Smart Lifter User Manual



LLT-2 | ThinkGrow Smart Lifter System **&** **LRC-1** | Smart Lifter Remote

▪ SAFETY PRECAUTIONS

Read the installation and operation instructions carefully before installing and operating this device. Proper adherence to these instructions is essential.

- Disconnect power before installation or maintenance.
- Avoid exceeding the maximum load capacity of 60kg (132 lbs).
- Operate the lifter in environments below 40°C (104°F).
- Do not expose the lifter to water or corrosive chemicals.

▪ CAUTION

Read all instructions carefully before installation.

This product is not designed for utilization by children, individuals with diminished physical, sensory, or cognitive capabilities, or those lacking experience and knowledge regarding the product.

The device is designed to be installed INDOORS IN A SPACE THAT IS PROTECTED FROM RAIN AND FLOODING.

General maintenance is not required. DO NOT clean the light lifter's interior or chain with any chemicals that might cause damage. To clean the steel cable, use a damp cloth only and ensure it is fully dried before retracting the chain.

▪ WARNING

 WARNING: CLEAR AREA BELOW LOAD	Ensure the area directly beneath the LLT-2 and its load is clear of people and obstacles at all times during operation. Never stand or work under the moving load, especially when lifting or lowering overhead.
	Users are responsible for the connection, safe installation, and usage of the devices.
	It is highly recommended that a certified person or licensed electrician install your light lift system.
	Ensure the existing electrical system can support the voltage and current requirements.
	The light lifter possesses significant weight. Serious injuries and/or damage to the equipment may occur if dropped. Exercise caution during the installation process. Ensure the light lifter is secured with the appropriate mounting hardware. Carefully adhere to the provided installation instructions.
	It is imperative to verify that the building structure, mounting solutions, and components are capable of supporting the weight of the lifter and the light fixtures.

Smart Lifter System (LLT-2)

▪ OVERVIEW

The LLT-2 Smart Lifter System is an advanced lifting device designed for use in agricultural planting environments. It efficiently automates the lifting and lowering of plant supplementary grow lights, facilitating automatic height management during plant growth. It enables efficient suspension of grow lights, sensors, and other equipment. This compact, quiet, and easy-to-install lifter ensures precision, synchronization, and user-friendly operation.

LLT-2 is ETL-listed. Each lifter can lift up to 132lbs/60kg, and the lifting range is up to 110"/280mm. Lifters can be linked together with automated alignment, and it is also compatible with the **LRC-1 Remote** and **(HCS-2) Hydro-X Pro Controller** for enhanced functionality.

SPECIFICATION

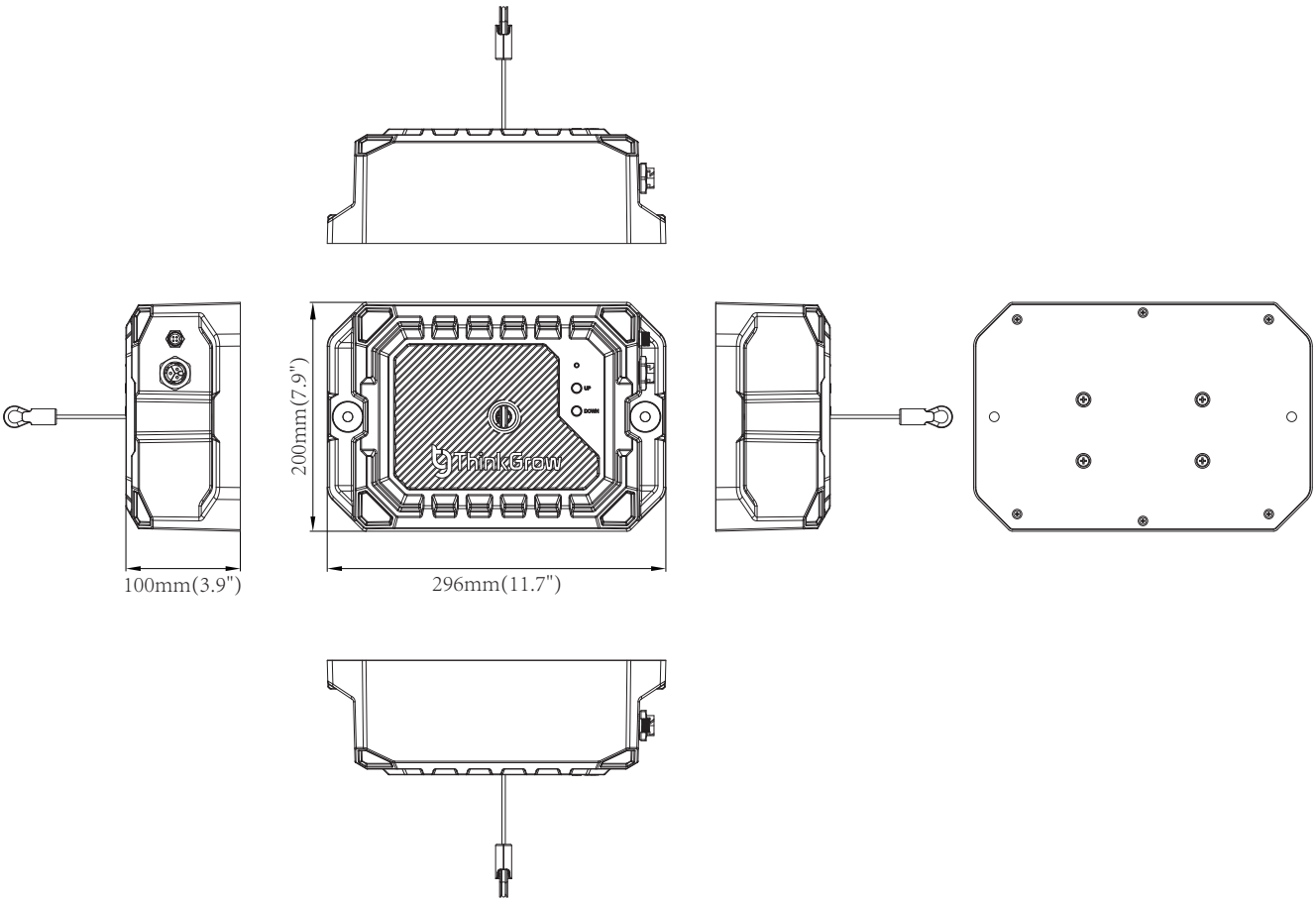
Input Voltage:	100-277V~, 50/60Hz
Input Power:	≤165W
Lifting Range:	≤ 9.2' / 2.8m
Lifting Speed:	3.9m/min
Maximum Lifting Weight:	≤ 132lbs / 60kg
Maximum Lifting Length:	110" / 280mm
Working Environments:	Temperature 32~104°F(0~40°C) Humidity ≤ 90%RH
Product Dimensions (W*L*H):	7.87" x 11.65" x 3.94" 200mm x 296mm x 100mm
Package Dimensions (W*L*H):	14.57" x 9.65" x 5.35" 370mm x 245mm x 136mm
Weight:	13.23lbs / 6kg
Noise Level:	≤ 50db
Expected Lifespan:	7,200 cycles

