



TR4 4-Bar LED Grow Light



TR6 6-Bar LED Grow Light



TR8 8-Bar LED Grow Light

INSTRUCTIONS PERTAINING TO RISK OF FIRE OR INJURY



Caution - Risk of personal injury and equipment damage. Please follow these instructions!

GrowRay TR Series luminaires are intended for installation in accordance with the National Electric Code and local code specifications. Failure to adhere to these codes and instructions may result in serious injury and/or damage to fixture thus voiding the warranty. These instructions do not cover all details or variations in equipment, nor provide for every possible contingency related to installation, operation, maintenance, or mounting. Should specific problems or concerns arise that are not addressed by these instructions, contact your local sales representative or distributor for assistance. Retain these instructions for future reference.

ELECTRICAL SAFETY

Product is provided with an AC cable with an appropriate NEMA termination or bare leads for hard wired connection. Consult a licensed electrician to install the correct termination or hard wire to a junction box. Do not use a fixture with a damaged power cord, plug or electrical outlet. Failure to do so may result in serious injury or death.

SAFETY PRECAUTIONS

Follow ALL GrowRay recommendations, product markings, instructions, restrictions and warnings.

- This product is intended for indoor use, suitable for damp locations.
- Do not immerse the fixture in water, expose to rain or clean the fixture with a water jet.
- Lens and enclosure can be cleaned with a clean damp cloth with water, Isopropyl Alcohol or Hydrogen Peroxide; do not use harsh solvents.
- Use caution to avoid scratching or otherwise damaging the fixture lenses.
- There are no user serviceable components and no bulbs to replace.
- All servicing of fixtures or accessories must be performed by qualified GrowRay representatives.



Caution - Hot surface, avoid contact. Surfaces are hot and may cause personal injury if touched.

Lighted fixture may be hot. To reduce risk of injury to persons, turn off or disconnect fixture and allow to cool before handling.



DO NOT stare directly at the LEDs without proper eye protection for high-intensity LED lighting fixtures.

GENERAL PRECAUTIONS

Please read this manual thoroughly before attempting to install or operate any GrowRay TR Series luminaire. It is important you read, fully understand and observe all safety precautions. If you are not comfortable with the installation of GrowRay's high-performance lighting systems, you should seek the services of a qualified installation professional or call GrowRay for help.

CONNECTING THE FIXTURE TO AC POWER

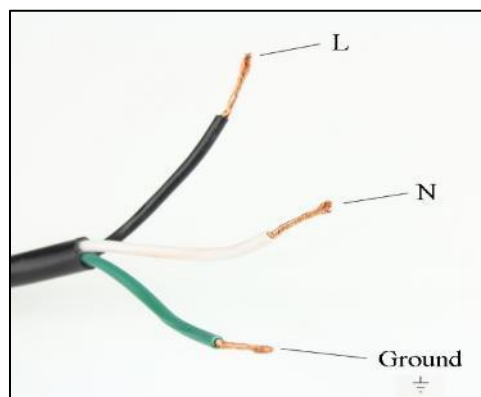
 **Caution - Hazardous voltages are present. TURN OFF CIRCUIT BREAKER BEFORE WIRING TO JUNCTION BOX OR PLUGGING IN TO A RECEPTACLE.**

 **To reduce the risk of electric shock and danger to personal health, follow these instructions:**

- Connect the system only to power sources of the correct voltage (as shown below under Power Cord Options table below).
 - Protect power cables from being pinched, walked on, or otherwise damaged. Be especially careful where the power cable enters the power outlet and the fixture.
 - Only connect the system to an electrical outlet or extension cord of appropriate type and rating.
 - The fixture should only be cleaned as directed under SAFETY PRECAUTIONS.
 - Seek service for your system by qualified service personnel if any of the following occur:
 1. The power-supply cord or the plug has been damaged.
 2. The unit has been submerged or exposed to rain.
 3. The unit exhibits a marked change in performance.
 4. The unit has been dropped, or its enclosure or chassis is damaged.
 - **DO NOT operate fixture until the unit has been repaired or replaced!**
1. The fixture is provided with one of four power cord options:

