Smart Junction Box User Manual

Smart Junction Box (OPA-2)

▪ SAFETY PRECAUTIONS

Read the installation and operation instructions carefully before installing and operating this device. Proper adherence to these instructions is essential to ensure the cables are sized and installed properly.

This product is not intended for use by any persons and children with reduced physical, sensory or mental capabilities or lack of experience and product knowledge.

Users are responsible for correct and safe installation and usage.

- It's highly recommended to have a licensed electrician install your lighting system.
- Ensure the existing electrical system can support the voltage and current requirements.
- The device is designed to be installed INDOORS IN A SPACE THAT IS PROTECTED FROM RAIN AND FLOODING.

- Be certain there is NO chance the unit could come into contact with water and that it is connected to a properly protected branch circuit.

- Never operate equipment with a damaged power cord. If the power cord is damaged, it must be replaced by the manufacturer, or a similarly qualified person to avoid danger.

- General maintenance is not required. DO NOT clean the interior, with any chemicals that might cause damage. To clear the exterior of the product, use a damp cloth only.

- ThinkGrow does not provide cable options for connection from the main power source. Customers need to properly select the correct size of the main power source (cables) for the installation. Incorrect application may cause equipment damage. The user is responsible for correct and safe installation and usage. Ensure the existing electrical system can support the voltage and current requirements.

▪ OVERVIEW

The ThinkGrow Smart Junction Box 2 (OPA-2) is an electronic circuit breaker and energy meter designed for real-time monitoring and control of electrical parameters such as voltage, current, power, and power factor. Equipped with overcurrent protection functionality, users can set three levels of overcurrent protection points. With built-in overcurrent protection and compatibility with TrolMaster controllers, the OPA-2 allows remote monitoring and adjustment of settings for optimal performance.

The OPA-2 allows users to set parameter values for Line 1 and Line 2 in Light Group Control Groups 0-9, as well as for UV, White, Deep Red, and Far Red in Spectrum Group Groups 0-9. This functionality enables precise control over the illumination levels of the lighting strips Featuring RS-485 communication, it supports precise control of lighting systems and offers unparalleled reliability and durability. If the circuit protector detects unusual high amperage, the power to the LEDs will be turned off to prevent damage to the LEDs and the Daisy Chain Power Cord System.

▪ KEY FEATURES (FOR FUTURE USE)

Real-Time Monitoring: Displays voltage, current, power, and power factor.
Adjustable Overcurrent Protection: Three levels of protection: 15A, 20A, and 30A.
TrolMaster Integration: Seamless compatibility for remote monitoring and control.
Dimming and Light Group Control: Configures lighting parameters (UV, White, Deep Red, Far Red) for up to 10 groups.
Durable Design: Waterproof (IP67), suitable for harsh environments.
Compact and Lightweight: Easy to install with back-panel mounting.

▪ SPECIFICATION

Input power:	100~277VAC, 50/60Hz
Rated voltage:	100~277V
Rated current:	30A
Shut-off Point Range:	15A / 20A / 30A
Overcurrent protection point:	+120%
Sensitivity to protection:	Response within 0.5s
Voltage accuracy:	±2% readings／±1% shut-off point
Current accuracy	±2% readings／±1% shut-off point
Power accuracy:	±5% readings／±1% shut-oft point
PF accuracy:	±10%
Operating temperature:	32~104°F
Working humidity:	5-95%RH
Communication Interface:	RS-485
Product Dimensions :	10.83" / 275mm(L) x 6.69" / 170mm(W) x 3.74" / 95mm(H)
Product Weight:	2.07lbs / 0.94kg
Certifications:	ETL / FCC