CONFORMS TO UL 73
CERTIFIED TO CSA
STD.C22.2 NO.68

PACKAGE CONTENTS

1 x Smart Lifter System (LLT-2)
1 x Power Cable
1 x ThinkGrow 12' Daisy Chain Control Cable (ECS-7)
1 x Smart Lifter System Rigging Cable Kit (RC-1)

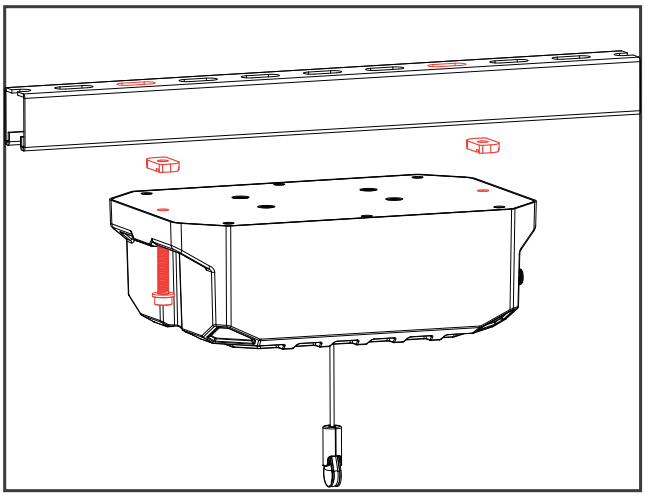
PRODUCT DIMENSIONS

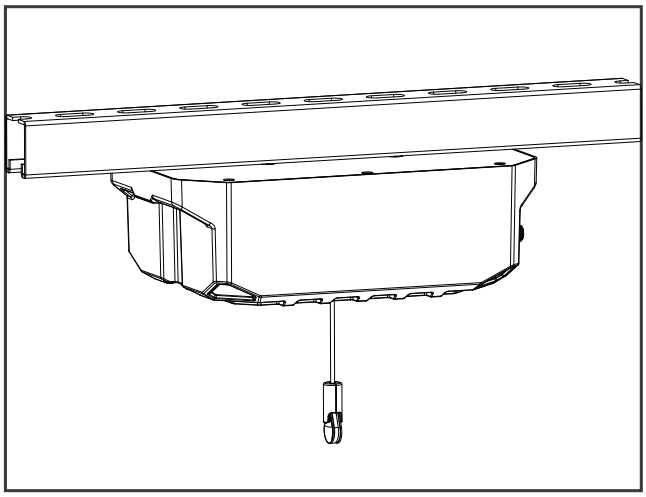


INSTALLATION



MOUNTING INSTRUCTIONS





The LLT-2 module is designed to be mounted directly onto a unistrut, specifically using the MQM unistrut nuts, twist them 90' counter-clockwise to lock the unistrut nuts in place. Users can also install the LLT-2 on secured ceiling structures utilizing appropriate fasteners to ensure the stability of the lifter. The mounting solution must be rated and installed by qualified professionals. The mounting structure must be capable of supporting both the weight of the LLT-2 and that of the lifted fixture, while adhering to the rated lift capacity of the LLT-2. There exist two mounting holes for securing the lifters overhead. The minimum required diameter for screws is less than or equal to 0.3"(8mm), rated for a minimum of 80kg load. (Please note that screws and washers are not included in the package.)

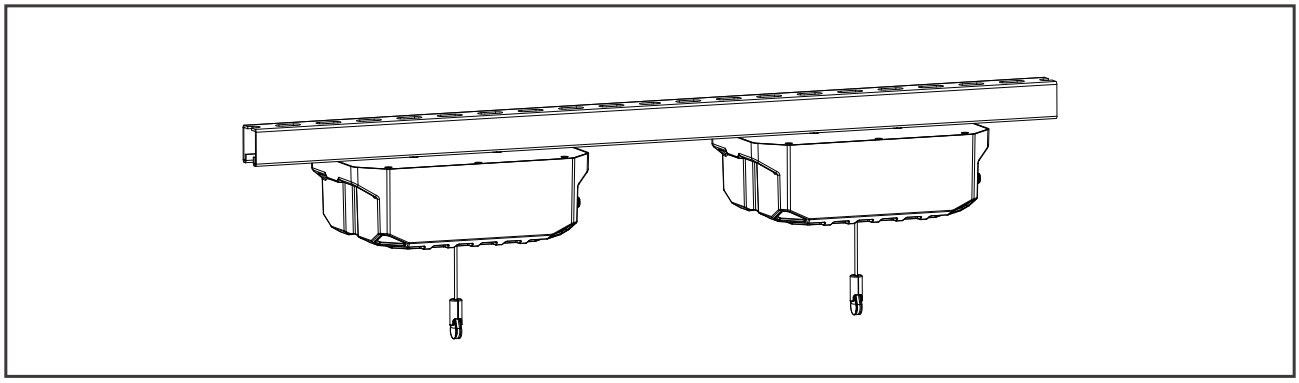
***Caution:** It is incumbent upon users to ensure that all building structures, mounting solutions, and components possess appropriate ratings and are structurally sound.

