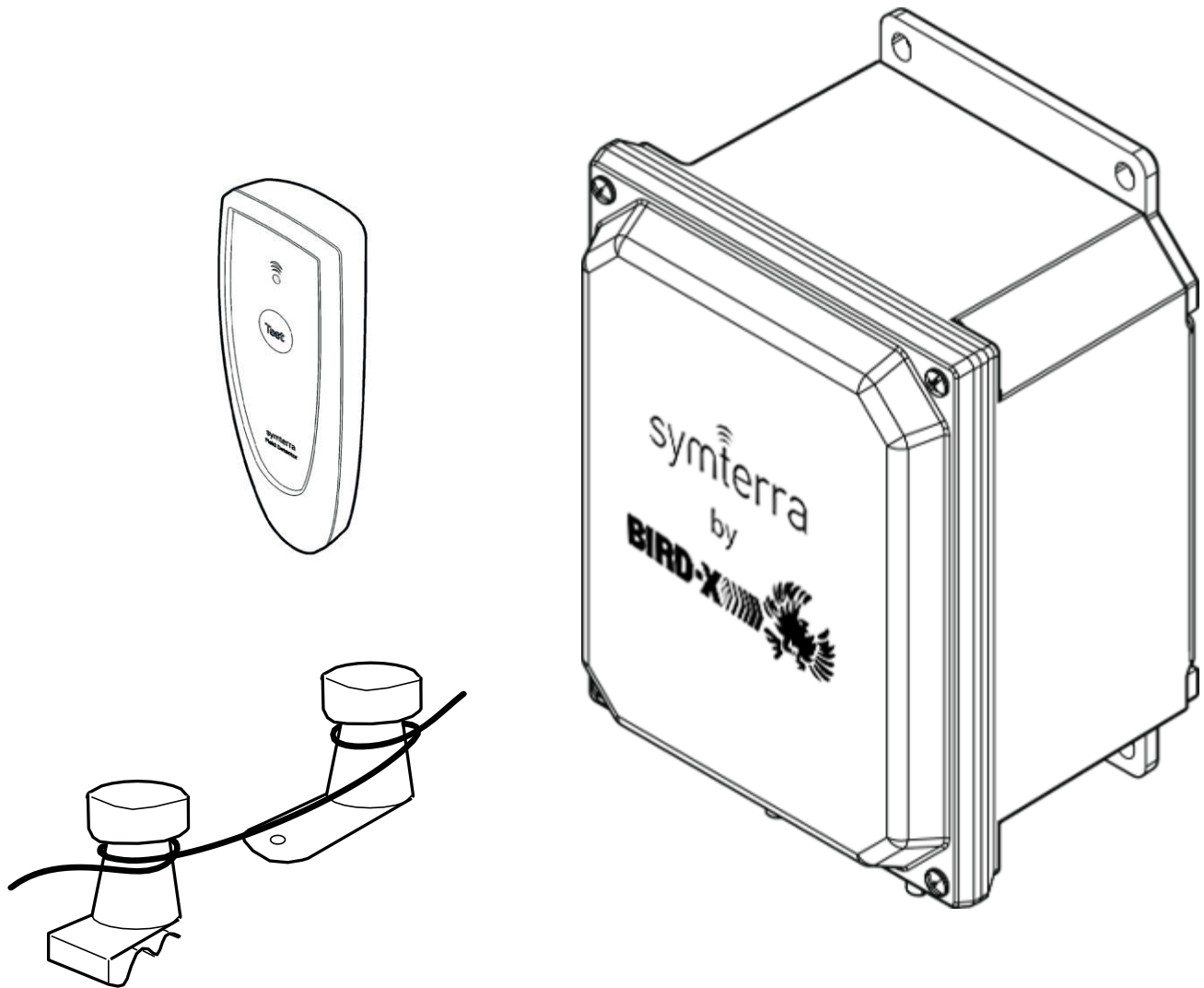




Installation Manual

Symterra Live Wire

Bird Repellent System
Model SMT-01
(Patent Pending)
Revision A



Address & Contact Information:

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Manual info:

These are the original instructions. The English language is binding.

PATENT PENDING

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1. IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

List of Abbreviations:

HVAC: Heating, Ventilation, and Air Conditioning

PPE: Personal Protective Equipment

GFCI: Ground Fault Circuit Interrupter

1.1 SAFETY WARNINGS

When properly installed, the Symterra Live Wire System keeps multiple species of birds away from the area where the system is installed.