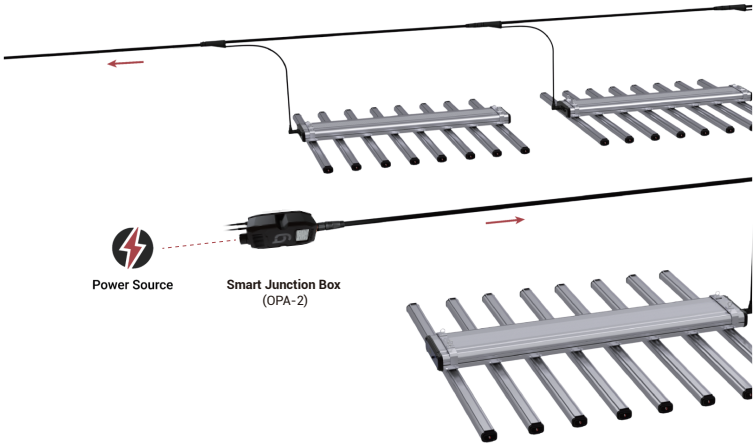
▪ PACKAGE CONTENT

1 x Smart Junction Box (OPA-2)
1 x ThinkGrow 12' Daisy Chain Control Cable (ECS-7)
2 x 12ft RJ12 to 4-Pin IP65 Connector Cable (ECS-9)
2 x Y- Splitter

INSTALLATION

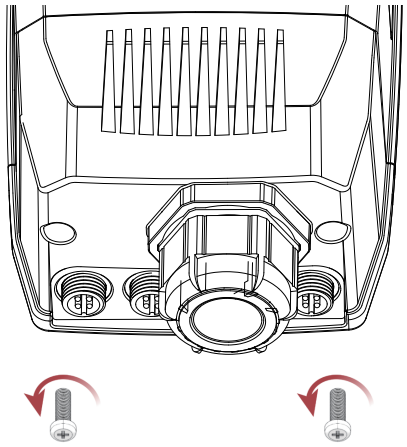
STEP 1

The Smart Junction Box 2 (OPA-2) is installed between the power source and your first LED inline using push-lock connections on the Daisy Chain Power Cord. The main power supply must be hard-wired into the Smart Junction box.



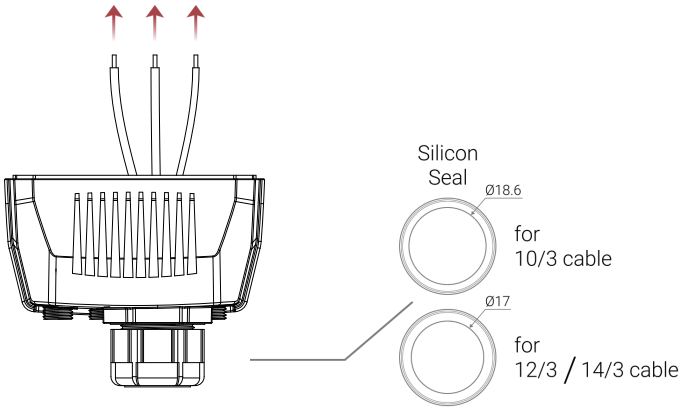
STEP 2

To wire the Smart Junction Box 2 to your facility's primary power source, remove the two screws and open the chassis.



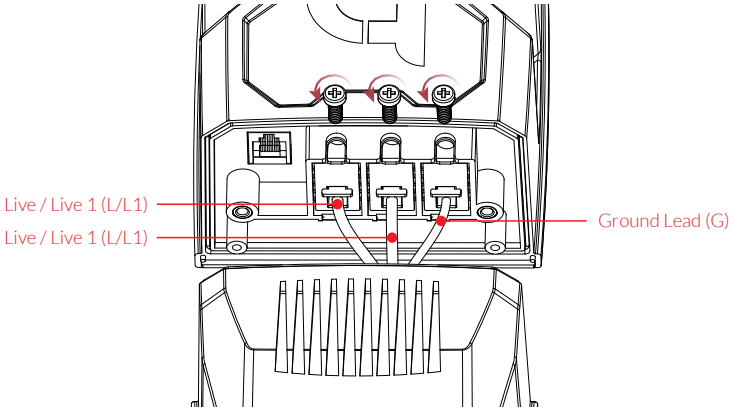
STEP 3

Pass the main power source cable through the waterproof cable gland and strip the ends of the three wires coming from your power supply.



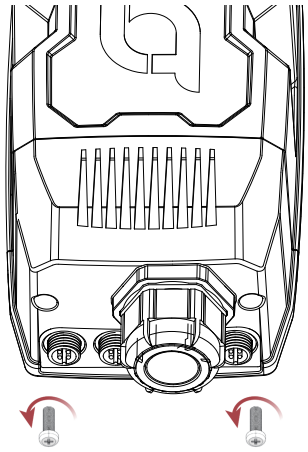
STEP 4

Secure the three power wires coming from your primary power source into the 3 screw terminals.