Connect to Power:

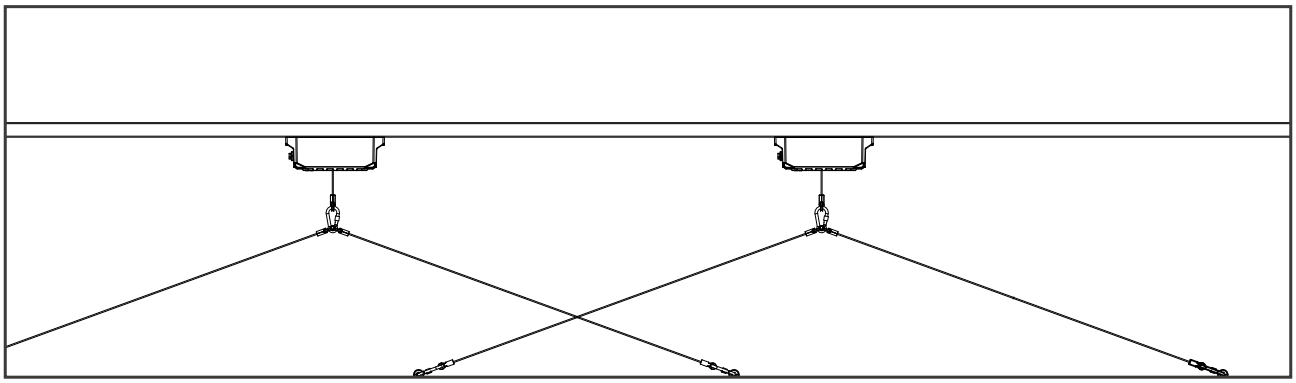
Power up the LLT-2 by attaching the power cable to the lifter's power cable port.

Unistrut Hanging Instructions:

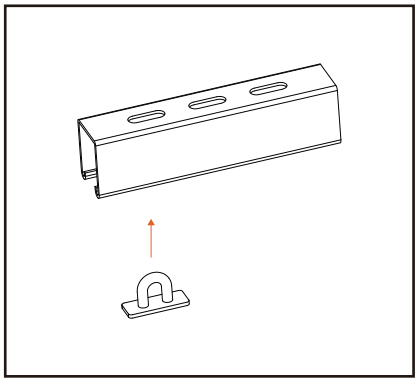
1) Please ensure the LLT-2s are installed horizontally and that each lifter is interconnected with the connector cable. Also, please ensure the lifter's chains are adjusted to their highest or lowest position before hanging anything on the lifters to ensure the level for the elevating.



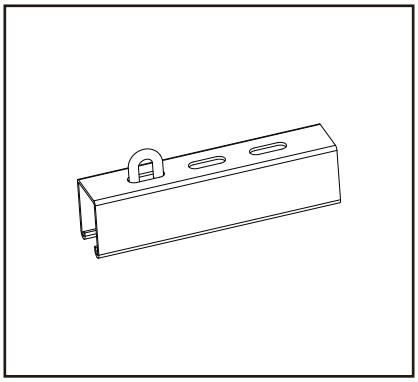
2) Attach the carabiner to the LLT-2 hanging cable.



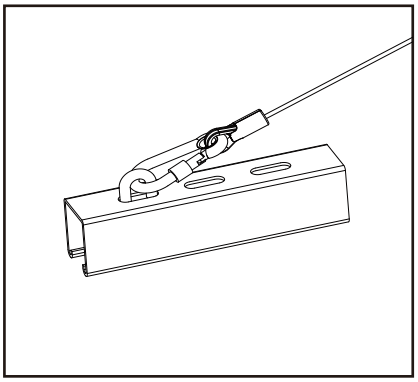
3) Use the RC-1 Cable Set



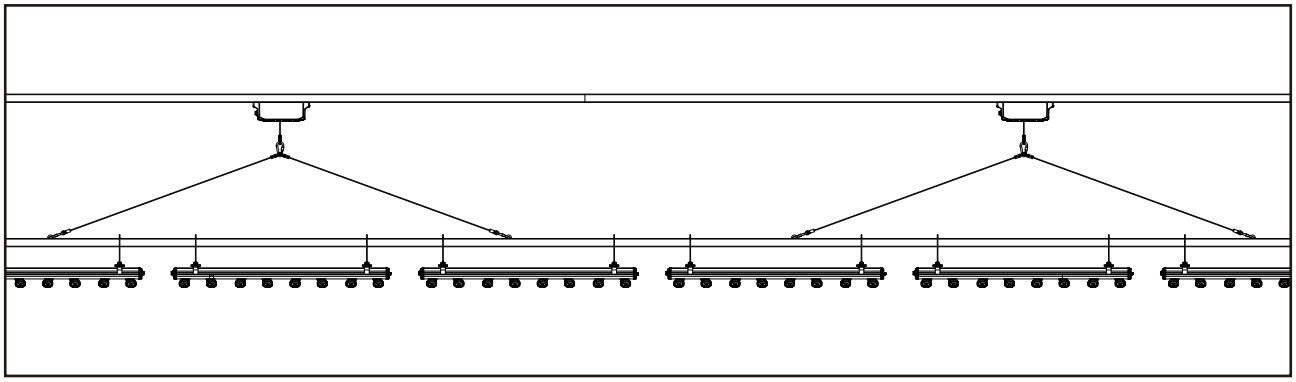
1. Insert the Stainless Steel Eye Plate into the unistrut.



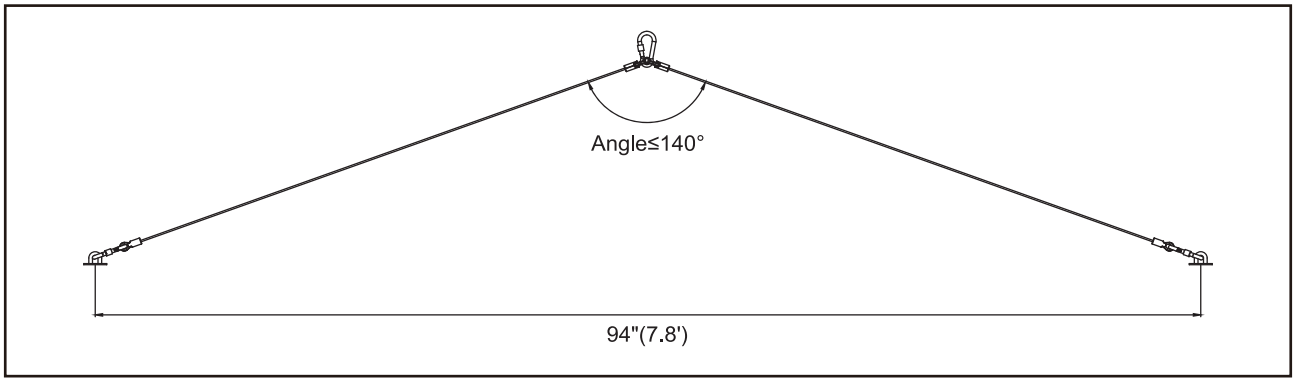
2. Make sure the Eye Plate is correctly placed.