WARNING



When using electrical devices, basic precautions should always be followed, including the following:

- Read all the instructions before installing or operating the Symterra Live Wire System.
- To reduce the risk of injury, close supervision is necessary when the system is used near children.
- Only use accessories and components recommended or sold by Symterra.
- To disconnect the system, turn off all controls and unplug it from the outlet.
- Do not unplug by pulling on the cord. To unplug, grasp the plug, not the cord.
- Unplug from the outlet when not in use and before servicing or cleaning.
- Do not operate the system if the power cord or plug is damaged, or if it malfunctions or has been dropped or appear damaged in any way. Contact Symterra Support.
- This device must be connected to a properly grounded outlet. See Grounding Instructions on page 18.
- This device is not intended for use by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the device by a person responsible for their safety.
- This system is not intended for household or residential use. Commercial applications only.
- A violation of the above can result in the loss of warranty.

SAVE THESE INSTRUCTIONS

NOTICE



- Read this manual carefully before installing the Live Wire System to understand its correct use. Follow each step outlined in this Installation Manual for optimal results.
- Incorrect handling of the equipment could result in personal injury or physical damage.
- The manufacturer assumes no responsibility for any damage caused by mishandling beyond normal usage defined in this manual.
- To ensure the functionality of the Symterra system, you must use only Symterra approved components.
- Symterra must approve any modification or adjustment before installation.
- To ensure the correct functionality of the Symterra system, it must be used at an altitude of 2,000 m or lower.
- Power cords or external connectors must not be replaced by anyone other than Symterra-approved personnel.

ELECTRICAL RATING



- Voltage: 110-230VAC
- Frequency: 50-60 Hz
- Power: 35W max
- Grounded plug required

DANGER, LIVE WIRE SYSTEM



This system generates high voltage during operation. Insulated electrical gloves (PPE) are mandatory while installing, servicing, or handling the live wire, connectors, or capacitors. Only qualified personnel may install or service the system.

- De-energize/unplug the Control Hub before any assembly, adjustment, or maintenance.
- Use appropriate fall-protection when working at height.
- Ground the system per local electrical code and the Grounding instructions in this manual.
- Keep the live wire line clear of metal parts, sharp edges, and vegetation/branches that may contact the line.

NOTICE



This system produces an electrical current, which could potentially cause injuries if the live wire contains a break in the insulation. Always power off the system to avoid electric shock before repairing or maintaining the system.



Working at elevated heights must be done according to the safety standards applicable to this type of work. Always use approved Fall Protection Equipment when working at heights. Failure to use proper fall protection can result in serious injury or death.



The system is not designed for use by children. Ensure that all components are securely installed and inaccessible to children to prevent accidental injury or damage. Adult supervision is always required when the system is in use. Failure to follow these precautions may result in serious injury or harm. Device only to be used in controlled areas including areas where children are not present.



Regular quarterly preventive maintenance, including visual inspections and verification of securely fastened wiring is required.

1.2 Unintended Use

This product is designed for specific applications as outlined in this manual. Any use of the product outside its intended purpose or environment may result in damage to the system, void the warranty, or cause injury. The manufacturer is not responsible for any malfunctions, damage, or accidents caused by unintended use or modification of the product. Always follow the instructions and safety guidelines provided to ensure proper operation.

1.3 Personal Protective Equipment (PPE)



While handling, assembling, and installing the Symterra Live Wire System, adhere to all recommended safety instructions and ensure that the correct Personal Protective Equipment (PPE) is used.

General Guidelines

- Assess Hazards: Determine the risks present in the work area and select appropriate PPE based on hazard assessment.
- Inspect PPE Before Use: Check for any visible damage such as tears, cracks, or signs of wear. Do not use damaged equipment.
- Proper Fit: Ensure that PPE fits properly. Ill-fitting PPE can reduce effectiveness and increase the risk of injury.
- Training: Workers should be trained on the proper use, limitations, maintenance, and storage of PPE.
-

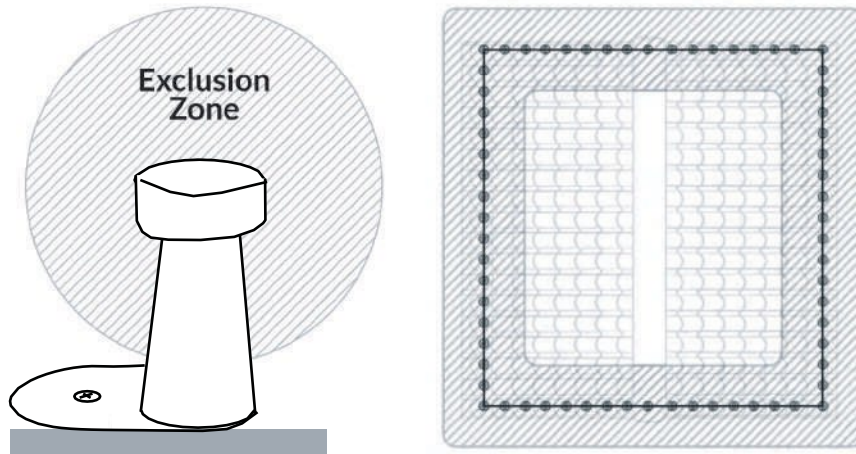
1.4 Local Building Codes and Regulations

Before installation, it is crucial to check local building codes, regulations, and electrical requirements to ensure compliance. These rules vary by region and can impact installation methods, safety standards, and overall system performance. Verifying compliance in advance helps avoid costly modifications, fines, or potential safety hazards. Always consult with local authorities or a licensed professional to ensure a smooth and legal installation.

