



**heliospectra**

# User Manual

## HELIOSPECTRA CONTROLLABLE HORTICULTURE FIXTURES

ELIXIA • DYNA

LX601C  
heliospectra

**Heliospectra  
Horticulture  
Fixtures**

# Revision History

| Revision/Date    | Author         | Changes  |
|------------------|----------------|--|
| 6 / 2020-04-07   | Sophie Izard   | Warranty information updated                       |
| 6.1/ 2020-07-07  | Sophie Izard   | Warranty information updated                       |
| 7 / 2021-03-22   | Rebecca Nordin | Updated Prod Specifications                        |
| 8 / 2021-08-12   | Rebecca Nordin | Updated Prod Specifications                        |
| 8.2 / 2021-12-07 | Rebecca Nordin | Updated standard/product approval, removal of LX50 |
|                  |                |  |

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At Heliospectra AB we aim to continuously improve our product documentation. If you have comments or ideas regarding this document, please contact us at [support@heliospectra.com](mailto:support@heliospectra.com).

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# Precautions



**Our product is an advanced and safe LED fixture. However, for proper operation and for your safety, please read and follow the below precautions:**

When unpacking the luminaire make sure to have a sturdy surface to work on. Damage to the unit can occur if dropped. Do not immerse the fixture in water or clean the fixture with a high pressure water jet or strong detergents.

Do not immerse the fixture in water or clean the fixture with a high pressure water jet.

Never operate the fixture with the lens directly on a flat surface (e.g. table) as this may damage the lens. A minimum distance of 0.2m/8in should be kept to other objects.

The product is for indoor use only.

Always allow a free flow of air around the fixture. Verify that the air inlet and outlet are not covered. A minimum distance of 0.2m/8in should be kept to other objects. Blocked airflow may cause the lamp to dim to counteract overheating

This fixture may only be serviced by a trained technician. In the case of a suspected malfunction contact your distributor or Heliospectra directly.

The light source contained in this luminaire shall only be replaced by the manufacturer or his service agent or a similar qualified person.

The luminaire should be positioned so that prolonged staring into the luminaire at a distance closer than 1 meter/ 40 inches is avoided.

Do not stare into the light source. LED grow lights may contain potentially harmful light radiation. Please use UV blocking eyewear when working in and around the illuminated area.

Only connect the fixture to properly grounded mains that complies with the voltage rating on the fixture (see power label).

Only operate the fixture with an undamaged power cord, power plug and electrical outlet.

Never unplug the fixture by pulling on the power cord.

For proper performance of the unit the ambient air temperature shall be no higher than 40° C.



**Le produit est un appareil moderne et sûr. Mais pour une bonne utilisation et pour votre sécurité, veuillez lire les informations ci-dessous :**

Quand vous déballez le luminaire assurez-vous d'avoir une surface solide sur laquelle travailler. L'appareil peut être endommagé si on le fait tomber.

N'immergez pas l'appareil dans l'eau et n'essayez pas de le nettoyer avec un jet d'eau à haute pression.

Ne pas mettre en marche l'appareil avec la lentille posée à plat sur quelque surface (par exemple : une table), cela pourrait l'endommager.

Le produit ne s'utilise qu'en intérieur.

Assurez-vous qu'il y ait un minimum d'air autour de l'appareil.

Assurez-vous que l'espace réservé à cet effet ne soit pas encombré. Il doit y avoir un espace minimum de 0.2m/ 8 pouces entre l'appareil et d'autres objets. Le blocage de la circulation de l'air pourrait affaiblir l'intensité de la lumière pour éviter toute surchauffe.

Cet appareil ne peut être entretenu que par un technicien expérimenté. Si vous avez un soupçon sur le mauvais fonctionnement de celui-ci, contactez votre distributeur ou Heliospectra directement.

La source de lumière contenue dans ce luminaire ne doit-êtré remplacée que par le fabricant ou ses agents de services ou une personne similaire qualifiée pour le faire.

Le luminaire doit être positionné de telle sorte que le fixer longuement à une distance d'1 mètre/ 40 pouces soit évité.

Ne pas fixer la source de lumière. Les éclairages LED pourraient potentiellement contenir des radiations lumineuses nocives. Portez des lunettes anti-rayons UV quand vous travaillez sous ou à proximité de l'endroit éclairé.

Ne connectez l'appareil que sur une prise reliée à la terre et dont le voltage correspond à celui de l'appareil.

L'appareil doit être mis en marche avec rien d'autre qu'une prise, un cordon électrique ou une prise secteur non endommagés.

Ne jamais déconnecter l'appareil en tirant sur le cordon électrique.

Pour une utilisation optimale de l'appareil, la température ambiante ne doit pas dépasser 40°.

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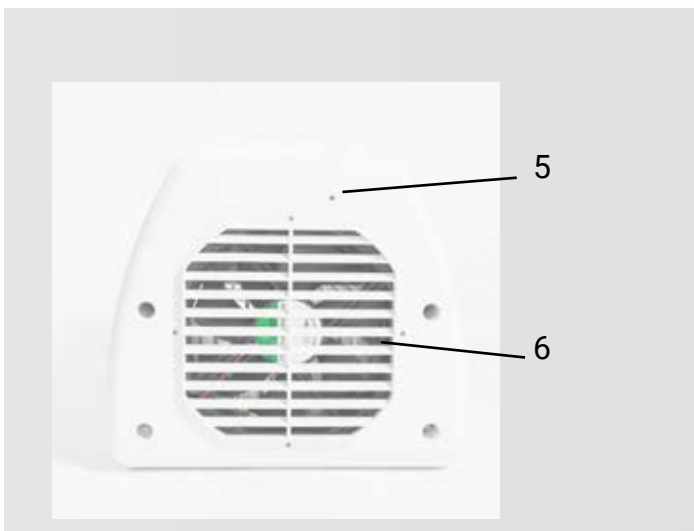
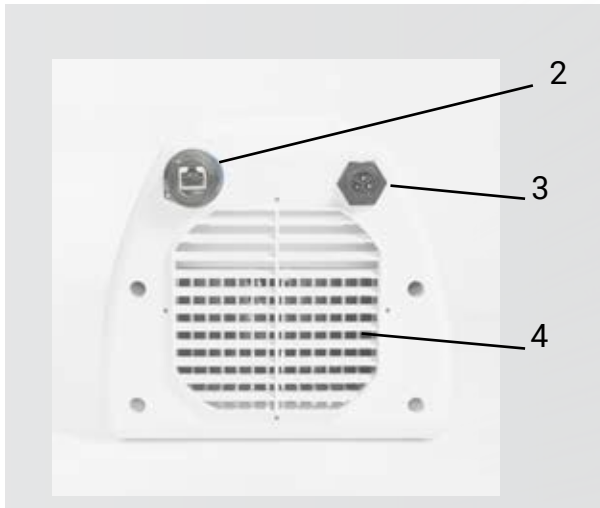
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# 1. Product Overview

|                               | <b>ELIXIA LX60</b>      | <b>DYNA RX30</b> |
|-------------------------------|-------------------------|------------------|
| Typical Power Consumption (W) | 10.5 - 600W             | 10.5 - 390W      |
| Voltage Range (V)             | 100 - 480V              | 100 - 277V       |
| Application                   | Commercial Horticulture | Research         |