3. Connect the Pear Quick Links to both of the Eye Plate.



4. Connect the Pear Quick Links to the lifter, installation completed.



5. Please ensure that the angle is no more than 140" and that the distance between the two Eye Plates is no greater than 94".

▪ TROUBLESHOOTING

LED Light Indicator	(Error) status	Description & solution
Connected with controller: Blinking Red LED for 10 seconds, then turns Solid Green Not connected with controller: Blinking Red LED for 10 seconds, then turns Blinking Green	Lifter has reached a level limit. (The lifter reached its highest or lowest setpoint)	Press the Down (or Up) button on the LRC-1 module to lower (or raise) the unit(s) from the ned limit position. If it's not working, repair or RMA may be needed.
Blinking Red LED for 10 seconds, then turns Solid Green	Reached minimum level (The lifter reached its lowest setpoint or the lowest level the hardware can reach)	Press the up button on the LRC-1 module to raise the unit(s) above the low limit position. If it's not working, repair or RMA may be needed.
Blinking Red LED	Steel cable is loose or has slacked. *There needs to be some weight on the cable when lifting.	Lower the lifter slightly, then lift a heavy object then lower it again to eliminate slack. If it's not working, repair or RMA may be needed.
Solid Red LED	System protection (Overloaded / too much weight on the lifter)	It should go back to normal operation in 60 seconds. Then test the lifter without adding any weight to it. If this fixes the problem, it's likely the ifters have been temporarily overloaded. Please make sure to keep the weight within the specified range. If it's still not working, repair or RMA may be needed.
Solid Red LED	Hardware malfunction	Repair or RMA may be needed.

***CAUTION:** If an unexpected power outage occurs during full-load operation, it is imperative to lower the equipment to its minimum position before preparing it for use.

OPERATION INSTRUCTIONS

Manual Control:
• Use the Ascent / Descent button on the panel to adjust the height manually.

Automated Features:
Activated when paired with Smart Lifter Remote (LRC-1) or TrolMaster Hydro-X Pro Main Controller (HCS-2):
• Set the lifters' upper and lower range limits via LRC-1.
• Program synchronization for multiple lifters to ensure level lifting.

Lifter Testing:
• Use the Ascent / Descent buttons to elevate and ensure functionality.
• Calibrate the elevating level if required.

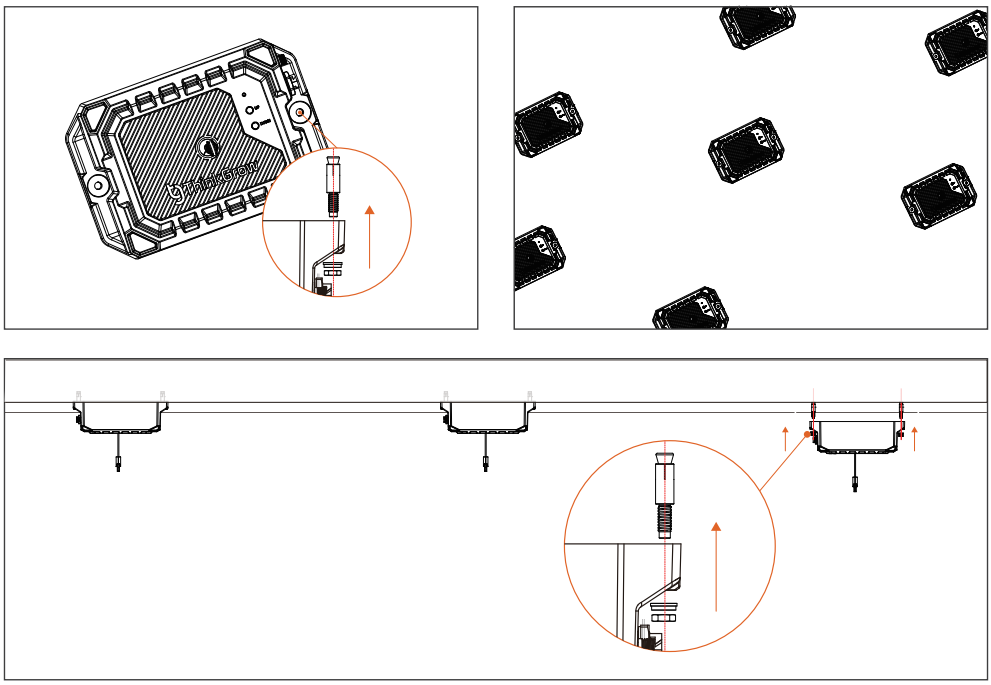
LED Indicators:
• **Green Light:** Normally working.
• **Flashing Green:** Connection issues with the main controller or remote.
• **Red Light:** Error—refer to troubleshooting.

LIFTER SYSTEM INITIAL SETUP

An initial setup is needed when two or more lifters are used on the same light fixtures. Follow the recommended setup instructions below to ensure the lifter system is setup correctly.

Ensure you have properly calculated the weight of all components (unistrut, lights, power cables etc.) the lifters will carry, and are within the rated weight limit.

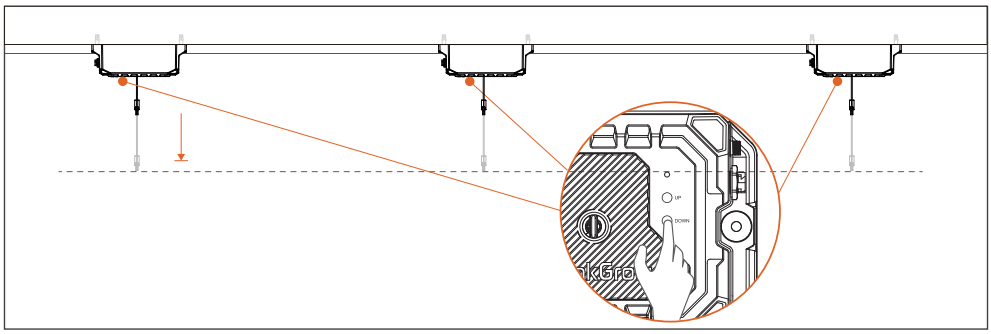
1.Install the light lifters to a secure location overhead. Connect the power cables to the LLT-2.