2. UNDERSTANDING THE TECHNOLOGY

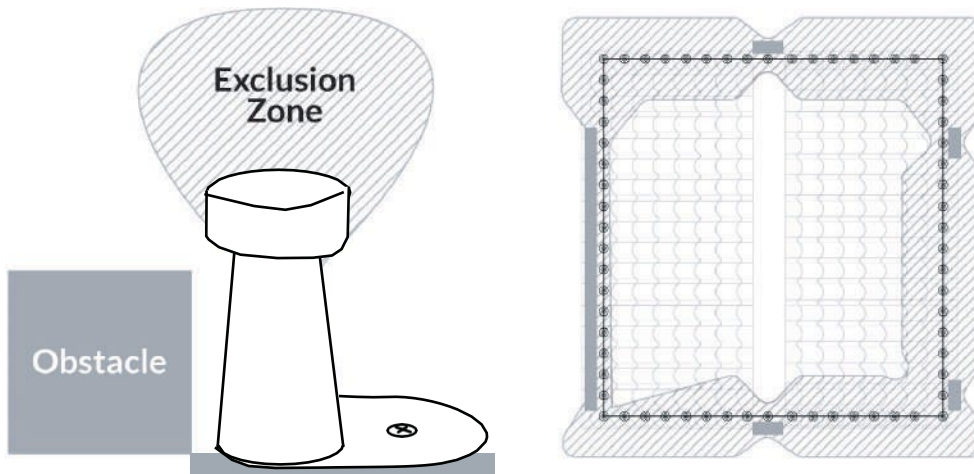
2.1 Exclusion Zones

Utilizing proprietary technology, Symterra Live Wire creates an invisible barrier (exclusion zone) that deters birds from landing or nesting on structures + shock effect.



2.2 Interaction with Substrates, Structures, & Obstacles

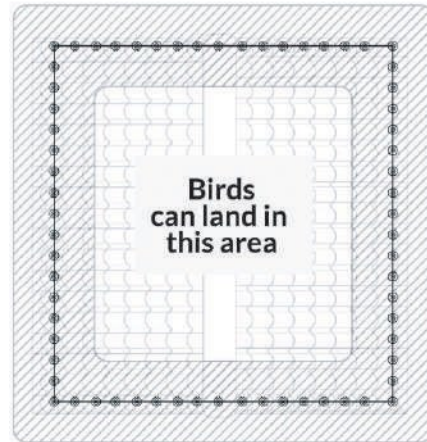
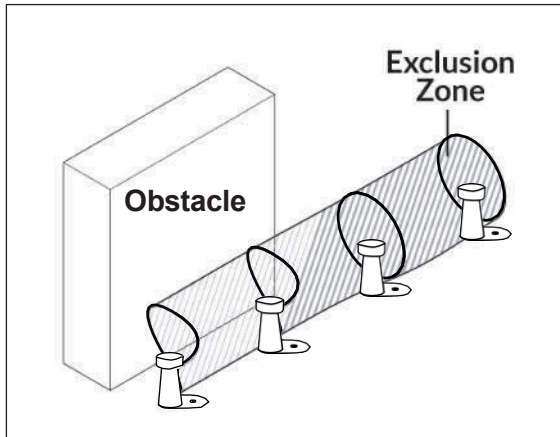
The signal range and performance of exclusion zones are influenced by the surrounding environment. This occurs because different types of substrates or obstacles near the system absorb portions of the signal.



The signal attenuation is localized around the obstacle.

If an obstacle, such as a wall or nearby metal structure, runs along the length of the line, the deterrent signal will be affected by the obstacle. In this case, the obstacle is considered a substrate, therefore reducing the efficacy of the system.

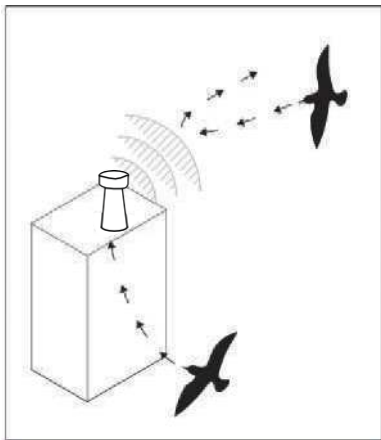
Certain substrates, such as metal structures, exert a greater influence on system performance. Refer to the “Height Recommendations for Substrates” section on page (p. 21) to mitigate these effects.