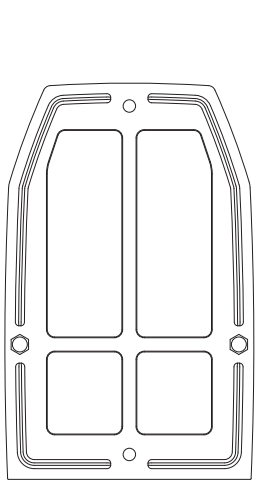
STEP 5

Close the chassis, then tighten the cable gland nut and re-insert the two screws to seal the chasis.

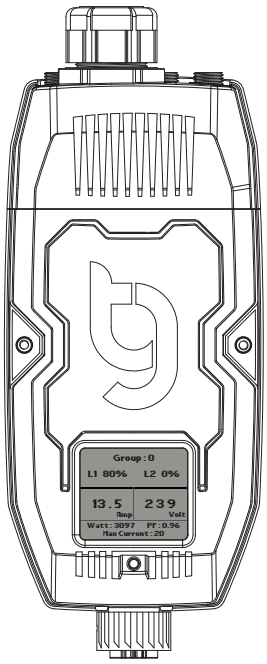


STEP 6

Separate the back-mount by releasing the 2 screws on both sides of the chassis. Mount the back-mount on the wall, then re-insert the 2 screws on both sides to tighten the chassis.



Back-mount



▪ OPERATION INSTRUCTIONS

1. Power on the OPA-2 and verify the display shows real-time voltage and current readings.

2. Use a compatible TrolMaster controller to adjust settings such as overcurrent thresholds and lighting parameters.

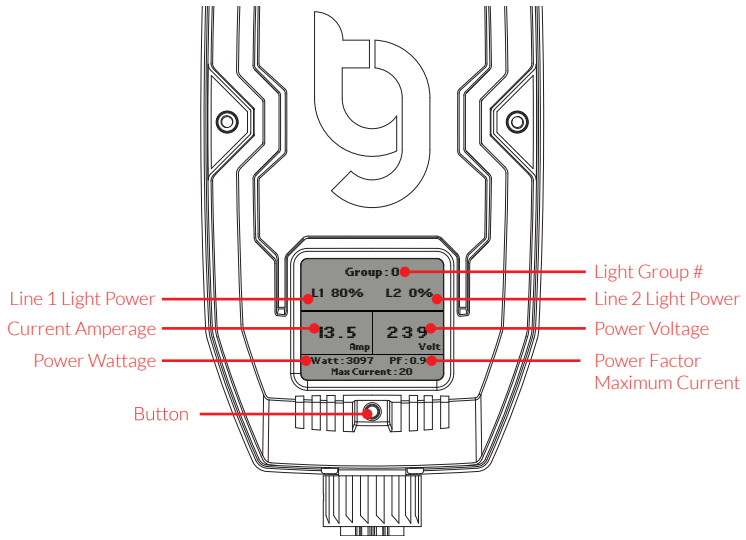
3. Monitor power metrics via the controller interface to ensure optimal performance.

▪ PRECAUTIONS

- Disconnect power before installation or maintenance.
- Avoid exposing the unit to impacts or sharp objects.
- Do not modify or drill new holes into the casing.
- Ensure operating temperatures do not exceed 104°F (40°C).
- Use only in environments with 5~95% RH (non-condensing).

▪ SMART JUNCTION BOX OPERATION INSTRUCTIONS

1. Main Menu



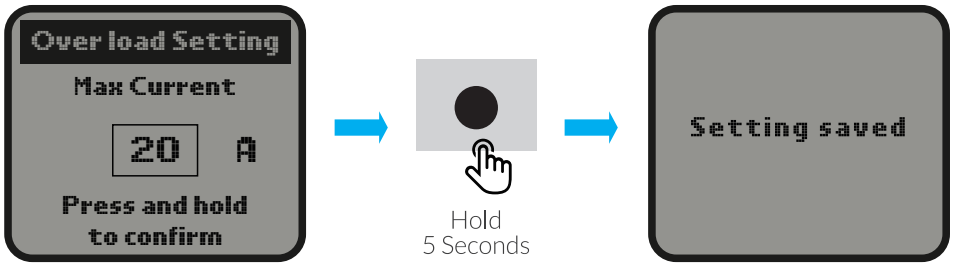
2. Press once to wake

Press the button once to activate the backlit LED.