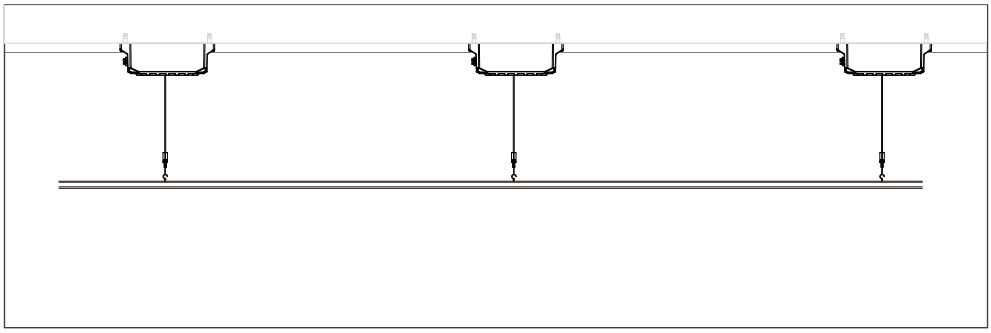
*Caution: Users are responsible to ensure all components that are connected to the Smart Light Lifter are rated properly and structurally sound.

2. Use the LLT-2's descent button to individually lower the lifter's steel cable down to the same level. While manually lowering the cable on each lifter, apply a small amount of force, or attach a small weight to make sure the cable extends smoothly from the LLT-2.

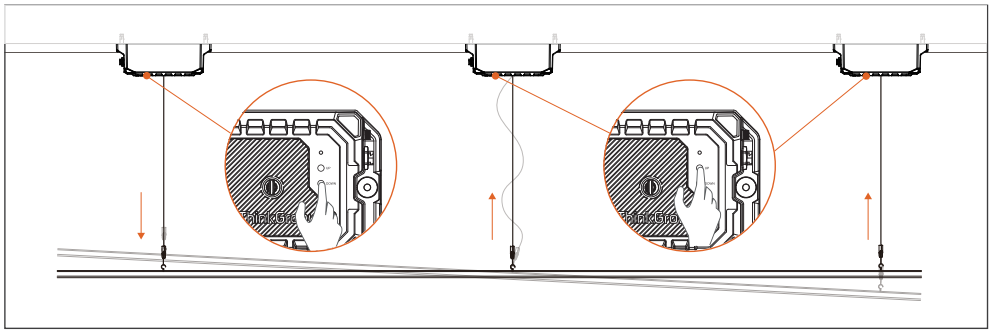
*Use a ruleror tape measure to ensure they are all equal distance from the LLT-2 body.



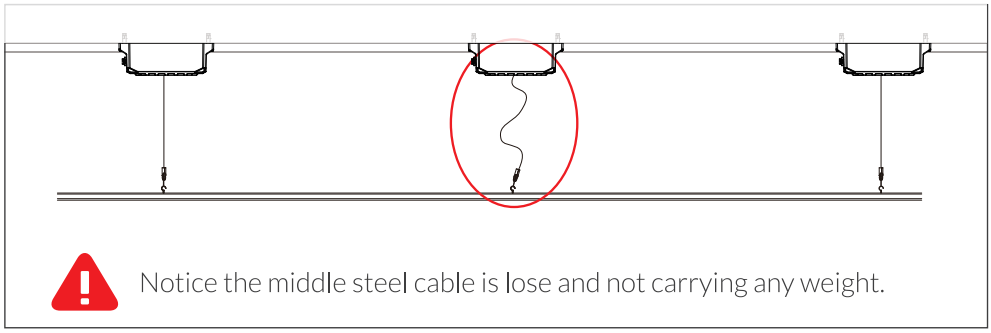
3. Connect the support system (e.g. unistrut) to the lifters' steel cable loop, so that the lifter bears a light weight.



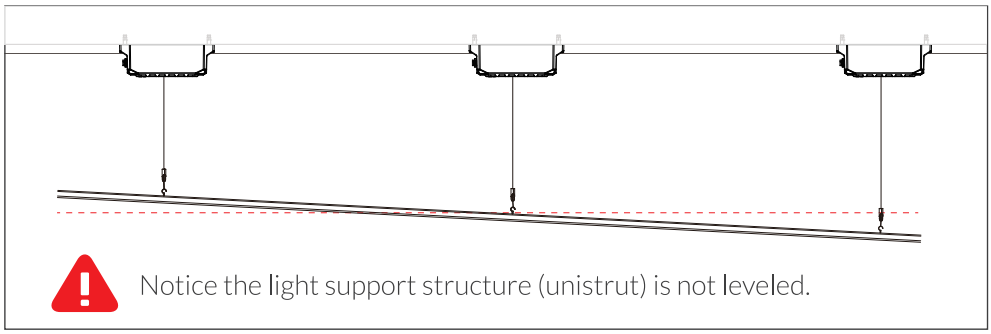
4. Ensure the support system (e.g. unistrut) is leveled and all lifters weight distribution is equal. If individual lifters need to be adjusted, use the ascent/descent buttons on the lifter.



*Caution: Users must address potential situations shown below before continuing the setup procedures. If one or more of the lifters are not all level, the lights may be lifted unevenly and/ or some lifters will not be bearing any weight. Manually use the up down buttons on each LLT-2 so that equal weight will be supported by each lifter.

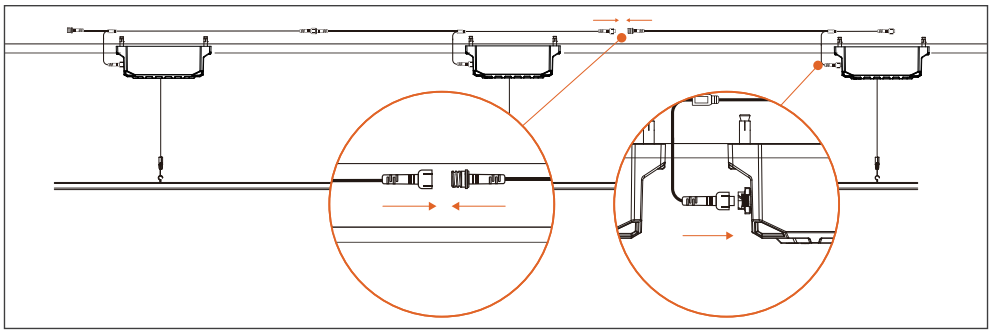


Notice the middle steel cable is lose and not carrying any weight.