# 1.1 ELIXIA 600W Overview



## LEGEND

1. Premounted DIN M6 I-Hooks
2. Ethernet Port
3. Power Socket
4. Heat Sink and Air Inlet
5. Status Indicator LED
6. Fan and Air Outlet

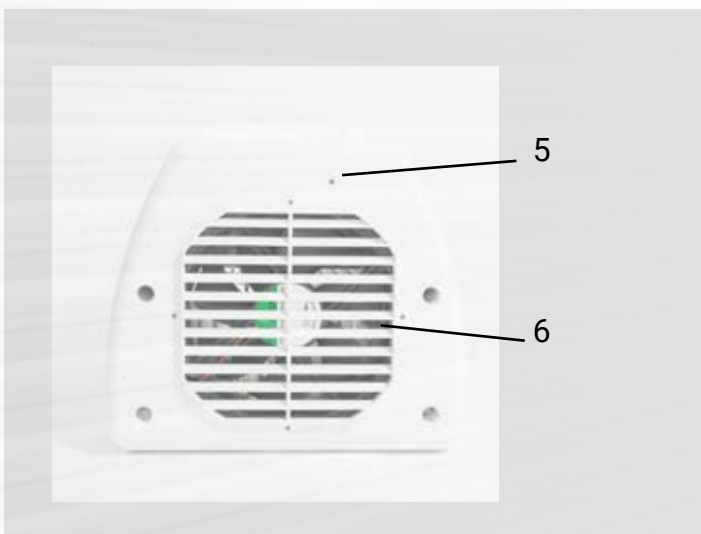
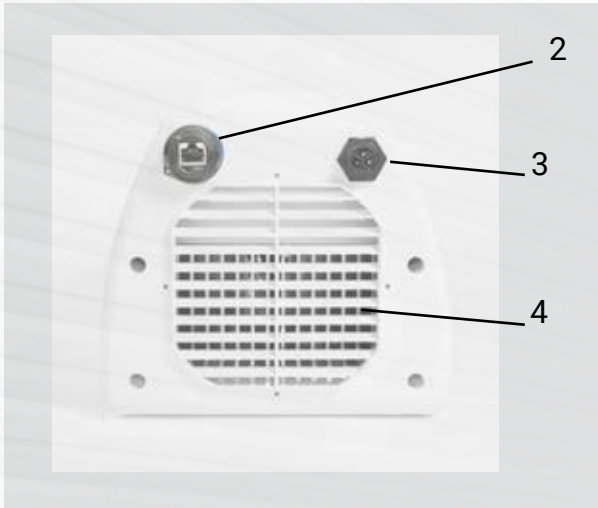
## Package Contents

| Description                        | Quantity |
|------------------------------------|----------|
| Heliospectra ELIXIA 600W lamp unit | 1        |
| Premounted DIN M6 I-Hooks          | 2        |
| 2 m (6 ft 5 in) Power Cable        | 1        |
| 0.5 m (20 in) Ethernet Cable       | 1        |
| Quick Setup Guide                  | 1        |

Before continuing with installation verify that all parts in each ELIXIA package have been received. If any part is missing, contact your customer service representative.

**NOTE!**  
When unpacking the ELIXIA make sure to have a sturdy surface to work on. Damage to the unit can occur if dropped.

# 1.2 DYNA Series Overview



## LEGEND

1. Premounted DIN M6 I-Hooks
2. Ethernet Port
3. Power Socket
4. Heat Sink and Air Inlet
5. Status Indicator LED
6. Fan and Air Outlet

## Package Contents

| Description                  | Quantity |
|------------------------------|----------|
| Heliospectra DYNA lamp unit  | 1        |
| Premounted DIN M6 I-Hooks    | 2        |
| 2 m (6 ft 5 in) Power Cable  | 1        |
| 0.5 m (20 in) Ethernet Cable | 1        |
| Quick Setup Guide            | 1        |

Before continuing with installation verify that all parts in each DYNA package have been received. If any part is missing, contact your customer service representative.

**NOTE!**  
When unpacking the DYNA make sure to have a sturdy surface to work on. Damage to the unit can occur if dropped.



# 2. Installation

## 2.1 Installation Requirements

Heliospectra AB requires that the installation is conducted by a locally licensed electrician or electrical engineer according to local electrical standards. This manual lists specific surge protection requirements for North America and Europe, for other installation locations, please advise local electrical standards that are equivalent.

### Surge Protection Requirements - North America

Heliospectra AB requires that the fixtures are installed with adequate surge protection according to the IEEE 1100-2005 recommended practice for Powering and Grounding Electronic Equipment.

Considering that surges can originate from both internal and external sources, SPDs should be installed to provide maximum protection regardless of the source location. The three zones include:

- The first zone is at the service entrance where the most robust SPD is placed to divert surges coming from external sources such as lightning. SPDs installed here are listed as Type-1, SPD devices.
- The second zone of protection is within the facility at locations identified as susceptible to surges. SPDs at these locations are listed as Type-2, SPD devices and are installed on equipment such as switchboards, panelboards, motor-control centers.
- The third zone of protection is at the outlet or point of use. SPDs installed here are listed as Type-3, SPD devices.

It is strongly recommended that a professional engineer, experienced with surge suppression technology, be retained to design the protection system for your facility to ensure all SPDs are properly sized and coordinated.

## Surge Protection Requirements - Europe

Heliospectra AB requires that all fixtures should be protected by adequate surge protection, in accordance with the following standard: IEC 62305 – Protection Against Lightning.

This standard stipulates the following:

- SPDs (Surge Protection Devices) should be installed when crossing from one lightning protection zone to another
- Lightning is not the only threat; switching of loads, which are more frequent than lightning strikes, also create high voltage transients that can damage electrical or electronic equipment over time
- Risk assessments are required to be carried out to assess the requirements of any building for SPDs
- Ensure that the 3 Lightning Protection Zones (LPZ) zones and types 1, 2, 3 of Surge Protection Devices are used correctly

Selecting the correct SPD equipment for a given application can be complex and Heliospectra AB therefore advises that certified electrical engineering contractors and electricians are consulted.

## 2.2 Mounting

For proper operation, the fixture must be mounted horizontally from a support structure. The support structure needs to be sturdy enough to support the weight of lamps and any additional equipment. It must also allow for air to flow freely into the unit (an additional fan duct is available upon request; contact your Heliospectra sales representative for more information).

Follow the instructions to mount the fixture:

1. The light is delivered with premounted M6 i-hook bolts (1); figure on page 3. Verify that the bolt goes approximately 6 mm into the mounting holes and do not use excessive force when tightening the bolts. Connect the eyelets in the bolts to chosen mounting structure.
2. If other mounting hardware is used make sure that the bolts go all the way in the mounting holes (6 mm).
3. Use chains or cables to suspend the lamp levelly from the support structure.
4. Verify that the unit is securely fastened.

**NOTE!** Verify that the air inlet (4) and outlet (6) are not covered and that air is allowed to flow freely around the unit. Otherwise, overheating may occur and cause the unit to dim to counteract heat buildup.

5. Connect the supplied Ethernet cable to the Ethernet port (2).
6. Connect the Ethernet cable to a free port in the switch (see Example Setup for more information).

**NOTE!** When using the Network port, users must ensure that SLEV protection is maintained.

- 7.a Connect the supplied power cord to the power socket (3). Note that some lamp models have pre-mounted power cords.