Power Cord Options
15ft (4.57m) power cord, Black, 14/3 AWG with NEMA 5-15P connection (120V)
15ft (4.57m) power cord, Black, 14/3 AWG with NEMA 6-15P connection (240V)
15ft (4.57m) power cord, Black, 14/3 AWG with NEMA 7-15P connection (277V)
15ft (4.57m) power cord, Black, 14/3 AWG with HARD WIRE connection (208-277V)

2. For 120, 240 and 277V NEMA socket connections, plug the fixture into a de-energized wall or ceiling outlet. Energize circuit only after all fixtures are installed and plugged in.
3. For 208-277V hard-wired connections, a certified electrician is required to ensure wiring is performed according to applicable code and safety requirements.



ASSEMBLY AND MOUNTING INSTRUCTIONS

All GrowRay TR Series luminaires for indoor applications are shipped fully assembled. Greenhouse applications utilizing LS-01 Adaptive Light Sensors require connection and mounting of the sensors.

Component List:

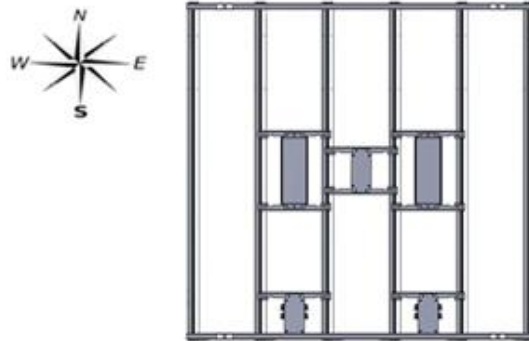
1. 1EA TR Series Luminaire
2. 2EA Adjustable cable hangar suspension system
3. 2EA* LS-01 Adaptive Light Sensor **(Optional, Greenhouse Applications Only)*

Unpack fixture and make sure all components are included. Note that for bulk product orders, the optional adaptive light sensor (greenhouse applications) and cable hangar suspension system may be packaged and shipped separately.

FIXTURE ORIENTATION:

For Greenhouse Applications:

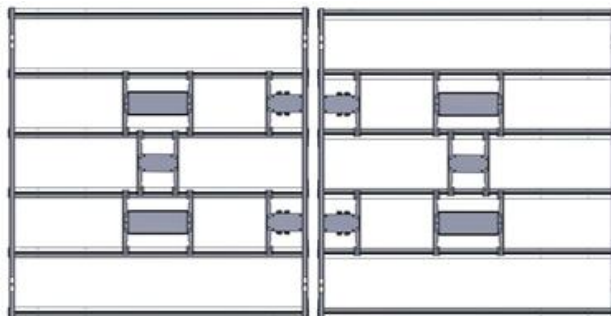
Prior to installing the cable hangar suspension system and mounting to the UNISTRUT or other ceiling support, orient all fixtures as follows for optimal reflection of sunlight onto canopy below. **The fixture end caps face North and South** as shown in the figure below (TR6 fixture shown for reference, fixtures can also be rotated 180 degrees for ease of wiring).



For Indoor Applications:

Prior to installing the cable hangar suspension system and mounting to the UNISTRUT or other ceiling support, orient all fixtures as follows for optimal even PAR distribution.

The fixture end caps face each other as shown in the figure below (TR6 fixtures shown for reference, fixtures can also be rotated 180 degrees for ease of wiring).