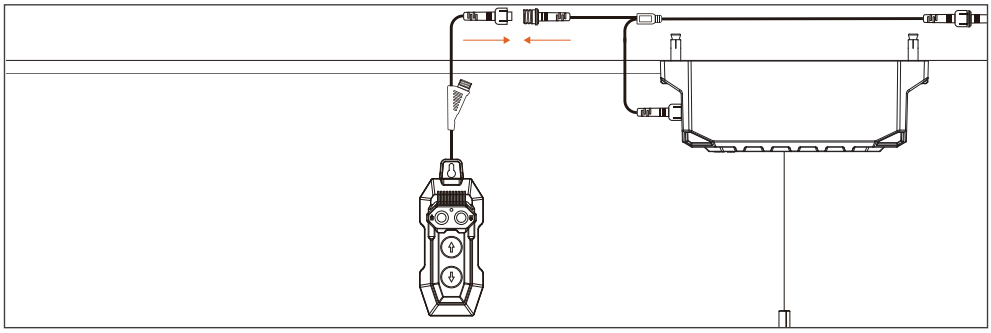


Notice the light support structure (unistrut) is not leveled.

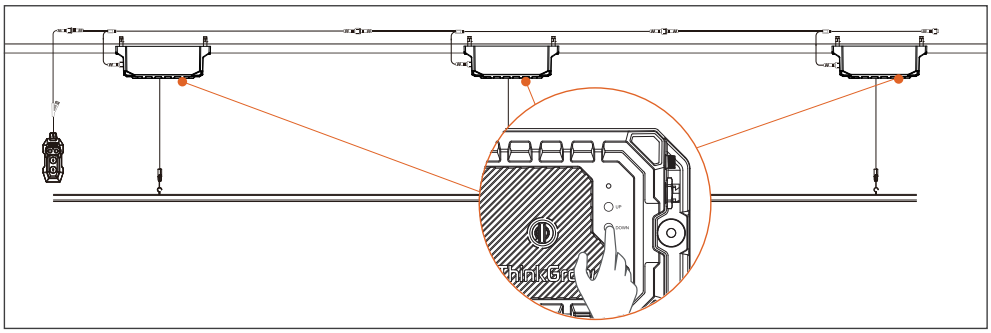
5.Daisy chain the lifters that need to be synchronized together by using the ECS-7 data cables.



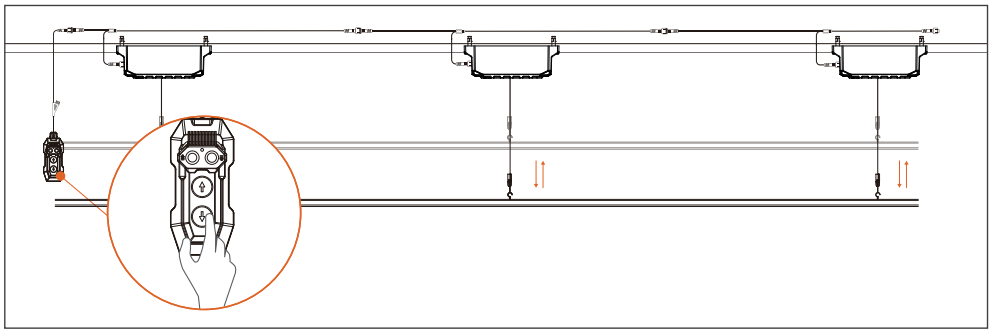
6. Connect the LRC-1 Smart Lifter Remote to the first lifter and ECS-7.



7. Address the lifter and pair the remote by pressing the LLT-2's ascent button once. When the lifter is paired with the remote, the lifter's LED will turn from blinking green to Solid Green. While the LRC-1's LED will turn from rapid blinking green (0.6s per blink) to slow blinking green (1.2s per blink). (Repeat this step until you pair all lifters in the chain. For more details on LRC-1, see P.15)

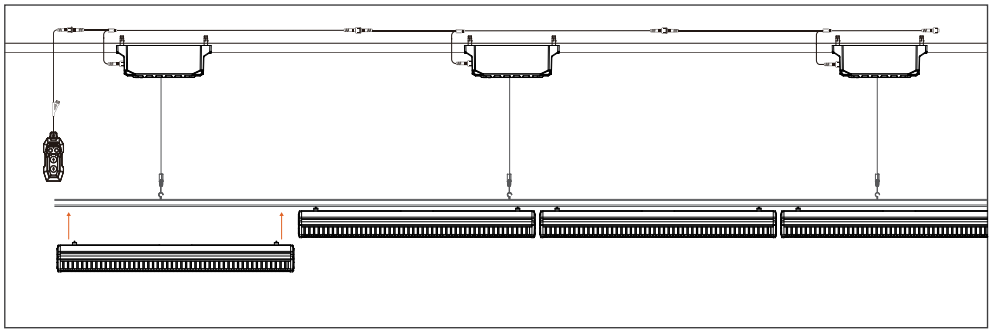


8.Test the synchronized ascent and descent via the LRC-1 Smart Lifter Remote to verify all lifters are paired and working with the remote.

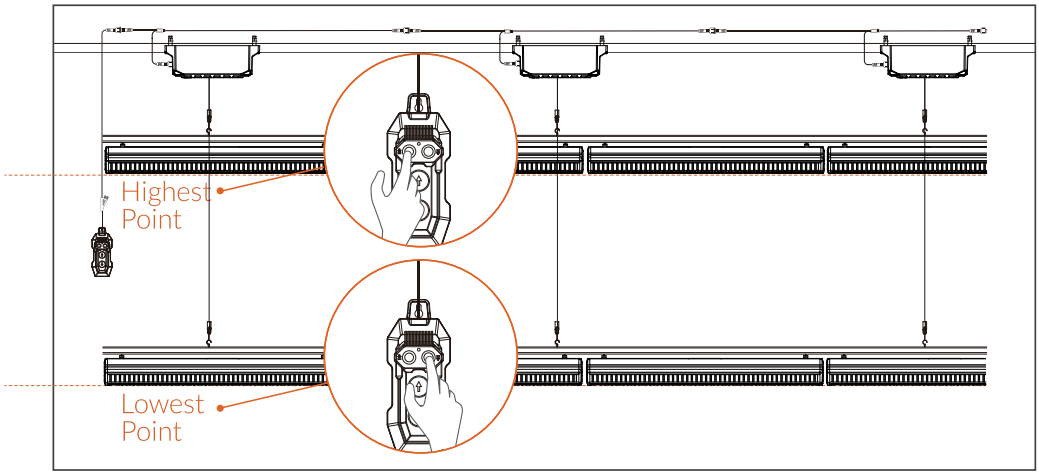


*Caution: Monitor all lifters' operation. If any of the lifter(s) stops working, let go of the ascent/descent button immediately and check and troubleshoot the lifter(s) error status.