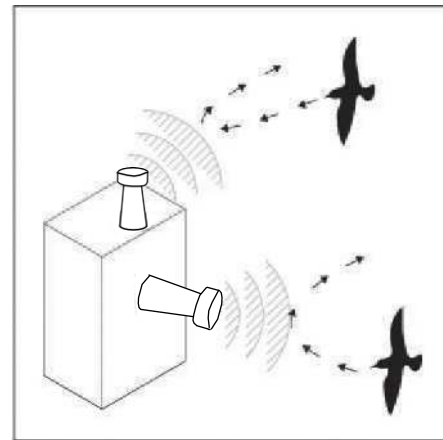
2.3 Birds Landing vs. Walking

The Symterra Live Wire signal effectively deters birds from landing in protected areas. However, certain bird species may land in adjacent areas and approach the system by walking. To ensure effectiveness, it is crucial to install the system in a manner that prevents birds from landing on the structure.

2.4 Line of Sight

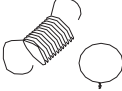


The Symterra Live Wire System is most effective when live wire line runs are oriented to cover the birds' line of sight.



Both line of sights covered to prevent birds from landing in the building.

3. COMPONENTS

Figure	Component Name	Properties
	Control Hub	Voltage: 110/220-240 Volts Current: 20mA Power Consumption: 50 Watts Operation Voltage: 2,500 Volts Ingress Protection: IP65 Temperature rating: -40°C to 130°C (-40°F to 266°F) Weight: 6 lb (2.72 kg) Dimensions: 9 x 6 x 4 in (229 x 152 x 102 mm) (L x W x H)
	High Insulation Cable	Length: 100 ft / 30 m
	Roof Capacitor	Fixed-mount capacitors fastened to the roof or structure with appropriate hardware.
	Clip Capacitor	Edge-mount capacitors are used on gutters or similar edges where a clamp-on attachment is preferred.
	Reel of Stainless-Steel Wire	Routes the active signal around the protected perimeter.
	Spring / Ring	Maintains controlled tension in the live wire to accommodate expansion/movement and prevent slack.
	Signal Detector	To verify signal range

3.1 Control Hub

At the heart of the Symterra Live Wire System, the Control Hub generates and manages the proprietary signals that create the deterrent zone. It is easy to install and connect to your existing power source, providing continuous protection with minimal energy use.

Before installing the Control Hub, set the dial to target the appropriate bird species.

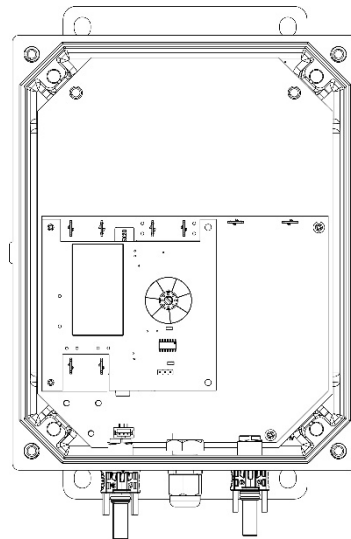
WARNING. HIGH VOLTAGE!



The Control Hub must only be opened by a trained user with the unit **UNPLUGGED** from the power outlet.

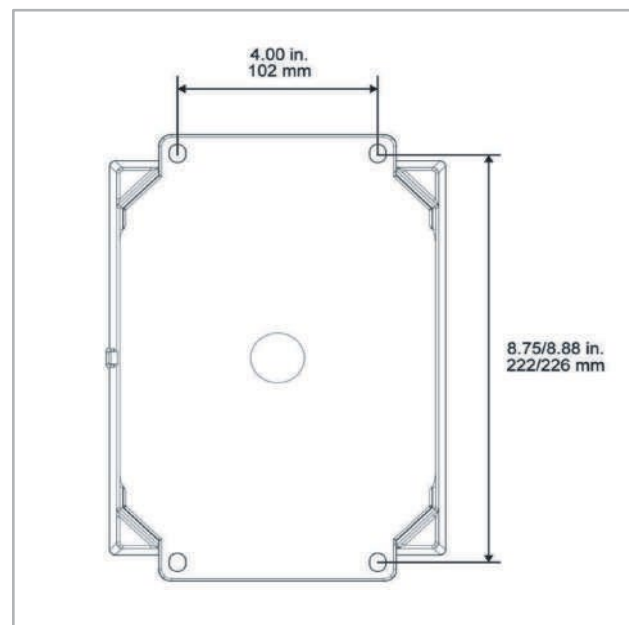
100–300 Hz
Seagulls and slow
flying birds.

300–500 Hz
Pigeons and fast
flying birds.