### Power Cords With Plug

- 7.b Connect the cord to a grounded 120V / 230V, 50/60 Hz power outlet.

### Open Ended Power Cords

- 7.b These are high voltage industrial fixtures. The installation must be conducted by a licensed professional.

8. The indicator LED (5) (see Error! Reference source not found) will flash orange for approximately 15 seconds and then flash green. The lamp unit is now ready for use.

**NOTE!** If the indicator LED does not flash green after 60 seconds, verify that all cables are securely attached and that the unit and switch are powered on. Also verify that DHCP is enabled in your network. If the problem persists, power cycle the lamp by removing and reinserting the power cable.

9. Repeat steps 1–8 to mount additional lamp units.

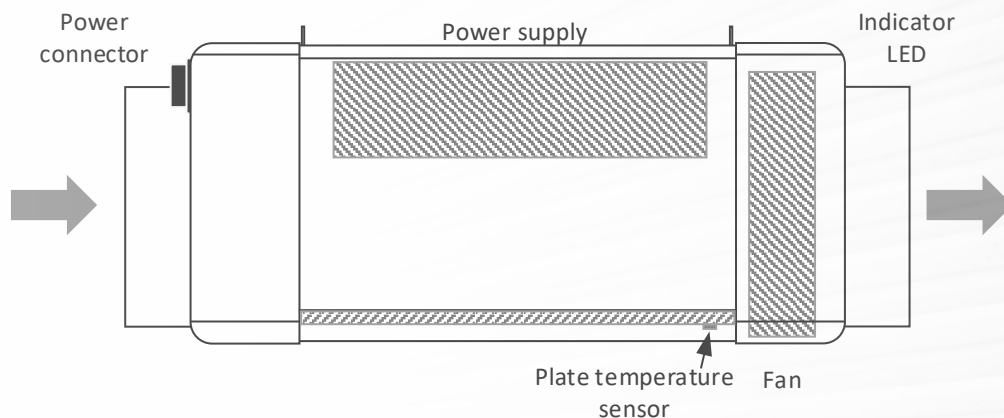
**NOTE!** For proper performance of the unit the ambient air temperature shall be no higher than 40 °C (104 F).

A duct attachment allows for separating the cooling air from the plant growth environment. No more than two lamps may be connected in series. The cooling air of the first lamp shall have a temperature of no more than 21 °C (70 F). (Air ducts are sold separately)



## 2.3 Air Flow

Every Heliospectra fixture has a built in fan to cool the lamp when needed. When connecting the fixture to an air duct it is important that the air blows in the same direction as the built in fan. The figure below shows that air is sucked in on the power connector side and pushed through the Indicator LED side.



### Over Temperature Protection

If the airflow through the lamp is restricted or the ambient temperature is too high the fixture may not be able to cool itself sufficiently. If the internal temperature of the lamp becomes too high the light will dim and flicker and finally shut off to prevent damaging the lamp.

The protective mechanism is triggered at different stages depending on which components risk overheating. In general, an internal temperature above 70°C (160F) or an ambient air temperature above 50°C (120F) when running the fixture at full power will trigger the protective mechanism.

## 2.4 Network Setup

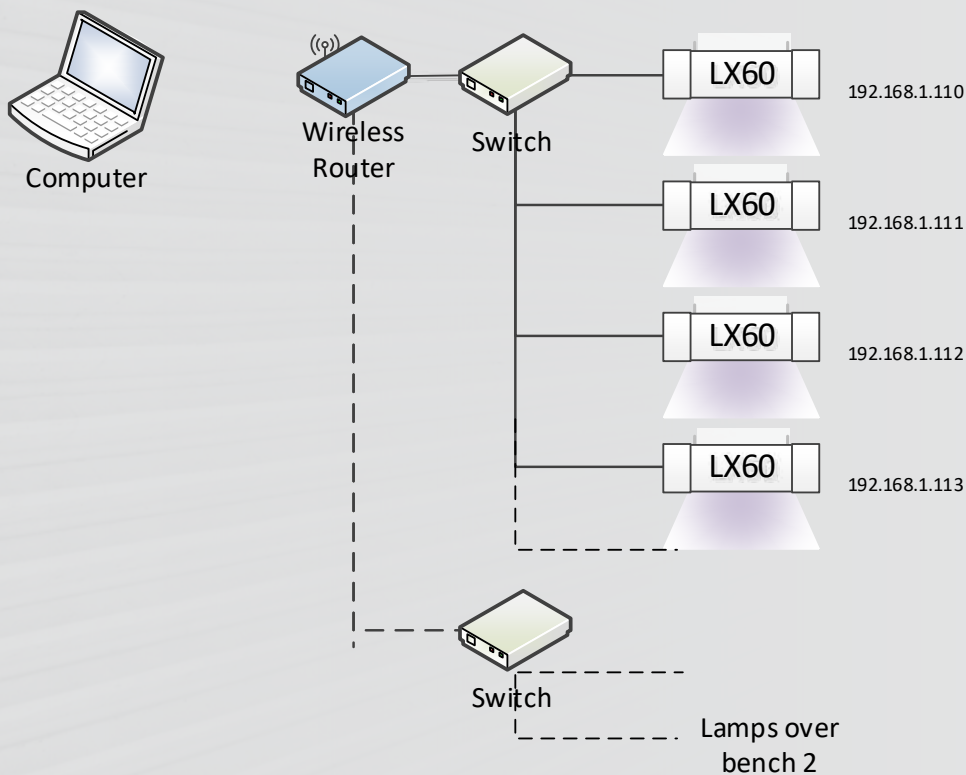
By default, the Heliospectra controllable lamp uses the Dynamic Host Configuration Protocol (DHCP) to automatically receive an IP address from a router in the network. This is a commonly available feature in computer networks. The IP address is used when configuring and monitoring the lamp, see chapter 5 Lamp Configuration. A lamp can also be configured to use a static IP, see section 3.3 Static IP Configuration.

If it is vital that each lamp always is assigned the same IP address, consider using DHCP and MAC address reservation (refer to your router documentation for more information how to setup static DHCP addresses).

If unsure whether your network supports DHCP or if to use static IP address configuration, contact your local network administrator.

## 2.4.1 Example Setup

When setting up several lamp units it is recommended to assign them to a dedicated network that is not shared with normal office equipment or similar. An example lamp network is shown in Figure 4 Network Example Setup:



In the example setup each area or bench is placed some distance apart. Therefore, each set of lamps is connected to a different switch. Each lamp in the example has been assigned a unique IP address via DHCP in the private 192.168.1.X range. The switches are in turn connected to a wireless router. A control computer is used to connect to the wireless router to access lamps for configuration and monitoring purposes.

Several variants of this setup are possible, for example:

- The areas are placed close together, allowing fewer switches with more ports to be used to connect lamps to the router.
- A wired router is used with a stationary computer acting as control.

**NOTE!** If unsure of how to setup lamps in your network, contact your local network administrator.

## 2.4.2 Recommended Network Devices

The following devices have successfully been used for setting up a network of lamps, but any generic router and switch supporting DHCP and 100 Mbit/s works with the Wifi connected Lights:

- Small Installation (Less than 25 fixtures)
  - Switches from the FS105/108/116 and GS105/108/116 NETGEAR® series
- Mid to Large Installations (More than 25 fixtures)
  - Wireless router EdgeRouter from Ubiquiti with Ubiquiti UAP-AC-M access points.
  - Each UAP-AC-M access point services up to 250 Heliospectra fixtures.