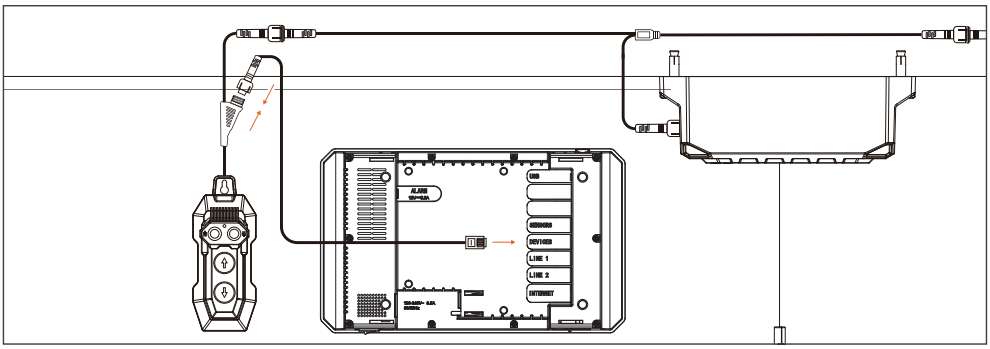
9. Install grow light into the support system (e.g. unistrut).



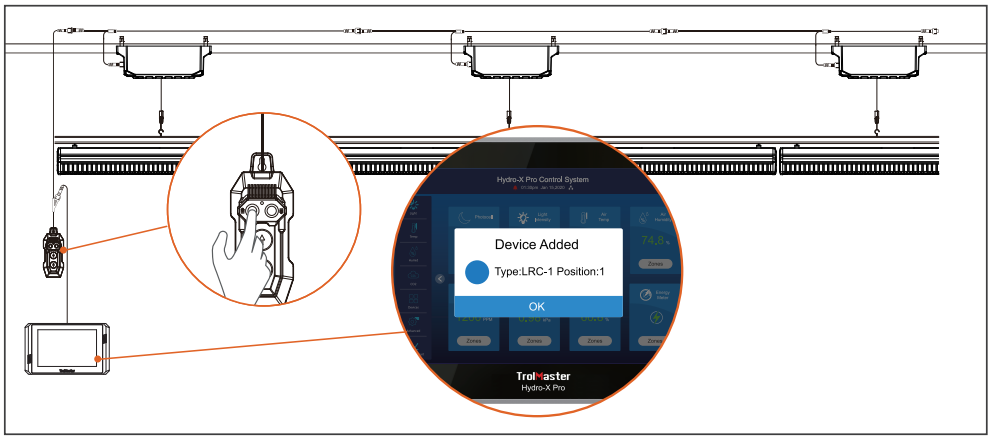
10. Set the lifters' upper and lower range limit via LRC-1 by ascending/descending to the desired height levels, press and hold the Highest/Lowest Range Setup Button until the LED indicator turns from blinking red to solid. (see P.16 for more details)



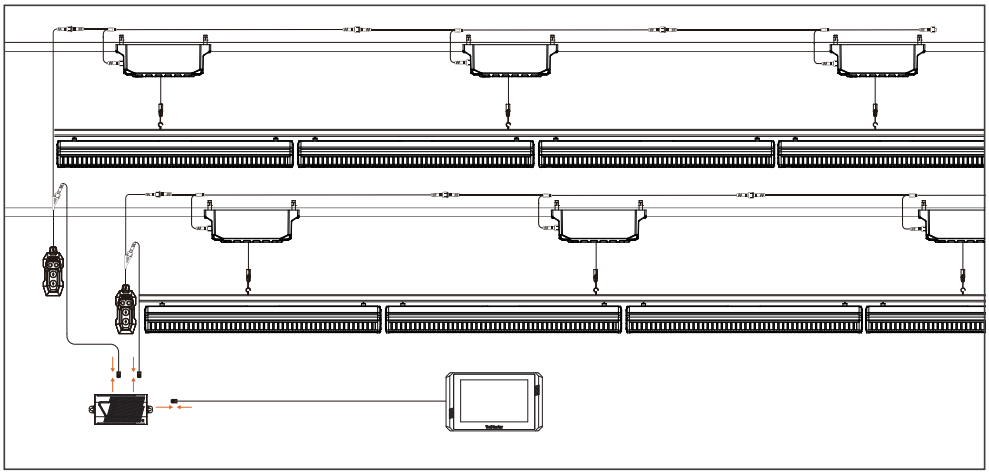
11.Connect the LRC-1 to the Hydro-X Pro (HCS-2) Maincontroller's device line via ECS-9 Data cable.



12.Address and pair the remote with HCS-2 by pressing LRC-1's Highest Range Setup Button once. when the remote is paired with the HCS-2, the remote LED will turn from slow blinking green(1.2s per blink) to solid green. A "Device Added" pop-up message will appear in HCS-2.(For more details on LRC-1, see P.15)



13. With multiple LRC-1 remotes, you can create multiple “lifter-group”. Connect the LRC-1 remotes to the HCS-2 via SPH-1 splitter hub for advance features such as "synchronized lifter-group control" . (For more details, see Hydro-X Pro user manual and tutorial video.)



Smart Lifter Remote (LRC-1)

▪ OVERVIEW

The LRC-1 Lifter Remote Control is designed to be used with the LLT-2 smart lifter. Its plug & play easy installation enables users to easily install and operate the light lifter(s) from a distance, and program LLT-2 smart lifters maximum and minimum range.

The LRC-1 LED indicator will also show its operation, program settings and height limit for users easy reference.

The LRC-1 Lifter Remote can be connected with the Hydro-X Pro for advanced features such as lifter-group control.