Mounting Hole Pattern

- Fasteners should be placed in the 4 holes designated for the mounting hardware and are NOT supplied with the system.
- Maximum screw size is 5/16 inch or an M8.
- The Hub must be mounted vertically with outlets facing downwards.



3.2 Tools



- Signal Detector

3.3 Additional Required Tools *(not provided by Symterra)*

We also recommend you have the following on hand as these items will ensure your installation goes smoothly.

- Mounting screws for your Control Hub
- Wire Cutters
- Needle Nose Pliers
- Screws for the Support Bases (if using the Standard system)
- Epoxy (if using the Standard system)
- UV resistant zip ties (if using the Standard system)

4. INSTALLATION INSTRUCTIONS

4.1 Conducting a Site Survey

It is recommended to conduct a site survey to locate power outlets and identify substrate types, bird species in the area, and landing patterns. This will guide the layout if not done prior to installation. Some details to pay close attention to are:

- Power outlet location(s)
- Type of substrates
- Live wire expected length
- Bird species
- Bird landing patterns
- Bird pressure
- Bird behavior

The Symterra System has been tested on the following bird species. Please contact your Symterra Sales Representative before making a purchase if you are planning to install for a species not listed here.

- Pigeons
- Seagulls
- Sparrows
- Starlings
- Grackles
- Crows

ATTENTION:



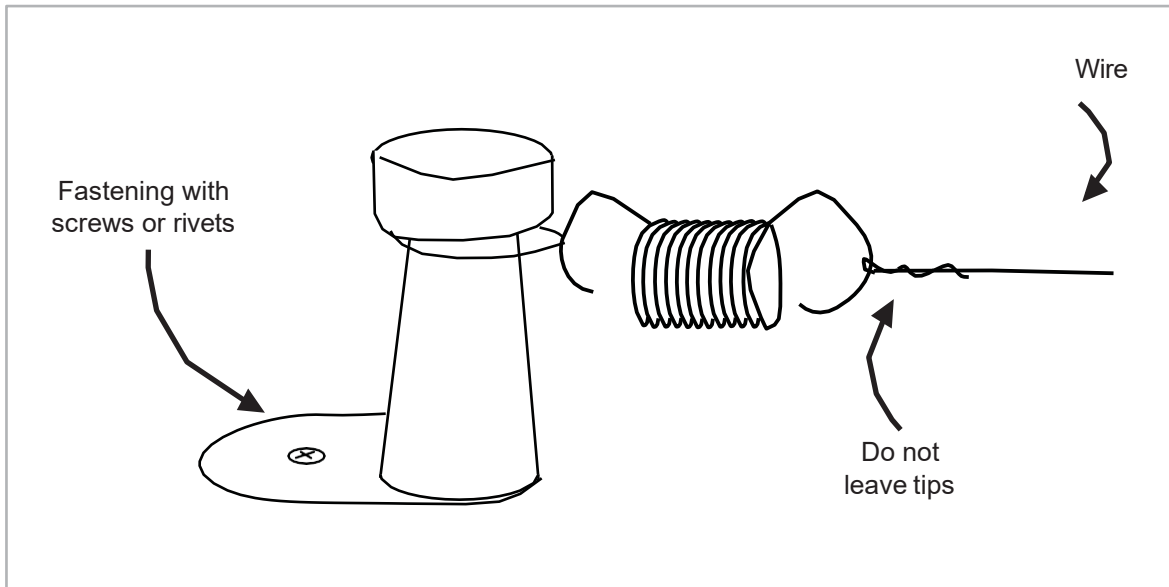
You MUST know the species of bird to determine whether it is protected or not. If you have any doubts, reach out to your local wildlife authorities.