## 2.4.3 Router Setup Guide

### STEP 1 - GENERAL ROUTER SETTINGS

1. Connect an ethernet cable between your computer (network-port) and your router (any of the LAN-ports).
2. Access the router with your computer. To do this, open any web-browser and type in the routers IP-address in the address field (a common IP address for routers is: 192.168.1.1).
3. Now find "Wireless Settings". Here you should be able to alter the settings of your router such as the router name (SSID), password, channel and security options.
4. Start by giving your network a name.
5. Choose your region.
6. Choose channel (do not choose automatic channel selection, as this is not supported by the light). If you are uncertain what channel to choose: Check the country frequency legislation regarding which channels are allowed. An easy way to check how all WIFI-net work channels look like in your area, is to use the app "WIFI-analyzer" (freeware).
7. Choose "WPA2-PSK [AES]" under "Security Options".
8. Choose a personal password for your network.

### STEP 2 - SET IP RANGE

1. Go to the tab "Advanced" and type in an IP-range which covers the number of lights you have in your network (plus possible other equipment such as printers and computers).

#### Example

We have set the IP-range between 192.168.1.2 ("Starting IP Address") and 192.168.1.99 ("Ending IP Address"). This means the router will deliver IP to maximum of 98x devices (devices = lights, computers, printers etc.). Make sure to set this range so that it covers the full amount of lights you have plus other equipment.

2. Save your settings. If you have done everything correctly, now your router will assign IP addresses to your lights, so that they have addresses and are easily accessible through a web browser or the Heliospectra's software "HelioCONNECT".

### STEP 3 - HELIOSPECTRA STANDARD ROUTER SETTINGS

1. Navigate yourself to the WIFI settings in your routers web user interface.
2. Now **set the SSID to "HelioConfig", the password to "Conf5600K"** and choose the region in which your lights are located in the world (geographically). NOTE: it is vital that you type in these exact numbers and letters correct including capitals to make your lights find the router wirelessly.
3. Click "Apply" to save.
4. Now the setup of your router is done.



# 3. Heliospectra - helioCONNECT

The Heliospectra helioCONNECT is an administrative standalone tool for the Heliospectra controllable lights, enabling easy identification of and access to configuration and monitoring functions of individual lamps in the network. The tool is also used for setting static IP to and upgrading lamp firmware.

## 3.1 Setup

First verify the following:

- Lamps are correctly installed and running on a dedicated network.
- The control computer is running Microsoft Windows XP/Vista/Windows 7/Windows 8/Windows 10® and is connected to the lamp network.

Steps to setup helioCONNECT

1. Retrieve helioCONNECT from the support section at [www.heliospectra.com](http://www.heliospectra.com) or request it from your Heliospectra representative. Save the file to your control computer. The helioCONNECT is a self-contained executable file so nothing has to be installed.

**NOTE!** If the control computer does not have Internet access, download the executable file to another computer and transfer it to the control computer with an USB pen drive.

2. Double-click the Heliospectra helioCONNECT file and verify that the application starts. It is recommended to create a shortcut to the helioCONNECT file and place it on the desktop.

**NOTE!** The Heliospectra helioCONNECT needs access to the network. Verify that no firewall is blocking traffic to or from the tool.

## 3.2 Using helioCONNECT

The main window contains the following general functions and information:

- The Action menu contains the **Scan, Blink and Launch** actions. These actions are also accessible by clicking the **Scan, Blink or Launch** buttons.
- The System menu contains the following menu options:
  - o The **Settings** option covers lamp blink and scan configuration.
  - o The **Update system** option is used for updating the firmware in one or several lamps.
  - o The **Change configuration** option allows for setting the network configuration of a lamp.
- The **About** menu contains version information of Heliospectra helioCONNECT and where to find more information.
- The lamp list field shows the lamp on the network with detailed information about each lamp (**Name, MAC and IP address, Assignment, Mode, Schedule, Firmware version and Status**).
- Select lamps by clicking on a row in the lamp list. To select multiple lamps, hold the **Ctrl** key pressed while selecting.

### 3.2.1 Lamp Identification

Follow the instructions to identify a lamp in the network:

1. Start the Heliospectra helioCONNECT from the control computer.
2. Click **Scan**.  
A list of available lamps on the network is shown.
3. Select row of the lamp to identify.
4. Click **Blink**.
5. The LEDs of the selected lamp will blink, enabling identification.

**NOTE!** It is recommended to clearly label each lamp for future reference.

## 3.2.2 Accessing the Web User Interface

The ELIXIA lamp is configured and monitored through its Web User Interface (web UI).

Follow the instructions to access the web UI for a lamp:

1. Start the Heliospectra helioCONNECT from the control computer.
2. Click **Scan**. A list of available lamps on the network is shown.
3. Select the row of a lamp to configure or monitor.
4. Click **Launch**.
5. A web browser window with the chosen lamp web UI will open. For more information about lamp configuration options, see chapter 4 Lamp Configuration.

## 3.3 Static IP Configuration

If DHCP is unavailable in the lamp network the Heliospectra helioCONNECT may be used to assign a lamp a static IP address. IP configuration may also be changed through the lamp web UI (if already assigned an IP address; see section 4.4.2 Configuring Network Settings for more information).

Follow the instructions to assign a static IP to a lamp:

1. Start the **Heliospectra helioCONNECT** from the control computer.
2. Click **Scan**. A list of available lamps on the network is shown.
3. Select the row of a lamp to assign a static IP.
4. Open tab **network ethernet configuration**
5. Enter **IP address**.
6. Enter **default Gateway**
7. Enter **Net mask**
8. Enter primary DNS in the **DNS1** field.
9. Enter secondary DNS in the **DNS2** field.
10. Click **Update**.
11. Repeat steps 1–10 to assign static IPs to additional lamps.

**NOTE!** For a simple address scheme consider assigning ranges of chosen IP addresses to different cabinets, for example: 192.168.1.110, ...111, ...112 and ...113 to the lamps in the first cabinet, 192.168.1.120, ...121, ...122 and ...123 to the second cabinet and so on. It is recommended to clearly label each lamp for future reference.



# 4. Lamp Configuration

The Heliospectra lamp Web User Interface (web UI) is used to configure and monitor each lamp. The web UI is accessed through the Heliospectra helioCONNECT or directly from a web browser (if the lamp IP address is known; see section 3.2.2 Accessing the Web User Interface).

Configuration of the Heliospectra lamp covers the following steps:

- Lamp discovery with the Heliospectra helioCONNECT, see section 3.2.1 Lamp Identification
- (Optional) Lamp static IP address configuration, see section 3.3 Static IP Configuration
- Lamp system time, tags and name configuration, see section 4.3.1 Configuring Lamp Name and Tags
- (Optional) Lamp schedule configuration, see section 4.3.3 Configuring a Schedule
- Lamp Operation Mode Configuration, see section 4.4.3 Configuring Lamp Operation Mode

## 4.1 Using the Web User Interface

The Web UI of the light is made up of tabs providing information, operation and configuration options, each described in the following sections. All pages in the web UI also contain the following general information:

- The current **Status** of the lamp is shown on the top left-hand corner of the page.
- The current **System Time** and **Name** of the lamp (if configured) is shown on the top right-hand corner of the page.
- **General information** for the lamp, such as **model**, **CPU firmware version**, **driver firmware version**, **MAC** and **IP address** is shown on the bottom of the page.

