite end of the power box.
- Install the first 10 rails (maximum 90 lights) without wiring (refer to Diagram 2).

STEP 4: ADDING A TAP AFTER 10 RAILS

Installing the TAP:

- After the first 10 rails, install a TAP (see Diagram 2).
- Connect a cable (e.g., 18/2, 16/2, or 14/2 wire) to the TAP using appropriate connectors.

Caution:

- On the TAP, the black wire with white lines corresponds to the **POSITIVE (+24V).**

STEP 5: ADDING A TAP AFTER 10 RAILS

Installing the Wires:

- Run wires from the TAP to the power box.
- Ensure wiring is neat and well organized.

Important:

- Do not exceed **10 tracks (90 lights)** per fuse on the power box to avoid overload or electrical issues.
- Distribute connections to balance electrical load:
- Add additional TAPs as needed to balance the load across tracks (see **Diagram 4**).
- Connect each section directly to an appropriate fuse in the power box.
- Use cable ties or supports to keep wires tidy and protected.

STEP 6: CONNECTING TO THE FIRST LIGHT

Use an extension cable (18/3, 16/4, or similar) to connect to the power box:

- **Positive (+)**: Red wire
- **Negative (-)**: Black wire
- **Data Signal**: Green wire (or another color)

STEP 7: HIDING WIRES WITH LOOM TUBING

When it is difficult or impossible to fish or hide wires, use Loom Tubing to protect and organize cables.

Materials Needed:

- **Tube Loom**: Flexible, weather-resistant and often split to simplify insertion.
- Wire insertion tool (optional).
- **1/2" Clips**: Secure the tubing to the structure.
- **Electrical tape**: Seal the ends to protect against dust and moisture.

Installation Steps:

1. Prepare the Wires:

- Bundle the wires for easy insertion into the Loom Tube.

2. Insert the Wires:

- Use the wire insertion tool to slide the wires into the Loom Tube.
- Alternatively, manually open the split tube and insert wires individually.

3. Fix the Tubing:

- Secure the tube with 1/2" clips at regular intervals.
- Ensure it is firmly fixed and not prone to movement.

4. Seal the Ends:

- Close the ends with electrical tape to prevent dust or water entry.

Advantages of Loom Tubing:

- **Protection**: Shields wires from moisture, UV, abrasions, and impacts.
- **Aesthetic**: Provides a clean, professional appearance.
- **Organization**: Bundles wires for easier future maintenance.

STEP 8: INSTALLING THE ILLUMIDEL POWER BOX

Materials:

- IllumiDEL ILMC-24V-(450W/600W) controller
- **Appropriate screws:**
  - Wood screws for wooden surfaces.
  - Tapcon screws for concrete surfaces.
- **Tools**: Drill, anchor plugs (for masonry), and a level for alignment.

Positioning and Fixation:

1. Location:

- Install the box in an accessible spot near lights and a power source.

2. Fixing the Box:

- For wooden walls: Screw directly into wood using wood screws.
- For concrete walls: Drill holes, insert anchor plugs, and fix with Tapcon screws.

3. Alignment:

- Use a level to ensure the box is perfectly straight before tightening screws.

Inserting and connecting cables :

1. **Cable Insertion:**

- Pass the wires protected by the Loom tube through the opening in the power supply box.
- Ensure that the Loom tube is securely fastened and that the cables are not under tension.

2. Electrical Connection:

- Connect the cables from the lights to the corresponding terminals on the box. See Installation diagram (page 10)

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Final Test

Steps to Test the System:

1. Power On the System:

- Plug the power box into a 120V electrical outlet.

2. Check the Lights:

- Turn on the system to ensure all lights are functioning correctly (by default, the first 30 lights will be off, and the others will appear blue).
- Visually inspect the connections and alignment of the rails to confirm everything is securely fixed.

3. Connect to the Application:

- Open the WiFi settings on your phone near the power box.
- Search for and connect to the Illumidel AP network.
- Once connected, the IllumiDEL application will launch automatically.