4.2 Cleaning & Sanitizing

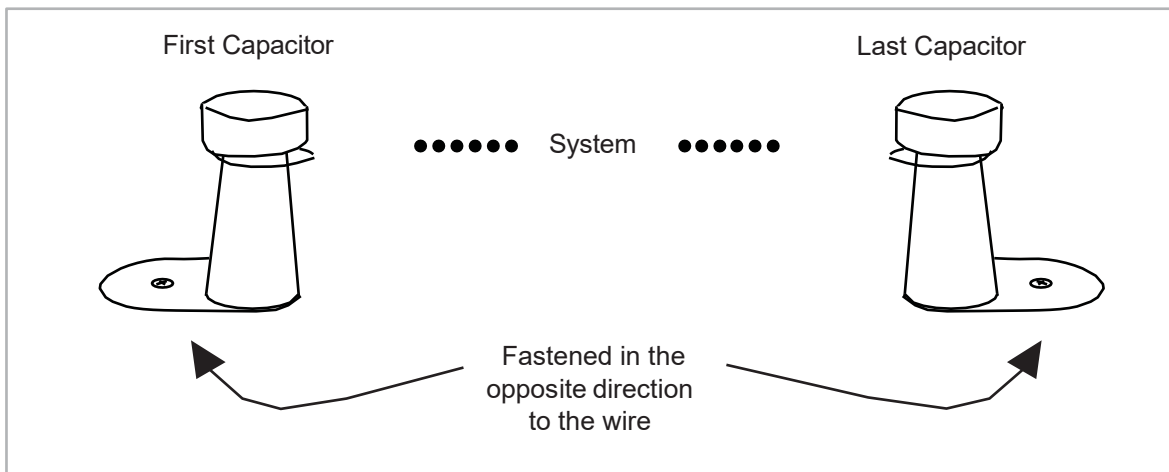
It is MANDATORY to begin with site preparation. Clearing the area of any bird debris and sanitizing prior to installing the Symterra system is crucial for its long-term effectiveness. Birds are highly territorial and attracted to their own scent markers, droppings, and nesting materials. Cleaning the area eliminates these attractants, reduces the risk of disease transmission, and ensures the system functions as intended. We recommend using ProBlend EVO Microbial Bird Dropping Cleaner. Always wear PPE when cleaning bird droppings.

4.3 Attaching Capacitors

The capacitors will be attached to the roofing tiles, metallic structure, mounted on gutters etc, according to the structural characteristics found and previously analyzed.



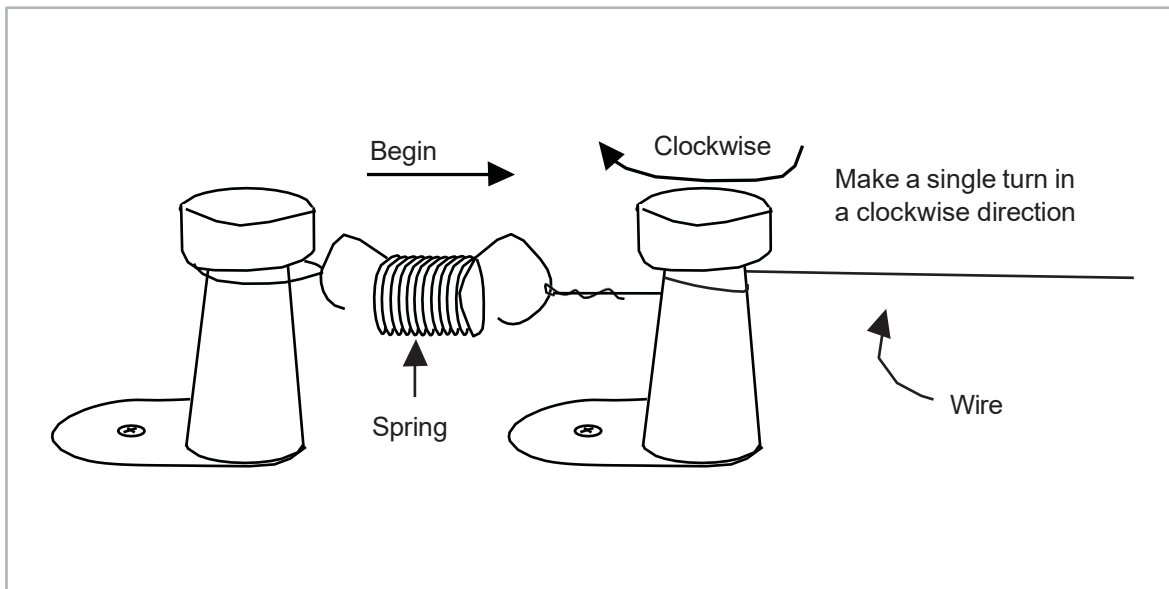
Each capacitor should be fastened with screws or rivets round the whole perimeter of the roof, with a spacing of 6-foot-6 between each capacitor, with a maximum of 100 capacitors for each reactor.



When fastening the first capacitor it is necessary to have the metal base fastened on the side opposite to the initial direction of the system. The last capacitor should be fastened keeping the position of the metal base in the opposite direction to the flat.

4.4 Wire Installation

Insert the ring in the initial capacitor and interconnect it to the spring, which in turn, will make connection and the proper voltage matching between the stainless-steel wire (use ONLY the Symterra wire) and the first ring. Then, continue extending the Wire by passing around each capacitor with a single turn in a clockwise direction, until at the end the wire is twisted without leaving any tips.



WARNING, HIGH VOLTAGE!



Risk of electric shock! Obligatory use of PPEs

ATTENTION!



NOT toturn clockwise correctly on each capacitor implies operating problems!

ATTENTION!



Breaking the Wire or its contact with any metal parts, branches etc, may interrupt the operation of the system.