Click the **Show Description** link next to a web UI element to find out more information about its use.

## 4.2 Information Tab

The Information tab shows current information about the selected lamp.

### 4.2.1 History

The History field shows information about the lamp such as:

- **Runtime:** The time that has elapsed since system start
- **Latest change:** When the latest change to the lamp was made
- **Changed by:** How the latest change was applied (through TCP or web client)
- **IP address of client:** Address of the device that made the change
- **Type of change:** What was changed?
- **Show changes:** A text with the latest changes is received

### 4.2.2 Temperature

The Temperature field shows the current temperature of the LED plate in the lamp.

### 4.2.3 LED Status

The LED Status field shows the current intensity setting of each LED wavelength in 0-1000 units (0-100.0 % of max LED output).

## 4.3 Operation Tab

The Operation tab is the main tab used for daily work with the Heliospectra Light.

### 4.3.1. Configuring Lamp Name and Tags

Each lamp can be named and marked with tags for easy identification. Tags are user-defined keys with values that describe lamp specific features (for example, what crop that grows under the lamp, what experiment it is used for, and who is responsible for the lamp).

Follow the instructions to add a name and custom tags for the lamp:

1. In the web UI, click the **Operation** tab.
2. In the **Tags** field, edit the lamp **Name** by clicking **Edit** next to the **Name** field.
3. **Add** a tag **Key** and **Value** in the respective fields.
4. Repeat step 3 to add additional tags for the lamp.

**NOTE!** The Name tag is a protected key / value pair. Unlike other tags the Name cannot be removed. The value is used as the web UI title and as an identifier when setting up clusters of lamps (see section 4.4.3.2 Master/Follower Configuration).

## 4.3.2. Setting Wavelength Intensities

Individual wavelength intensities of the Heliospectra light can be independently set. Typically, this is used as part of a schedule.

Follow the instructions to set wavelength intensities for the lamp:


1. In the web UI, click the **Operation** tab.
2. In the **Intensities (0-1000)** field, set the intensities for the individual wavelengths of the lamp:
  - Use the differently shaded green up and down arrows to increase or decrease wavelength intensities in increments of 1, 10 or 100 units or enter a value directly in the **INTENSITY** text field for each wavelength.
  - Click **All 0** or **All 1000** to set all wavelength intensities to 0 or 1000, respectively.
  - Click **Add to schedule** to add the current wavelength intensities as a light event to a schedule (see section 4.3.3.1 Adding Light Events to a Schedule).
  - Select the **Lock ratio** check box to lock the ratio between the wavelength intensities. Use this option when the desired wavelength spectrum is already configured and only overall intensity level need to be changed.
3. The lamp is not set to use the current wavelength intensities. The values will hold until they are changed or a schedule event occurs (see section 4.3.3 Configuring a Schedule). If power to the lamp is cycled the values settings will be lost.

**NOTE!** The Heliospectra lights use PWM dimming when channels are dimmed below 200 units. Above 200 units constant current dimming is used. This may need to be taken into account when doing research at low light levels with single lamps




## 4.3.2.1. Adding Light Events to a Schedule

Follow the instructions to add light events to a schedule:

1. In the web UI, click the **Operation** tab.
2. In the **Intensities (1-1000)** field, set the desired intensity levels for each wavelength (see section 4.3.2 Setting Wavelength Intensities).
3. Click **Add to schedule**. The intensity values are copied to the first schedule row.
4. In the **Schedule** field, enter a start time for the light event in the **HH:MM:SS** field.
5. Click the  button to add the light event to the schedule. A new light event row is added to the schedule.
6. Repeat steps 2–5 to add additional light events to the schedule.

Light events can also be edited and removed once added to the schedule:

- Click the  button next to a schedule event row, then confirm by clicking **OK** in the popup to remove the row.
- Click **Edit** next to an event row to update start time and intensities for an individual light event. Click **Save** to update the settings.
- Click **Delete schedule**, then confirm by clicking **OK** in the popup to remove all light events from the schedule.
- Click **Start schedule** to start the current schedule. Click **Stop schedule** to stop the current schedule.

### NOTE!

- The schedule relies on the lamp system time. Verify that the lamp system time is set correctly.
- The clock in the fixture will keep its time up to 48 hours without external power. After 48 hours the clock will be reset. Verify that the clock is set correctly if the lamp has been without power for any significant amount of time.
- Schedule events override manual events.

### Example:

In a lamp light events are scheduled for 1300 and 1400. The schedule is running. At 1315 a manual change to the setting is made. The new setting will hold until 1400 at which time the next schedule event will be set.

## 4.3.2-.2. Exporting and Importing a Schedule

Once a schedule is configured, it can be exported and imported to other lamps. This simplifies setting up several lamps quickly.

Follow the instructions to export a schedule:

1. In the web UI, click the **Operation** tab.
2. In the **Schedule** field, click **Export**.
3. Click **Export**. The schedule rows are exported to the file schedule.txt for later use in other lamps. The default download directory for your browser is used as destination path for the schedule file.
4. Click **Export to CSV** to export a schedule to the file schedule.csv for later use in any software supporting Comma Separated files (for example any spreadsheet application).

**NOTE!** It is recommended to rename the exported schedule to a descriptive name, for example: <DATE>-<EXPERIMENT\_NAME>-schedule.txt.

Follow the instructions to import a schedule:

1. In the web UI, click the **Operation** tab.
2. In the **Schedule** field, click **Choose file**.
3. Select a schedule file to import.
4. Click **Open**. The schedule rows are updated.

**NOTE!** Only the schedule.txt file from one lamp can be imported into another lamp. The schedule.csv file is formatted for ease of reading but is not compatible for lamp import.

## 4.4 Configuration Tab

The **Configuration** tab is used for configuring lamp system time, IP address settings, and operation mode for the lamp.

### 4.4.1. Configuring Lamp Name and Tags

By default, the Heliospectra lights use a Network Time Protocol server for setting the lamp system time. The system time can also be configured manually if no NTP server is available. **If unsure, it is recommended to use the default settings.**

#### 4.4.1.1. Setting Additional NTP Settings

Follow the instructions to set additional NTP settings for the lamp:

1. In the web UI, click the Configuration tab.
2. In the Time field, verify that the Use NTP check box is selected.
3. If necessary, configure NTP Offset in the adjacent HH:MM:SS text field. Then click Set NTP Offset.
4. To set a custom NTP server, select the Custom NTP pool radio button, then enter the address to the NTP server in the adjacent text field, for example “se.pool.ntp.org” (refer to [www.pool.ntp.org](http://www.pool.ntp.org) for an updated list of public NTP servers).
5. Click Set NTP Pool to update the settings.

**NOTE!** Without an offset NTP operates on UTC. Under normal conditions setting the hour of the NTP offset suffices to work in local time. The Heliospectra Light clock does not automatically adjust for daylight savings time.