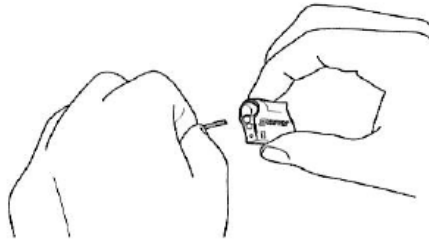


CABLE SUSPENSION SYSTEM

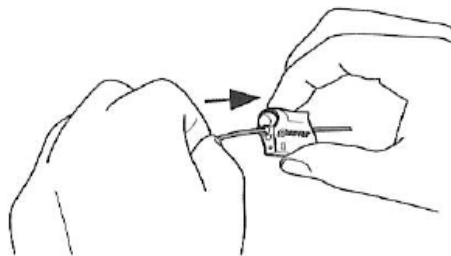
GrowRay TR Series luminaires utilize a cable hanger suspension system for mounting. Assemble and attach the suspension system as shown below. Be sure to follow the noted safety precautions.

1. Assemble cable hangar suspension system and attach to fixture.

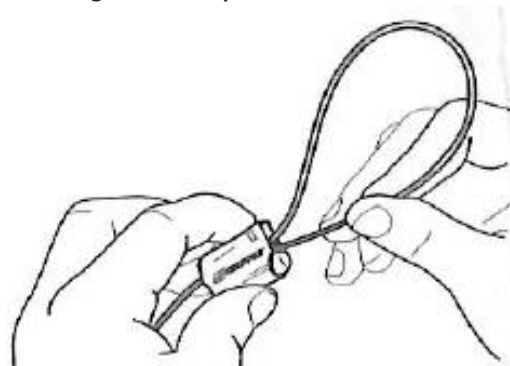
- a. Thread cable through the adjustable hangar device.



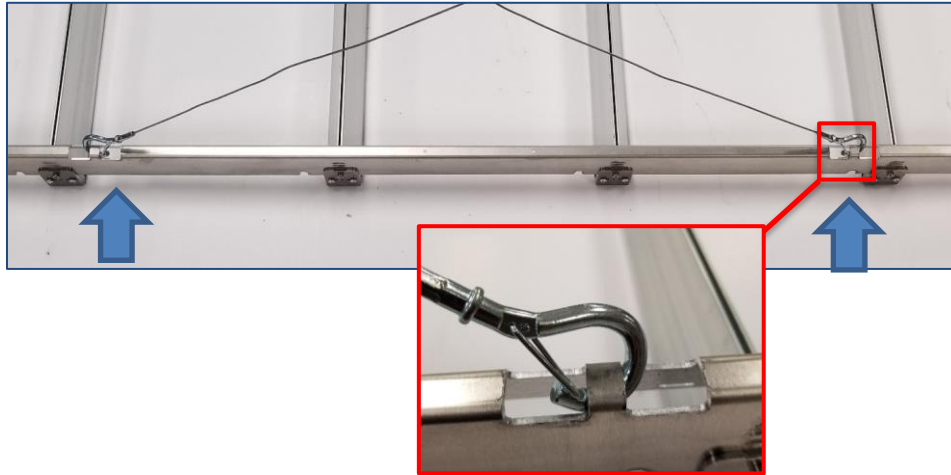
- b. Pull cable through.



- c. Loop around ceiling or service attachment point and pass tail through the other hole of the adjustable hangar device. Adjust length as required.