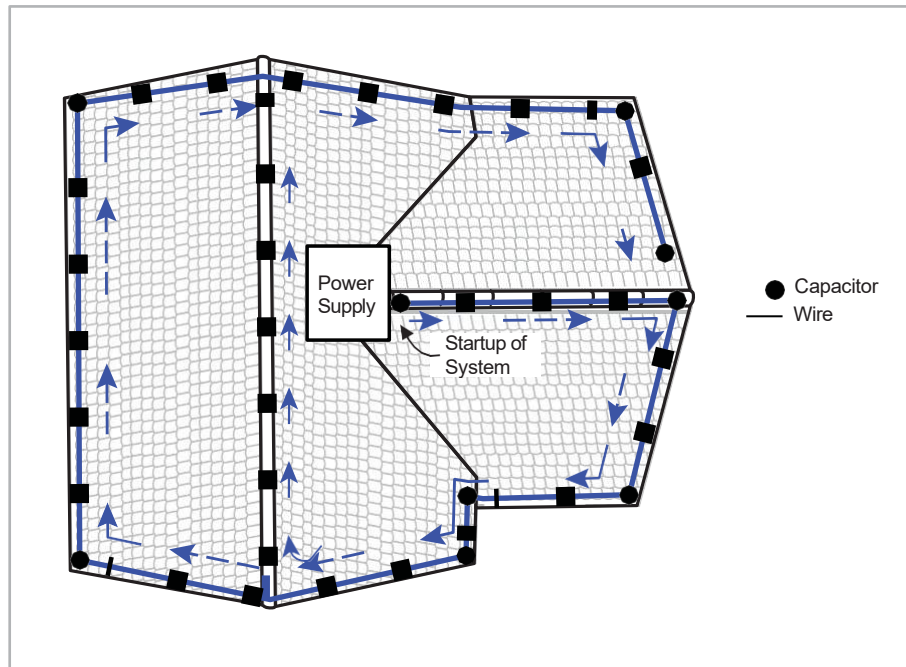
IMPORTANT, LIVE WIRE TENSION!



The ring/spring assemblies keep the live wire under constant tension to prevent slack that can cause malfunctions or intermittent detection. Keep the line tight along the run; if any sag appears, adjust or add a ring/spring and re-test. (Wear insulated gloves when tensioning.).

4.5 Illustration of Assembly Scheme

Insert the ring in the initial capacitor and interconnect it to the spring, which in turn will make connection and the proper voltage matching between the Wire and the first ring. Then, continue extending the Wire by passing around each capacitor with a single turn in a clockwise direction, until at the end the wire is twisted without leaving any tips.



4.6 Disposal of electric and electronic components



Never dispose of any electric or electronic equipment, or undifferentiated waste residues. The electric and electronic components must be recycled to any electric point at the end of your life cycle.

NOTE: This does not apply to accessories or old electronic equipment. However, those must be separated and disposed of by following local and recycling guidelines.

WARNING!