#### 4.4.1.2. Setting System Time Manually

Follow the instructions to set the system time manually:

1. In the web UI, click the **Configuration** tab.
2. In the Time field, verify that the **Use NTP** check box is cleared.
3. Enter the current time in the format HH:MM:SS in the field next to the **Set Time** button.
4. Click **Set Time** to update the system time.

## 4.4.2. Configuring Network Settings

The network field is used to configure the lamp to use either static or dynamic IP addresses. By default, the lamp is configured to use a dynamic IP address. If unsure, it is recommended to use the default settings.

Follow the instructions to setup a static IP address for the lamp:

1. In the web UI, click the **Configuration** tab.
2. In the **Network** field, select the **Static IP** radio button.
3. Enter **IP address**.
4. Enter **Subnet**.
5. Enter default **Gateway**.
6. Enter primary DNS in the **DNS1** field.
7. Enter secondary DNS in the **DNS2** field.
8. Click **Update**.

## 4.4.3. Configuring Lamp Operation Mode

The Heliospectra lights can operate in any of the roles and modes described in Table below:

| Role/Mode   | Schedule Driven | Manual Control | Master Driven |
|-------------|-----------------|----------------|---------------|
| Independent | Yes             | Yes            | No            |
| Master      | Yes             | Yes            | No            |
| Follower    | No              | No             | Yes           |

- **Independent:** An independent lamp is controlled through its web UI. Its light intensity settings can either be configured manually or automatically through a schedule. An independent lamp cannot be controlled by another lamp.
- **Master:** A master lamp controls a cluster of one or several follower lamps either by the use of a schedule or by setting light intensity levels manually in the master lamp web UI. This feature reduces the number of lamps that need to be configured in a fixed lamp installation.
- **Follower:** A follower lamp mirrors the change in light output of a master lamp (regardless of whether the master lamp changes are due to schedule events or manual changes). A follower can only be controlled via the master lamp.

### 4.4.3.1. Independent Configuration

By default, the Heliospectra Light is configured to run in independent mode. If changed, follow the instructions to reset the lamp to independent mode:

1. Start the Heliospectra helioCONNECT to access the web UI for the lamp to be configured in independent mode (see section 3.2.2 Accessing the Web User Interface).
2. Click the **Configuration** tab.
3. In the **Master/Follower** field, select the **Independent** radio button. The lamp now runs in independent mode.

### 4.4.3.2. Master/Follower Configuration

Configuring a cluster of master and follower lamps involves the following steps:

- Name and assign a master for the cluster
- (Optional) Configure a schedule for the master
- Name and assign followers to the cluster master

#### Master Configuration

Follow the instructions to configure a master lamp:

1. Start the Heliospectra helioCONNECT to access the web UI for the lamp that should be configured as a master (see section 3.2.2 Accessing the Web User Interface).
2. Click the **Operation** tab.
3. In the **Tags** field, enter lamp name and custom tags for the master (see section 4.3.1 Configuring Lamp Name and Tags).
4. (Optional) Configure or import a schedule of light events for the master, see section 4.3.3 Configuring a Schedule.
5. Click the **Configuration** tab.
6. In the **Master/Follower** field, select the **Master** radio button. The master lamp will now inform other lamps on the network that it is a master. All light intensity changes in the master are broadcasted to the network. Other lamps may now tune in and follow the master.

**NOTE!** Several master lamps can be configured in the same network, see section Multiple Master/Follower Cluster Configuration. The master lamp will override any schedule or manual setting of its assigned follower lamps.



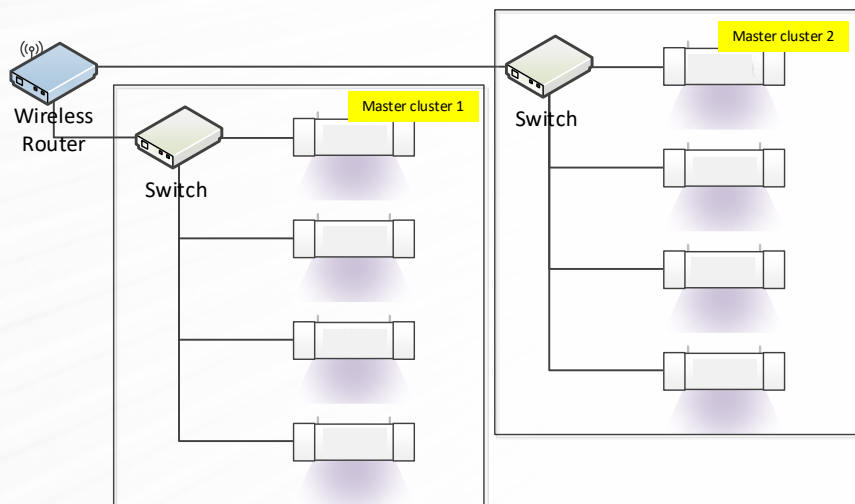
## Follower Configuration

Once a master lamp has been configured, configure and add one or several follower lamps to the cluster. Follow the instructions to add a follower to a cluster with a preconfigured master:

1. Start the Heliospectra helioCONNECT to access the web UI for the lamp that should be configured as a follower (see Lamp Configuration and Monitoring).
2. Click the **Operation** tab.
3. In the **Tags** field, enter a descriptive lamp name for the follower and custom tags (see Configuring Lamp Name and Custom Tags).
4. In the **Master/Follower** field select the **Follower** radio button.
5. Choose which master to use from the drop-down list. If several masters are present in the network choose the applicable master, see section **Multiple Master/Follower Cluster Configuration**.
6. Click **Set Master**. The **Follower** is now configured.
7. Repeat steps 1–6 to configure additional followers in the cluster. A maximum of eight follower lamps may be controlled by a single master.

## Multiple Master/Follower Cluster Configuration

The master/follower mechanism of the Heliospectra lights allow for dynamic cluster allocation with several master lamps and assigned followers in the same network. In the example shown in below, follower lamps in **Cluster 1** and **Cluster 2** are controlled by **Master 1** and **Master 2**.



# 5. Maintenance

The following chapter covers maintenance schedules and practices for the Heliospectra Lights. It also covers firmware upgrade of the lamp unit.

## 5.1 Cleaning

Clean the Heliospectra Lights regularly to ensure proper operation:

- If the clear plastic plate covering the LEDs becomes dirty it should be wiped off with a soft damp cloth. A mild detergent can be used if the plate has finger prints or similar smudges. Check monthly.
- If the air inlet or outlets become clogged with dust or large particles they can be carefully vacuumed. Check monthly.

**NOTE!** Do not use any strong detergents on the plastic housing or LED plates. They can be damaged by certain household cleaners or solvents such as kerosene.

## 5.2 Firmware Upgrade

The firmware of the Heliospectra lights is upgraded with the Heliospectra helioCONNECT. Follow the instructions to perform a firmware upgrade:

1. Download the latest firmware upgrade package from support section at [www.heliospectra.com](http://www.heliospectra.com) or contact your Heliospectra representative.
2. Start the **Heliospectra helioCONNECT** from the control computer on the lamp network.
3. Click **Scan** to update the lamp list.
4. Select one or several lamps to upgrade from the list.
5. Select **System > Update** system from the menu.

6. Select the firmware package downloaded in step 1, then click **Open**.
7. Click **Upgrade**. A progress bar will show the progress of the firmware upgrade process.
8. Wait until the upgrade process completes.