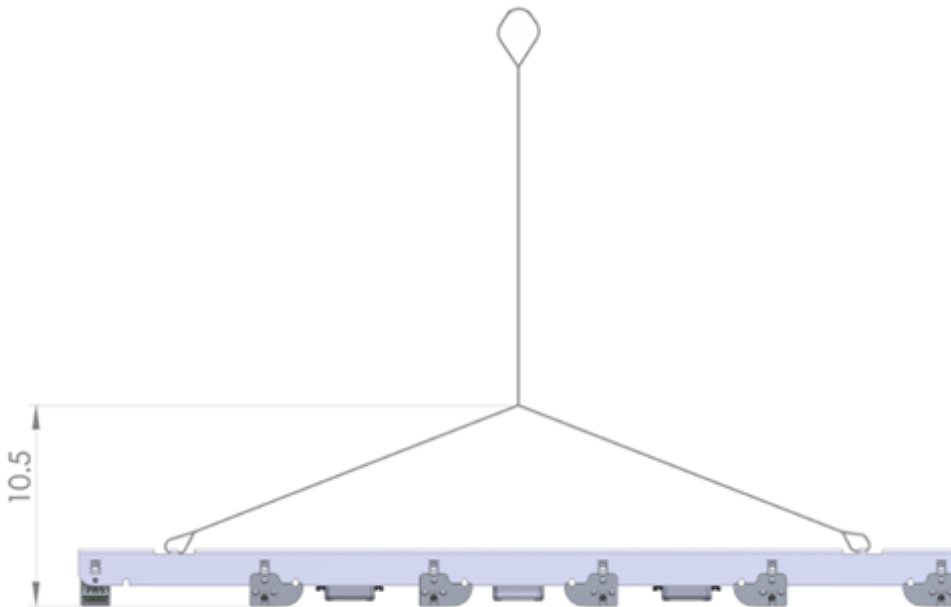
d. Attach the hook ends of the cable to the attachment points on the fixture.



⚠ Caution - When installing, ensure that the cable hanger suspension system clips are fully inserted into the fixture suspension slots.

Make sure to avoid pinching the cables when attaching the hooks to the fixture.

2. The finished assembly should look like the figure below:

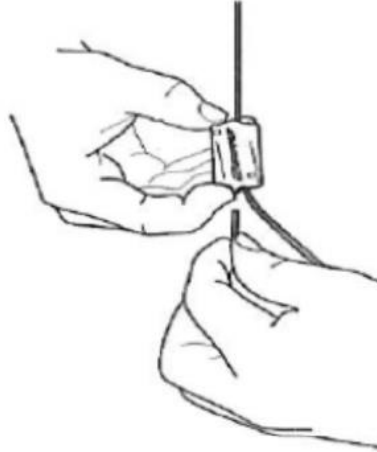


⚠ Attach structure mounting end of the cable hanger suspension system to a structure capable of supporting ALL required lighting fixtures.

Lighting fixture weights are 25.2lbs (11.4kg) for Model TR4, 36.4lbs (16.5kg) for Model TR6, and 47.6lbs (21.6kg) for Model TR8.

3. To adjust fixture height:

- a. Make sure the load is safely supported while providing sufficient slack in the cable to make the desired height adjustment.
- b. Press the button on the top of the adjustable hangar device to release tension from the cable and adjust the height of the fixture by adjusting the loop position.



NOTE: The fixture should be a minimum of 12 inches from the ceiling.

ADAPTIVE CONTROLLER INSTALLTION FOR GREENHOUSE APPLICATIONS

GrowRay's patent-pending, Adaptive Light Sensor and Controller automatically optimizes light levels for greenhouse supplemental lighting applications. These sensors are temperature compensated for accurate operation from 0°C to 50°C (32°F to 122°F) +/- 5%. Dimming is linear from 10% to 90% of LED light output.

RECOMMENDED MOUNTING LOCATIONS

Recommended Adaptive Controller mounting locations are shown with yellow circles in the image below. Similar alternate mounting locations within reach of the dimmer control cables are also acceptable.



Controller installation

1. Disconnect power from the light fixture before connecting the adaptive controllers.
2. Connect each adaptive controller to the dimmer control cable exiting each of the two LED drivers.



3. Position the adaptive controllers in the desired location. Be sure to keep the control cables from dropping below the light bar and creating a shadow on the canopy below.



4. Using a #2 screwdriver and the provided 6-32 screws, mount adaptive controllers to the top of the triangle light bar as shown. Use care not to overtighten and strip the screws.