4. Configure the Application:

1. **Before starting**, turn on the system in a color other than blue to easily detect changes while saving settings.
2. Tap the **Config** button in the application.
3. Go to the **LED** section to adjust the number of connected lights. Make any necessary changes to optimize the settings.
4. Tap the **green checkmark** to save your settings.
5. Navigate to the **WiFi** section and tap **SCAN**. Wait a few moments and choose the correct network from the dropdown menu.
6. Enter the password and tap the **green checkmark** to save.

5. Tip: Go to the WiFi section and confirm that an IP address is displayed under the IP section.

By following these steps, your power box will be properly installed, and your IllumiDEL lighting system will function optimally and securely.

5. Installation Diagram

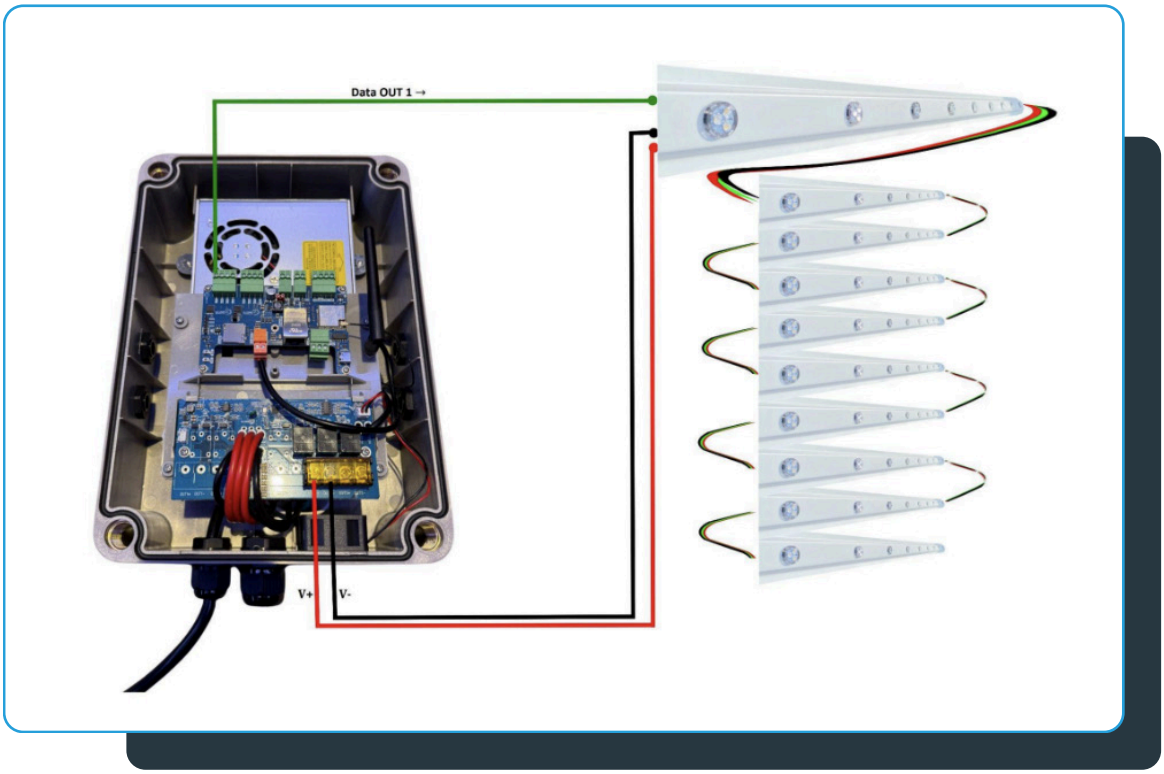

Diagram 1: Installation with 1 controller and 1 data zone (60 feet).