3. How to set the Max. Current Shut-off point:

- Press and hold the button for 5 sec to enter the setting menu.
- Press the button to switch between the current shut-off point. (15A/ 20A/ 30A)

- Hold the button for 5 seconds to confirm. (Settings will not be saved and will jump back to the main screen if there is no confirmation for over 1 minute) .



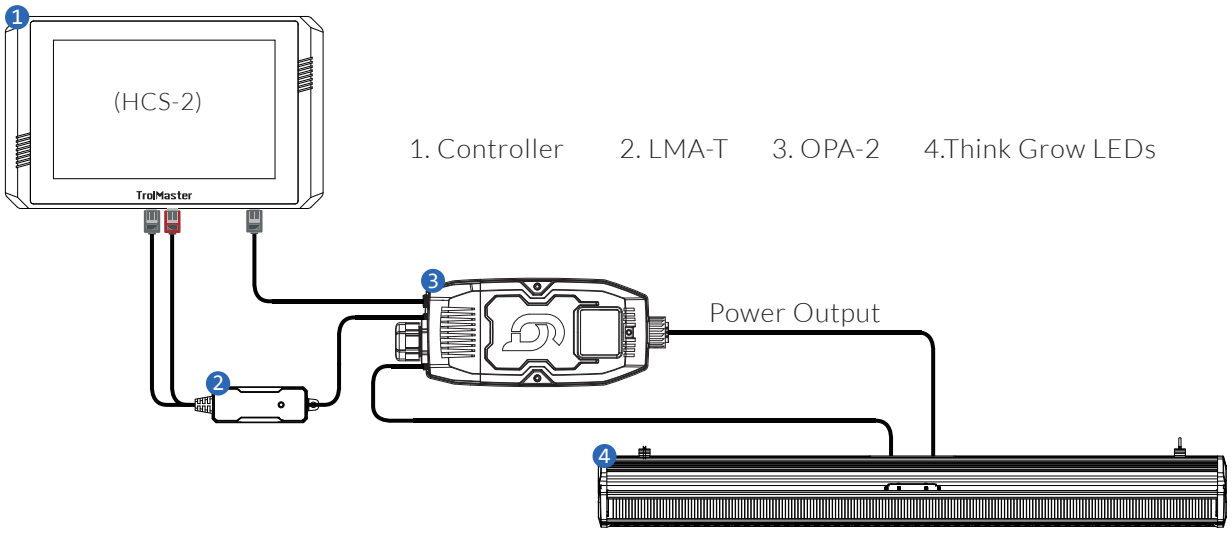
4. If power exceeds current shut-off point:

- The OPA-2 will shut off power if the current raises 20% above the shut-off point within 0.5s.
- To resume the OPA-2, press and hold the button for 5 seconds.

▪ SHOWING HOW TO USE OPA-2 AS LMA-G

The OPA-2 serves a dual purpose by functioning as both a smart power box and an LMA-G for ThinkGrow lighting systems. Designed to seamlessly integrate with ThinkGrow Lighting, the OPA-2 enables users to manage their grow lights effectively through group control functionalities. Each OPA-2 can control a specific group of lights, allowing for precise adjustments to lighting parameters such as voltage, current, and power.

This capability ensures optimal performance and energy efficiency, as users can set parameter values for different light groups and spectrum settings, including UV, White, Deep Red, and Far Red. By utilizing the OPA-2 as an LMA-G, growers can enhance their lighting management while benefiting from the advanced monitoring features that the OPA-2 offers, ensuring a well-regulated environment for plant growth.



For further assistance, visit our website:
www.trolmaster.com
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For any issues or concerns with our products, DO NOT return them to the store. Please contact our tech support department at **support@thinkgrow.com** or call **877-420-9876**.

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