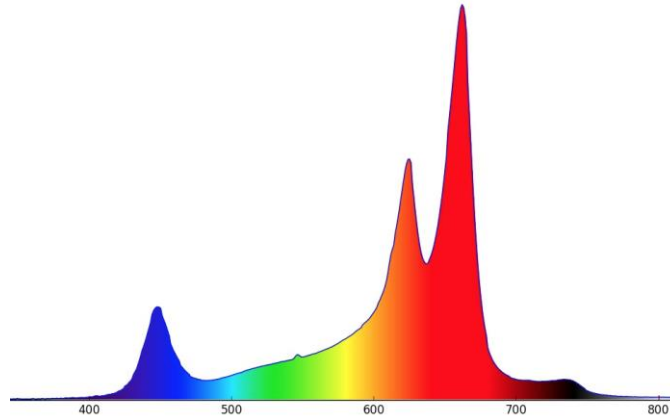


5. Reconnect power to the light fixture. You can test the adaptively controlled dimming operation by shining a flashlight directly onto each controller's translucent dome and observe the affected half of the light dimming or turning off depending on the intensity and proximity of the flashlight. Do not look directly at the LEDs without proper eye protection.

OPERATION

1. Once the light is mounted / suspended safely, test light(s) by turning on power from the Circuit Breaker and check operation. Note, there are no power switches on the fixture, so power must be toggled remotely. **DO NOT** stare at light without proper eye protection for high-intensity LED lighting fixtures!
2. Make certain that the light is positioned in the desired location and height. If the fixture height must be re-adjusted, disconnect power to the fixture before adjusting.
3. To maintain maximum light transmission, periodically clean the glass lenses. Use a soft cloth and a glass cleaner. Spray the cleaner on the cloth, not on the lens, and wipe clean.
4. If dust or debris collects on the fixture or power supply, use a shop vacuum or compressed air to clean as needed. Thermal performance will not suffer from collection of dust, but periodic cleaning is recommended.

THE TR1.0 SPECTRUM GRAPH



PhD-Designed GrowRay Flower / Veg Spectrum

To achieve maximum biomass production with less energy consumption and ensure healthy plant development, GrowRay has designed a custom light spectrum taking advantage of the latest LED technology. The specially formulated spectrum regulates key plant developmental processes while maximizing photosynthesis. Using scientifically selected wavelengths at red (660nm), blue (450nm) and far-red (730nm) combined with full-spectrum warm white LEDs, GrowRay's spectrum can maximize plant flowering, photoperiod, leaf expansion, and plant shape while ensuring optimal biomass production. This spectrum provides a superior recipe for cannabis production and tailored photomorphogenic response. GrowRay is truly the first PhD-designed LED lighting solution specifically for cannabis.

SPECIFICATIONS

	TR4	TR6
Input Voltage	120 to 277 VAC	120 to 277 VAC
Input Frequency	50 Hz / 60 Hz	50 Hz / 60 Hz
AC Current	4.79A @ 120VAC 2.40A @ 240VAC 2.08A @ 277VAC	6.25A @ 120VAC 3.13A @ 240VAC 2.71A @ 277VAC
LED Driver Efficiency	>90%	>90%
Power Factor	>94% (Typical)	>94% (Typical)
LED Driver	Two 240-watt dimmable Class P drivers are mounted to fixture; max AC inrush current of 70A @ 277VAC for 1.3ms per driver	Two 400-watt dimmable Class P drivers are mounted to fixture; max AC inrush current of 70A @ 277VAC for 1.3ms per driver
LED Dimming	0-10V	0-10V
LED Dimming to OFF	YES, <0.5V = OFF	YES, <0.5V = OFF
Ambient Operating Temperature	-4 to +104°F / -20 to +40°C	-4 to +104°F / -20 to +40°C
CFM Air-Flow Recommended	1-2 CFM recommended for ensuring unit does not exceed 75°C during operation, invalidating warranty	1-2 CFM recommended for ensuring unit does not exceed 75°C during operation, invalidating warranty
Dimensions and Construction	46in (117cm) x 44.5in (114cm) x 2.9in (74mm) anodized aluminum LED luminaire with passive thermal management	46in (117cm) x 44.5in (114cm) x 2.9in (74mm) anodized aluminum LED luminaire with passive thermal management
Weight	25.2 lbs. / 11.4 kg (Fixture, Power Cord, Hangers)	36.4 lbs. / 16.5 kg (Fixture, Power Cord, Hangers)
Mounting Height	10in (254mm) minimum distance over canopy for indoor applications; 7ft (2.13m) minimum distance over canopy for greenhouse supplemental lighting	10in (254mm) minimum distance over canopy for indoor applications; 7ft (2.13m) minimum distance over canopy for greenhouse supplemental lighting
Testing and Compliance	FCC / ETL / cETL listing for Damp/Dry locations	FCC / ETL / cETL listing for Damp/Dry locations
Estimated LED Life	L90: >65,000 Hours	L90: >65,000 Hours
Warranty	7 Years	7 Years