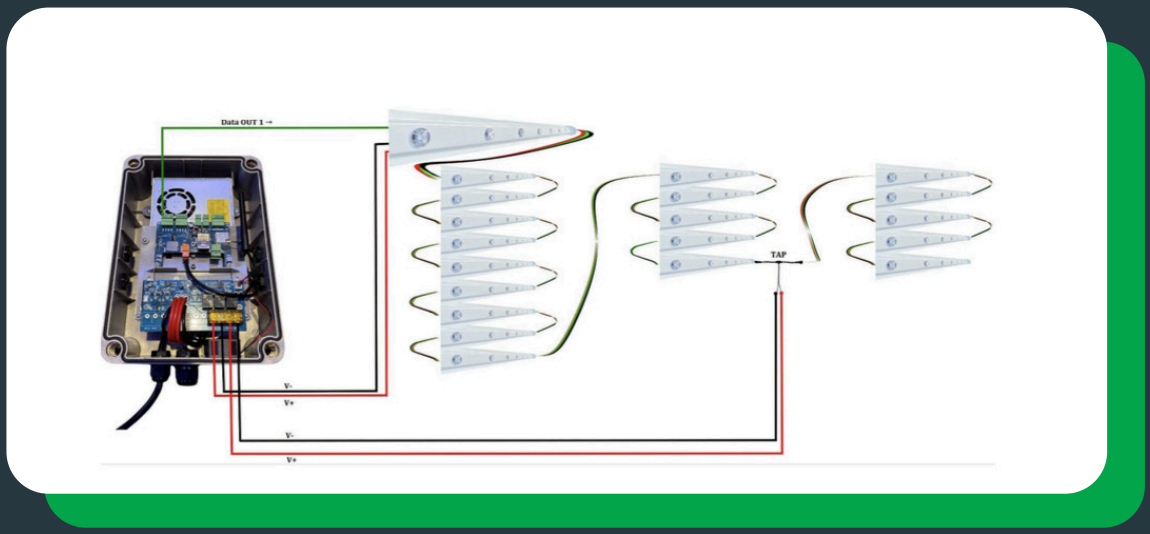

Diagram 2: Installation with 1 controller and 1 data zone (168 feet).

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Diagram 3: Configuration with 2 controllers (282 feet):

- Use 2 controllers to manage pixels separately (front/sides and back).
- Use both power supplies to handle the maximum number of pixels.
- Ensure the **V+ connections** are not linked between power boxes.
- Verify that the **ground wires (V-)** are common between power boxes.