**NOTE!** Do not turn off the lamp or close the Heliospectra HelioCONNECT during the upgrade process.

9. Click **Scan** to refresh the lamp list.
10. Verify that the **Firmware** column shows the new firmware version number for the updated lamps.

# 6. Technical Specifications

|                           | <b>ELIXIA</b><br>LX601C, LX601G, LX602C, LX602G  | <b>DYNA</b><br>RX30   |
|---------------------------|--|---|
| <b>6.1 Electrical</b>     |  |   |
| Typical Power Consumption | 10.5 - 600 W   | 10.5 - 390 W  |
| Operating Voltage Range   | 120-480 VAC 50/60Hz  | 100-277 VAC 50/60Hz   |
| Current                   | 4.45 A @ 120 VAC<br>2.23 A @ 240 VAC<br>2.01 A @ 277 VAC<br>1.61 A @ 347 VAC<br>1.40 A @ 400 VAC<br>1.16 A @ 480 VAC | 2.89 A @ 120 VAC<br>1.45 A @ 240 VAC<br>1.31 A @ 277 VAC      |
| <b>6.2 Control</b>        |  |   |
|                           | RJ 45, 10/100Mbit IPv4 Ethernet  |   |
|                           | HTTP web interface for simple management   |   |
|                           | DHCP for IP address management   |   |
|                           | TCP and UDP for external control and monitoring  |   |
|                           | 32-bit microprocessor (80MHz)  |   |
|                           | Status LED for power/system status indication  |   |
| <b>6.3 Physical</b>       |  |   |
| Weight                    | 8kg (17.6 lbs)   | 8kg (17.6 lbs)  |
| Size                      | 199 x 219 x 425 mm<br>(7.83 x 8.62 x 16.73 in)<br>(H x W x D)  | 199 x 219 x 425 mm<br>(7.83 x 8.62 x 16.73 in)<br>(H x W x D) |
| Operating Temperature     | Operating: -10 to 40°C<br>(14 to 104°F) -10 to 35 °C (14 to 95<br>F) for 347 - 480 VAC                               | Operating: -10 to 40 °C (14 to 104 °F)                        |
| Storage Temperature       | -20 to 70°C (-4 to 158 F)  | -20 to 70°C (-4 to 158 F)                                     |

|                                     | <b>ELIXIA</b><br>LX601C, LX601G, LX602C, LX602G  | <b>DYNA</b><br>RX30  |
|-------------------------------------|--|--|
| Operation Humidity                  | 90 % (max) relative humidity, non-condensing   | 90 % (max) relative humidity, non-condensing   |
| Storage Humidity                    | 95 % (max) relative humidity, non-condensing   | 95 % (max) relative humidity, non-condensing   |
| Heat Value (BTU/h)                  | up to 2047   | up to 1433   |
| Cooling                             | Active, variable speed cooling fan   | Active, variable speed cooling fan   |
| Housing Material                    | Durable ABS plastic and powder coated Aluminium  | Durable ABS plastic and powder coated Aluminium  |
| Optics Material                     | Highly transmissive acrylic glass  | Highly transmissive acrylic glass  |
| Ingress Protection                  | IP24   | IP24   |
| <b>6.4 Certification and Safety</b> |  |  |
| Compliance                          | CE, cETLus (UL 1598, CSA 22.2 No. 250), ROHS, PSE (ELIXIA LX60)                                  |  |
| Photobiological Risk                | Group 2 (Does not pose a hazard due to aversion to bright light or thermal discomfort)           |  |
| <b>6.5 Package Contents</b>         |  |  |
| Lamp Unit                           | ELIXIA 600W<br>(with chosen spectrum and optics)   | DYNA 390W<br>(with 9 wavelength spectrum)  |
| Hanging Attachments                 | DIN M6 I-Hooks (Premounted)  | DIN M6 I-Hooks (Premounted)  |
| Power Cable                         | 2 m (6 ft 5 in)<br>Detachable  | 2 m (6 ft 5 in)<br>Detachable  |
| Plug Options                        | <b>120-240 VAC:</b> Nema 5-15, Nema 6-15, Schuko or Open-ended<br><b>277-480 VAC:</b> Open Ended | <b>100-240 VAC:</b> Nema 5-15, Nema 6-15, Schuko or Open-ended<br><b>277 VAC:</b> Open Ended |
| Ethernet Cable                      | 0.5 m (20 in)  | 0.5 m (20 in)  |
| Instructions                        | ELIXIA 600W Quick Set Up Guide   | DYNA Quick Set Up Guide  |

This product contains FCC ID: Z64-CC3100MODR1 ISED ID: 4511-CC3100MODR1



# 7. Warranty Terms and Conditions

## 7.1 Warranty

Heliospectra top lights carry a warranty that the hardware components of Heliospectra Products will be free from defects in material and workmanship for a period of five (5) years for the MITRA series and three (3) years for other products, from the date of delivery. The warranty extends only to the original Buyer of the Product and may not be transferred or assigned by the original Buyer.

The warranty only applies to sales directly through Heliospectra or any authorized reseller. If the Product was purchased through an authorized reseller, the same terms shall apply, but any claim shall be made via the reseller who sold the Products to the original Buyer.

If the Product fails to comply with the terms of this warranty, Heliospectra, at its option, will repair and return the original unit or provide a reconditioned unit as a replacement. The warranty excludes labor and equipment required to remove and/or reinstall original or replacement parts. Warranty claims must be reported and returned to Heliospectra within the warranty period and no later than thirty (30) days after discovery of the suspected defect. All warranty claims must be submitted in writing and have gone through the official Heliospectra Return Material Authorization (RMA) process. If Heliospectra chooses to replace the Product and is not able to do so because it has been discontinued or is not available, Heliospectra may refund the Buyer or replace the Product with a comparable Product.

Any non-Heliospectra equipment or products that have been acquired through a Heliospectra purchase are not covered under this warranty, but instead will carry the manufacturer's standard warranty.

Heliospectra shall pay for shipping costs for valid warranty claims. The Buyer is responsible for the shipping costs associated with returning the Product to Heliospectra if the warranty is voided or otherwise rejected.

If applicable, software warranty and any instructions thereto will be provided to the Buyer separately. If applicable, Heliospectra warrants that embedded software in the Product shall perform substantially in accordance with the specifications contained in the applicable Product manual under normal authorized use and in accordance with instructions provided by Heliospectra. In no event does Heliospectra warrant that the software is error free or that the Buyer will be able to operate the software without problems or interruptions. Heliospectra does not give any warranty for third party software (meaning herein software created by other parties than Heliospectra) and Heliospectra shall not be liable for any damages possibly caused by failures in third party software or caused by changes in the software by the Buyer or anyone other than an authorized Heliospectra technician.

Heliospectra shall have no liability for any claim, suit or proceeding of infringement based on (a) the use of other than the then latest release of software provided by Heliospectra, if such infringement could have been avoided by the use of the latest available release of software or (b) the use or combination of Product with software, hardware or other materials not provided, not recommended or approved by Heliospectra.

## 7.2 Terms and Conditions

### 7.2.1 Electrical Installation Quality Requirements and Conditions

Heliospectra requires that the installation of the Product is conducted by a licensed electrician with adequate surge protection according to the requirements below. If the surge protection requirement is not implemented, a proof of electrical quality reading must be performed by a third party and presented as proof of adequate electrical quality.