SPECIFICATIONS (continued)

TR8	
Input Voltage	120 to 277 VAC
Input Frequency	50 Hz / 60 Hz
AC Current	7.50A @ 120VAC; 3.75A @ 240VAC; 3.25A @ 277VAC
LED Driver efficiency	>90%
Power Factor	>94% (Typical)
LED Driver	Two 400-watt dimmable Class P drivers are mounted to fixture; max AC inrush current of 70A @ 277VAC for 1.3ms per driver
LED Dimming	0-10V
LED Dimming to OFF	YES, <0.5V = OFF
Ambient Operating Temperature	-4 to +104°F / -20 to +40°C
CFM Air-Flow Recommended	1-2 CFM recommended for ensuring unit does not exceed 75°C during operation, invalidating warranty
Dimension and Construction	46in (117cm) x 44.5in (114cm) x 2.9in (74mm) anodized aluminum LED Luminaire with passive thermal management
Weight	47.6 lbs. / 21.6 kg (Fixture, Power Cord, Hangers)
Mounting Height	10in (254mm) minimum distance over canopy for indoor applications; 7ft (2.13m) minimum distance over canopy for greenhouse supplemental lighting
Testing and Compliance	FCC / ETL / cETL listing for Damp/Dry locations
Estimated LED Life	L90: >65,000 Hours
Warranty	7 Years

WARRANTY AND PRODUCT LIABILITY

For a seven (7) year period from date of Acceptance (the "Warranty Period"), Grow-Ray Technologies, Inc. ("GrowRay" or "Company") warrants that the Equipment provided to Buyer pursuant to the Agreement shall be free from defects in material, manufacturing and workmanship (the "Warranty"). The Warranty also shall apply to any GrowRay replacement part or to any GrowRay approved enhancement. GrowRay may use refurbished parts for any and all warranty work. Light Emitting Diodes (LED) 'failure' on an individual light bar will be considered only when a minimum of 10% of LED's on that light bar have ceased to produce light. Further, GrowRay warrants that all service repairs shall be free from defects in materials and workmanship for the greater of (i) the balance of the Warranty Period, or (ii) ninety (90) days after the date the repair is completed.

To enable GrowRay to properly administer the Warranty, Buyer shall (i) notify GrowRay by calling 970-329-1705 or by email at info@growray.com within fifteen (15) days of any product failure and any claim hereunder, and (ii) provide GrowRay with the opportunity to inspect and test parts claimed by Buyer to be defective.

Upon notification, GrowRay will contact Buyer to assess the point of 'failure' and potential remedies. If a repair or replacement of a part or all of GrowRay's product is recommended, GrowRay will provide Buyer with a Return Materials Authorization Number ("RMA") and instructions for return. Buyer will submit an RMA with associated original proof of sale document(s).