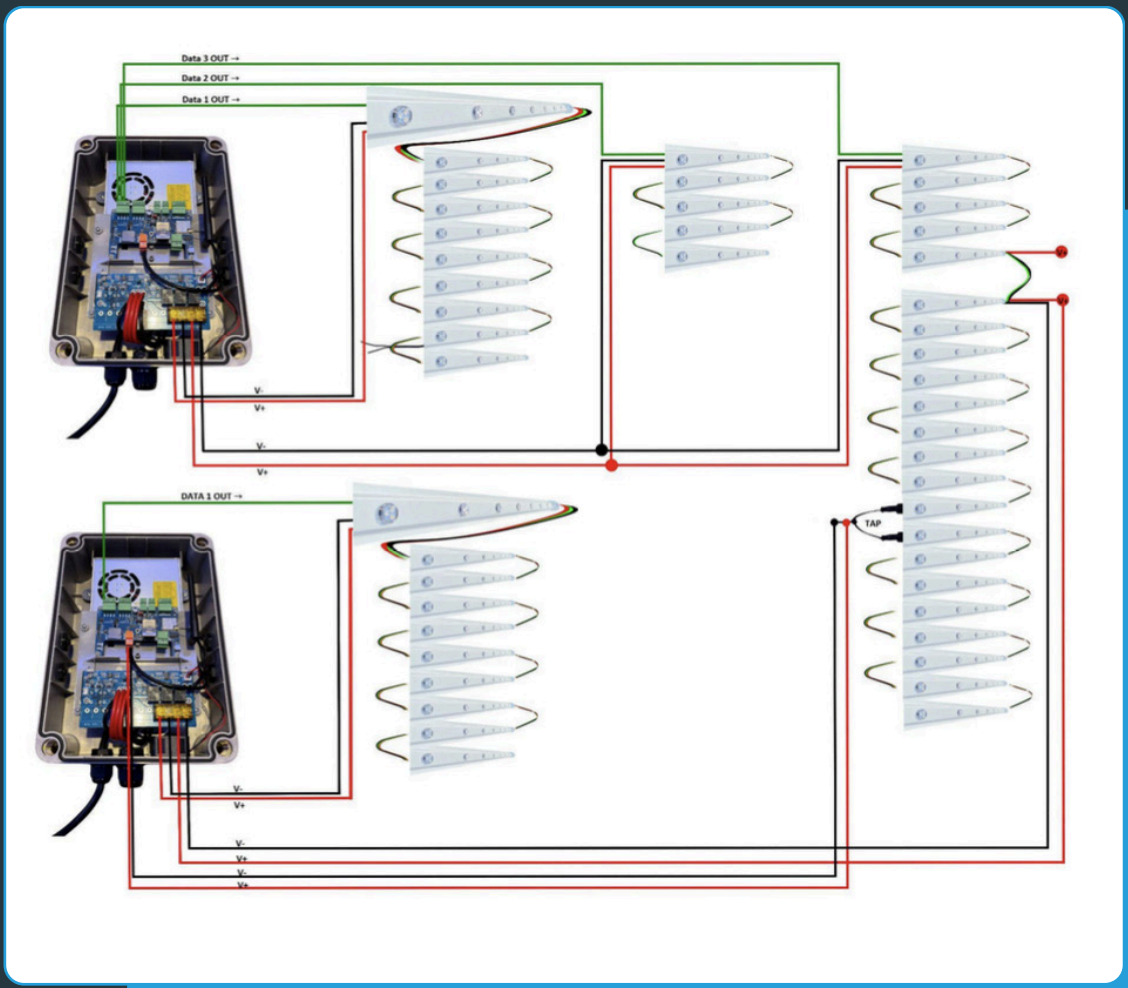
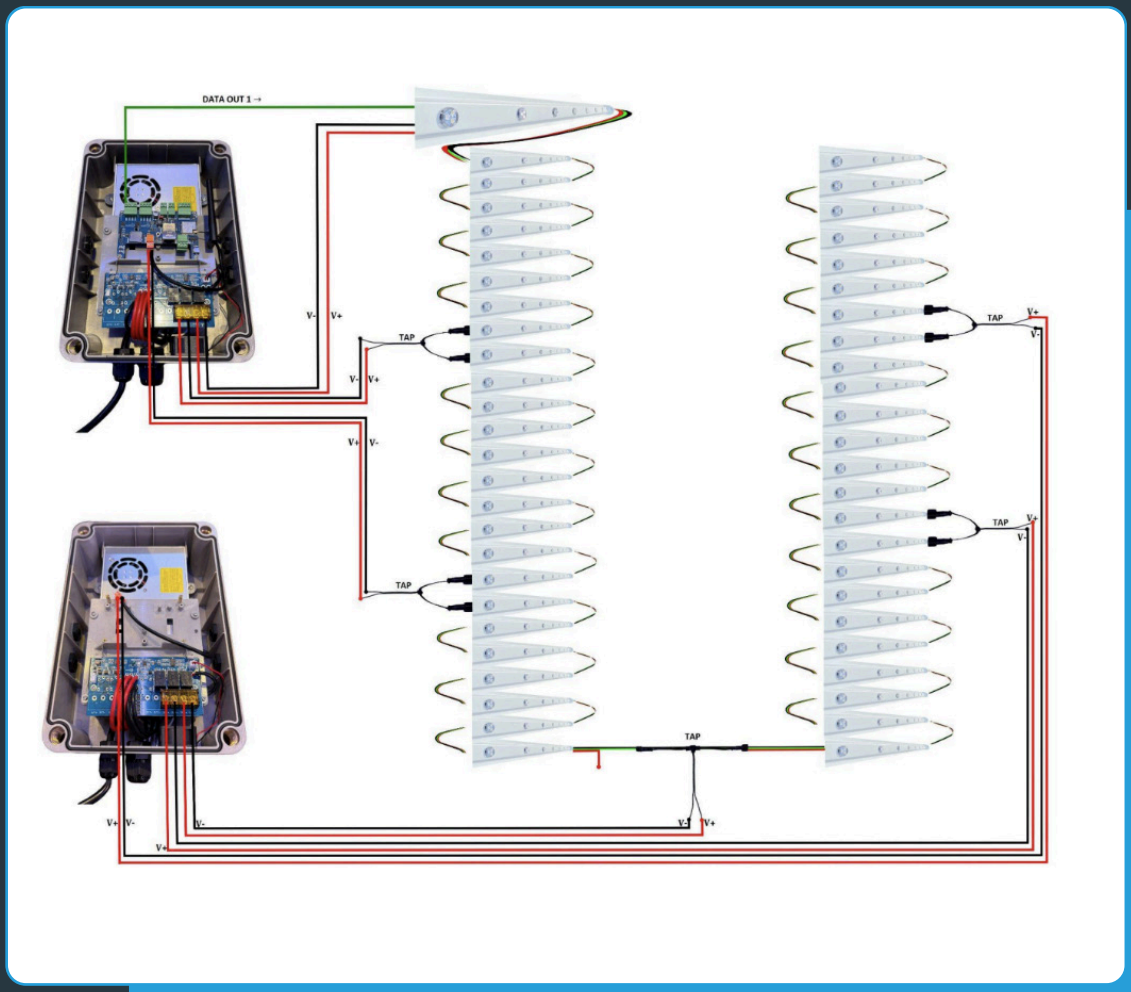