### 7.2.2 Surge Protection Requirements

North America

Heliospectra requires that Products are installed with adequate surge protection according to the IEEE 1100-2005 recommended practice for Powering and Grounding Electronic Equipment. Considering that surges can originate from both internal and external sources, surge protection devices ("SPDs") are to be installed to provide maximum protection regardless of the source location. The three zones include:

- The first zone is at the service entrance where the most robust SPD is placed to divert surges coming from external sources such as lightning. SPDs installed here are listed as Type-1, SPD devices.
- The second zone of protection is within the facility at locations identified as susceptible to surges. SPDs at these locations are listed as Type-2, SPD devices and are installed on equipment such as switchboards, panelboards, motor-control centers.
- The third zone of protection is at the outlet or point of use. SPDs installed here are listed as Type-3, SPD devices.

## Europe

Heliospectra requires that all fixtures should be protected by adequate surge protection, in accordance with the following standard: IEC 62305 – Protection Against Lightning.

This standard stipulates the following:

- SPDs (Surge Protection Devices) should be installed when crossing from one lightning protection zone to another
- Lighting is not the only threat; switching of loads, which are more frequent than lightning strikes, also create high voltage transients that can damage electrical or electronic equipment over time.
- Risk assessments are required to be carried out to assess the requirements of any building for SPDs.
- Ensure that the 3 Lightning Protection Zones (LPZ) zones and types 1, 2, 3 of Surge Protection Devices are used correctly.

For other installation locations, please advise local electrical standards that are equivalent

## 7.2.3 Warranty Limitations

This warranty does not apply under any of the following circumstances:

- a. The Product has been opened or altered by anyone other than Heliospectra or an authorized representative
- b. The Product has not been installed (including proper electrical and WiFi equipment and installation), operated or maintained in accordance with instructions supplied by Heliospectra
- c. The Product has developed defects due to damage in transport, storage or any other circumstances that are beyond the immediate control of Heliospectra
- d. The Product has been installed in applications outside the operating intervals in the product specification
- e. The Product has been damaged, defaced, exposed to corrosive environment, subjected to misuse or vandalism, abnormal service or handling or by any other circumstances attributable to the Buyer, its buyers, end-users or any third party
- f. The Product is licensed for beta, evaluation, testing or demonstration purposes
- g. The Product has been repaired or attempted to be repaired by anyone other than Heliospectra or a Heliospectra authorized representative
- h. The Product has been subjected to natural disasters that have caused defects such as lightning strikes, floods, hurricanes, earthquakes, etc.
- i. The Product has been subjected to electric line power surges, unstable electrical supply conditions, ripple current or other electrical infrastructure malfunctions
- j. The Product has not been installed by a licensed electrician with adequate surge protection.
- k. For MITRA LED components: 85% or more of the light emitting diodes illuminate.

Heliospectra reserves the right to make the final decision on the validity of any warranty claim.

## 7.2.4 Warranty Claim Process

Before returning any Product, a Return Material Authorization (“RMA”) reference number must be obtained from Heliospectra. A reference number is obtained by completing an RMA form and provided by Heliospectra once the validity of the claim is preliminarily assessed by Heliospectra.

The claim process depends on A) Warranty is valid or B) Warranty is voided

A. If a claim is made within the warranty period and none of the warranty limitations described above have been breached, then

- a. Heliospectra will arrange for retrieval of the fixture(s) from the customer location
- b. A failure analysis will be conducted at the Heliospectra Repair Center. If the agent at the repair center finds that the cause of the issue is attributed to one or more of the warranty limitations/exclusions described above, the warranty will be deemed as void and the process will be handled as described in column B after informing the customer
- c. The fixture(s) will be repaired according to the failure analysis
- d. The fixture(s) will be returned to the customer along with the failure analysis report and a description of the repairs made to the unit(s)
- e. No cost will be attributed the customer

B. If the warranty period has lapsed or the warranty has been voided due to one of more of the warranty limitations/exclusions described above, then

- a. A cost estimate of the shipping and repairs will be first sent for approval to the customer
- b. Upon approval, Heliospectra will retrieve the fixture(s) from the customer location
- c. A failure analysis will be conducted at the Heliospectra Repair Center
- d. An updated final cost of repairs along with the failure analysis will be sent to the customer for approval to move forward
- e. The fixture(s) will then be repaired according to the failure analysis
- f. A final invoice will be sent to the customer for the repair service and shipping
- g. Upon receipt of payment from customer, the fixture(s) will be returned to the customer along with the failure analysis report and a description of the repairs made to the unit(s)

The official Heliospectra Return Material Authorization (RMA) process is initiated by submitting an online support request per instructions found at <https://support.heliospectra.com/portal/home>.

The following is required by Heliospectra to complete an RMA assessment:

1. Date of purchase
2. Product designation and number
3. Product serial number
4. Description of defect and occurrence
5. Adequate records of operating history, maintenance, and/or testing to substantiate that the Product has failed to comply with its intended performance
6. Original or equivalent packaging to ship the unit(s) to the Heliospectra Repair Center



## 7.3 Implied or Other Warranties

Except as otherwise expressly set forth in these Warranty Terms and Conditions, Heliospectra, on behalf of itself and its affiliates disclaim all other warranties whether expressed, implied or statutory regarding or relating to the hardware, documentation, software, media or the services furnished or provided to the customer. HELIOSPECTRA SPECIFICALLY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Neither sales personnel of Heliospectra nor any other persons are authorized to make any warranties other than those described in this document, or to extend the duration of any warranties beyond the period described in this document except an authorized officer and pursuant to signed documents.

## 7.4 Disclaimers

To the full extent permitted by law, Heliospectra will not be liable to the Buyer for any loss or damage arising from the use of the Product, or any defect in the Product, however it may arise. Apart from the warranties as stated above, Heliospectra has no obligation to provide support, maintenance, upgrades, modifications or new releases. Heliospectra disclaims all liability and responsibilities pertaining to and arising as a result of the Buyer integrating, connecting or networking the Product in any manner whatsoever. If technical support is offered regarding the use or implementation of the Product that is outside or contrary to official Heliospectra documentation, it will solely be as an accommodation to the Buyer and Heliospectra holds no responsibilities or liabilities for the content or use of such advice.

IN NO EVENT WILL HELIOSPECTRA BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, INDIRECT OR INCIDENTAL LOSS OR DAMAGE OF ANY KIND OR ANY DIRECT LOSS. HELIOSPECTRA'S LIABILITY ARISING OUT OF PRODUCT WILL BE LIMITED TO AN AMOUNT EQUAL TO THE INITIAL PURCHASE PRICE OF THE PRODUCT.

THE ABOVE STATE HELIOSPECTRA'S ENTIRE RESPONSIBILITY AND BUYER'S SOLE AND EXCLUSIVE REMEDY WITH RESPECT TO ANY BREACH OF ANY WARRANTY REGARDING THE HARDWARE AND SOFTWARE.

Version 2021-12-07.



## Contact Details

Got questions? Or need info related to how to our products?  
Visit our Support Portal for User Manuals, articles and videos: <https://support.heliospectra.com/portal/en/home>

Or sent our dedicated support team an email at [support@heliospectra.com](mailto:support@heliospectra.com)

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