After an RMA is submitted:

1. Buyer will ship failed part or parts to GrowRay.
2. Upon receipt of the failed part(s), GrowRay will make an inspection to determine the cause of the 'failure' and contact Buyer to agree on payment terms for replacement. GrowRay will bear the cost of ground shipping and replacement parts for all defects that fall within the parameters of the warranty. Buyer will be responsible for the cost of shipping and all part(s) if the cause of the defects is determined by GrowRay to be excluded from the Warranty.
3. Upon determination of responsibility and receipt of payment, if due, Company will take all commercially reasonable steps to ship replacement part(s) to Buyer via ground transportation. Other transport means will be at Buyer's option and expense.

Buyer shall ship luminaires that are subject to this Warranty in their original cartons. If Buyer has not retained the original cartons, Buyer shall contact GrowRay to obtain replacement cartons before shipping any luminaires.

The Warranty is only valid for products installed and operated in accordance with GrowRay's operational considerations, recommended operating procedures and the Agreement. GrowRay will not be held responsible for damage or failure if GrowRay equipment is operated outside of these conditions, or resulting from acts of nature/God; vandalism or improper handling or storage; animal

or insect activity; fire; improper power source or misuse of electrical infrastructure; flood or water damage of any type; any type of product alteration or product interface with a third party technology provider; improper mounting or failure of mounting/hanging infrastructure to accommodate fixture weight individually or in aggregate; improper alteration, maintenance or service; any use of product(s) for which it was not designed; power surges or electrical anomalies; failure to comply with applicable electrical, building and other codes and installation protocols indicated by GrowRay or set forth in operational considerations, recommended operating procedures; improper or insufficient airflow; induced vibration; extreme temperatures and other abnormal environmental conditions; improper cleaning; improper exposure to toxic and/or corrosive elements associated with commercial cultivation including Sulphur atmospherics and other facility cleaning and sterilizing protocols; physical damage; or negligence. Furthermore, GrowRay shall not be held responsible for damage caused by electrical surges created by compressors, HVAC, fans and other operational machinery on-site or from other, nearby locations.

IN NO EVENT SHALL GROW-RAY BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, EXEMPLARY OR PUNITIVE DAMAGES, EVEN IF INFORMED OF THE POSSIBILITY OF SUCH DAMAGES, WHETHER AS THE RESULT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, OR ANY OTHER THEORY, INCLUDING WITHOUT LIMITATION LABOR OR EQUIPMENT REQUIRED TO REMOVE AND/OR REINSTALL ORIGINAL OR REPLACEMENT PARTS, LOSS OF TIME, PROFITS OR REVENUES, LACK OR LOSS OF PRODUCTIVITY, INTEREST CHARGES OR COST OF CAPITAL, COST OF SUBSTITUTE EQUIPMENT, SYSTEMS, SERVICES OR DOWNTIME COSTS, DAMAGE TO OR LOSS OF USE OF PROPERTY OR EQUIPMENT OR ANY INCONVENIENCE ARISING OUT OF ANY BREACH OF THE FOREGOING WARRANTY OR OBLIGATIONS UNDER SUCH WARRANTY.

All GrowRay Warranties are assignable or transferrable to secondary or post-sale end users reasonably acceptable to GrowRay at the location where the Equipment was installed at the time of delivery.

GrowRay maintains the right to modify the warranty from time to time. Any and all modifications will be applicable only to GrowRay products purchased after warranty modifications are made.

GrowRay reserves the right to improve or modify its products in the interests of future product development which improvements and modifications to not create any obligations to Company.

Due to continuous improvements and innovations, specifications may change without notice.

REGULATORY NOTICES



This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B conforme à la norme NMB-003 du Canada.



This equipment has been tested and certified as follows:

- Conforms to UL Standard 1598
- Certified to CAN/CSA Standard C22.2 No. 250.0
- Conforms to UL Standard 8750
- Certified to CAN/CSA Standard C22.2 No. 250.13