SPECIFICATION

Input Voltage and Amperage:	12V~, 0.1A
Working Environments:	Temperature 32~104°F (0~40°C) Humidity ≤90%RH
Package Dimensions:	5.12" x 7.36" x 3.46" 130mm x 187mm x 88mm
Weight:	1.32lbs / 0.6kg

CONFORMS TO UL STD.62368-1
CERTIFIED TO CSA STD.C22.2 NO.62368-1
Intertek 5008191

PACKAGE CONTENTS

1 x Smart Lifter Remote (LRC- 1)

1 x 12ft RJ12 to 4-Pin IP65 Connector Cable (ECS-9)

INSTALLATION

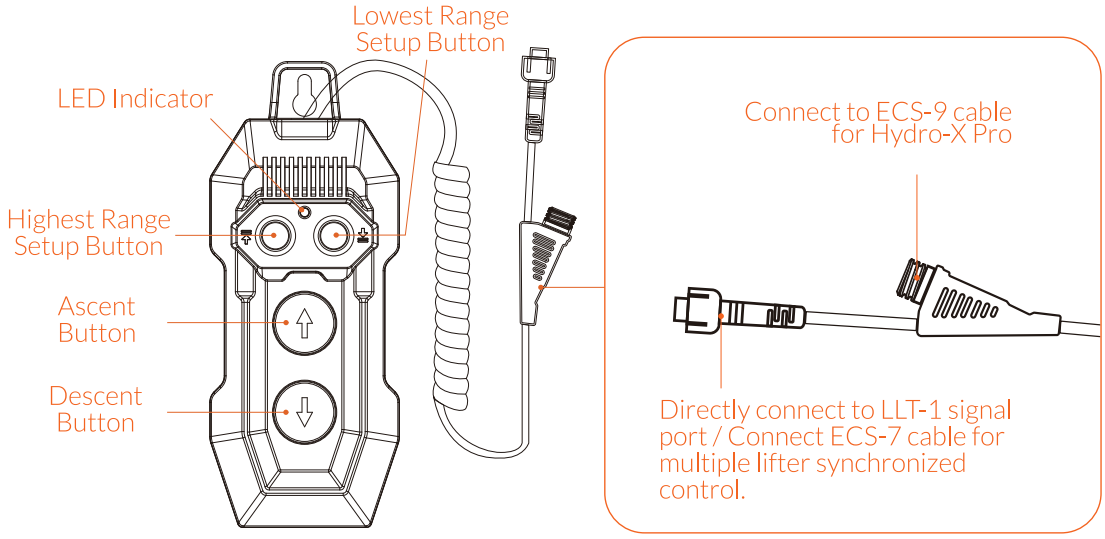
Connect the longer jack on the LRC-1 directly to the Remote Controller Signal Port on the LLT-2 smart lifter if you are only using one lifter. If you want to synchronize multi-lifter control with one LRC-1 remote, connect the longer jack to a connection cable and daisy chain these lifters together (follow the “Data Signal Wiring” guide on P8).

Address and pair the connected remote and lifter by pressing the lifter's ascent button. If you are connecting the remote to a daisy-chained multi-lifter, address and pair all lifters individually by pressing the ascent button on the lifters.

Connect the shorter cable to ECS-9, and use the ECS-9 RJ12 port to connect the controller to Hydro-X Pro main controller.

Address the remote and the HCS-2 by pressing LRC-1's Highest Range Setup Button once. When the remote is paired with the HCS-2, the remote LED will turn from slow blinkinggreen(1.2s per blink) to solid green. A “Device Added” pop-up message will appear in HCS-2.

*Note: A single remote can pair and control a signal chain of up to 30lifters.



▪ OPERATION INSTRUCTIONS

1. The LED indicator will be blinking green when the ascent or descent button is held.

2. Once the highest or lowest setpoint is positioned, hold the highest or lowest range setup button on the LRC-1 for 3 seconds to lock the position in memory, The LED will blink red while saving the setting. When it turns to solid red, that means the position has been assigned and locked successfully.

3. The highest range must be set higher than the lowest, and vice versa. The LED indicator will blink green for 5 seconds once it's been sent, the remote shall only be able to move the lights up or down within the setup range.

4.The LED indicator will blink red for 5 seconds when the cable reaches the upper or lower range limit, and cannot go further.

* Press the up or down button to move the lifter from the positioning limit.

Reset Range Limit: Hold both the highest and lowest range setup buttons for 3 seconds.

Unpair Lifter(s) in signal chain: Hold both the highest range setup button and ascent button for 3 seconds.The LED indicator will be blinking red and green, the LED will be solid red after 3 seconds indicating the unit has been successfully unpaired.

Reset Range Limit: Hold both the highest and lowest range setup buttons for 3 seconds. The LED indicator will be blinking red and green, solid red after 3 seconds indicates successful range limit removal.

LED LIGHT INDICATOR

LED Light indicator	Status
Solid Green LED	Normal operation status. The remote is connected and paired with both the lifter(s) and main controller.
Rapid Blinking Green LED (0.6s per blink)	Normal operation status. The remote is not paired/ connected to both the lifter(s) and main controller. or Normal operation status. The remote is connected and paired to the main controller, but not paired/connected to the lifter(s).
Slow Blinking Green LED (1.2s per blink)	Normal operation status. The remote is connected and paired to the lifter(s), but not paired/connected to the main controller.
Blinking Red LED	One or more of the paired lifter(s) in the signal chain has an error/offline.Check the LED indicator on the lifter(s) to troubleshoot (details on P.7).

WARNING : DO NOT allow the Smart Lifter System to be exposed to water or excessive heat. DO NOT open or attempt to repair or disassemble the Lifter, as there are no user-ser-viceable parts inside. Opening the Lifter will void thewarranty.

If the surface of the Smart Lifter System is dirty, wipe it with a dry towel. The Smart Lifter System operates under natural ventilation conditions.

AVERTISSEMENT : NE PAS exposer la carte de contact sec Smart Lifter System à l'eau ou à une chaleur excessive. NE PAS ouvrir ou tenter de réparer ou de démonter le Lifter, car il ne contient aucune pièce réparable par l'utilisateur. L'ouverture du Lifter annulera la garantie.

Si la surface de la carte de contact sec Smart Lifter System est sale, essuyez-la avec une serviette sèche. La carte de contact sec Smart Lifter System fonctionne dans des conditions de ventilation naturelle.

The LLT-2 comes with a 3-year warranty. 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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