Diagram 4: Configuration with 1 controller and 1 power box (300 feet):

- Use both power supplies to handle the maximum number of pixels.
- Ensure the **V+ connections** are not linked between power boxes.
- Verify that the **ground wires (V-)** are common between power boxes.



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6. Troubleshooting

Common Problems

1. Non-Functional Lights:

- Check connections and polarity.

2. Flickering Lights or Random Color Changes:

- Ensure the load does not exceed the power box's capacity.
- Verify that connections are secure and solid. A poor ground (V-) or Data connection almost always causes flickering.
- Ensure no wires are crushed or damaged.

3. Lights Off After a Certain Point:

- Check the connections between the pixels.

4. Short Circuit:

- Immediately disconnect the power supply and inspect the wires and connectors.

5. Application Loses Connection with the Lights:

- Ensure good Wi-Fi coverage at the controller location.
- Use Wi-Fi extenders if necessary.
- Connect an RJ45 cable instead of Wi-Fi for a more stable connection.

6. Lights Remain Blue and Do Not Respond to Color Changes:

- Ensure the Data line cable is properly connected. Blue lights indicate the lights are powered but not receiving Data.
- Check the arrow direction on the lights.
- If the "LED/DEL Preferences" were modified in the app, verify that the GPIO number is correct.

7. Maintenance

To ensure optimal performance of your system:

1. Visual Inspection: Regularly check the condition of lights and cables.
2. Cleaning: Use a soft, dry cloth to clean components.
3. Power Box Maintenance: Ensure the box is clean and the fuses are in good condition.
4. Connection Checks: Test voltage and secure connections if necessary.

8. Support and Warranty

Technical Support

- **Email**: support@illumidel.com
- **Phone**: 1-514-900-4018 (Monday to Friday, 9 AM to 5 PM EST).
- **Online Resources**: Guides, FAQs, and videos are available on our website.

Warranty

- **Duration**: 5 year limited warranty.
- **Coverage**: Manufacturing defects and hardware failures.
- **Exclusions**: Incorrect installation.

For a Claim:

1. Provide proof of purchase.
2. Describe the issue encountered.
3. Include photos or videos if possible.

This manual is designed to guide you through every step of installation, maintenance, and usage of your IllumiDEL system.

Contact us for any assistance!


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