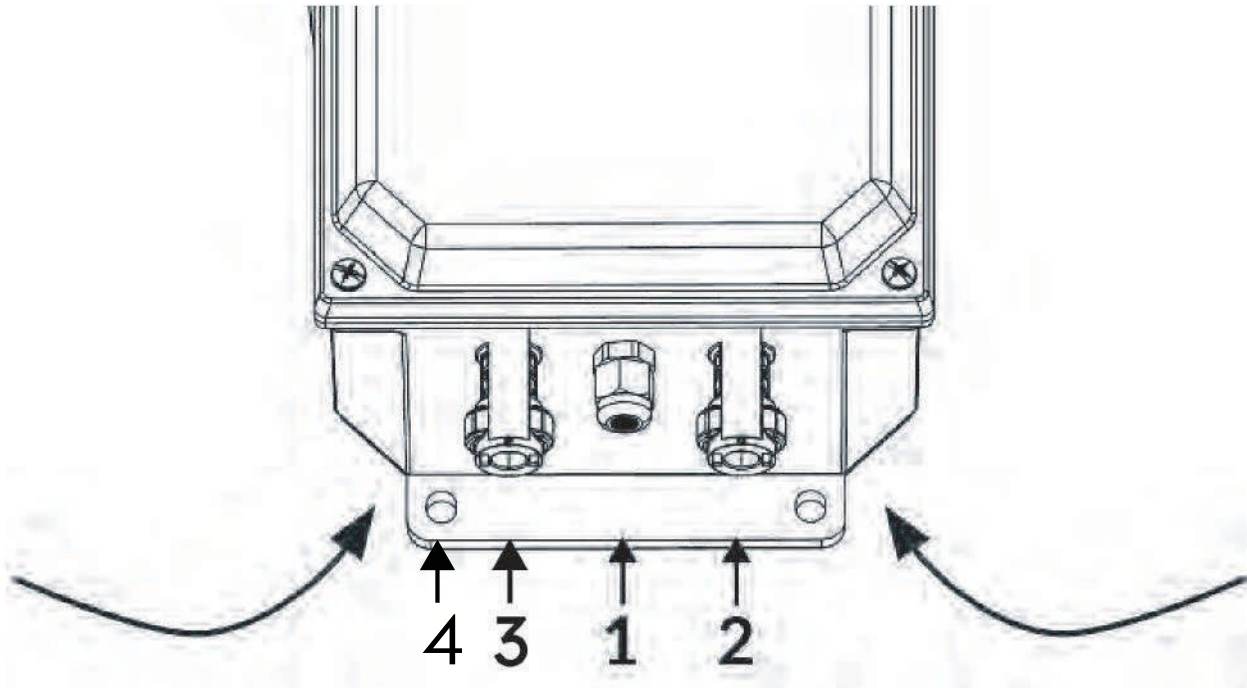


The EEE contains dangerous substances harmful to human health and the environment.

This device complies with PART 15 and 18 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.

4.7 Installing the Control Hub

Step 1: Understand the Device Outputs, Inputs and Mounting holes.



- 1) Power Input Cable
- 2) High insulation cable (connects to first capacitor)
- 3) Wiring to connect to the power grid.
- 4) Mounting Holes

Mount the Control Hub firmly to the structure using the appropriate fasteners placed in the four (4) holes designated for the mounting hardware.

TO PREVENT DAMAGE TO THE SYSTEM:



DO NOT power the system on until the live wire(s) are connected to the Control Hub and all components are securely in place.

Step 2: Grounding the System

The Symterra Live Wire System must be grounded. In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This device is equipped with a power cord containing an equipment-grounding conductor and a grounding plug. The plug must be connected to an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances. There are two steps in grounding Symterra Live Wire system.

Grounding through Power cord to GFCI/wall output plug:

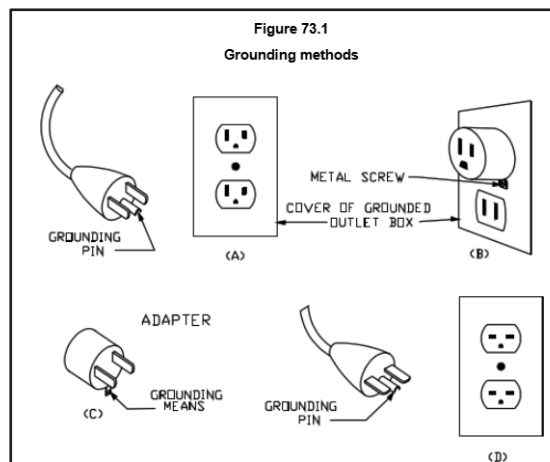
DANGER!



Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green, with or without yellow stripes, is the equipment-grounding conductor. If repair or replacement of the power cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

If you are unsure whether the outlet is properly grounded, consult a qualified electrician. Do not modify the plug provided with the system — if it will not fit the outlet, have a properly grounded outlet installed by a qualified electrician.

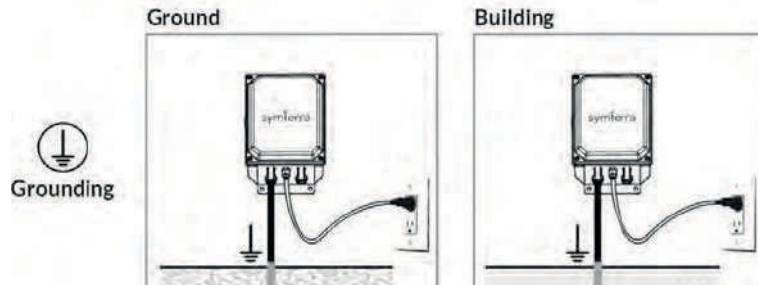
Grounding must be installed and verified by a qualified electrician per local electrical code. Do not use gas/water pipes as electrodes. Ensure a continuous, low-impedance ground path.



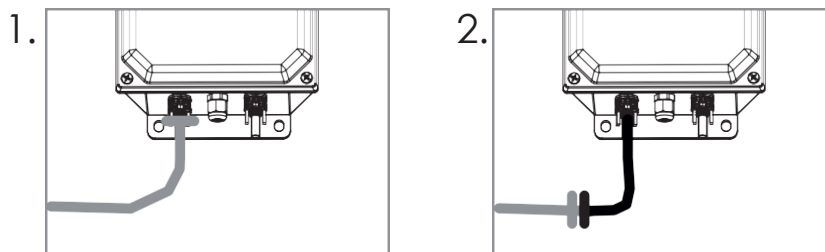
Grounding through a dedicated MC4 connector:

The most common form of grounding is using a grounding electrode. This conductor connects the system to the earth via ground rods, water pipes, or grounding plates.

- Using the terminal marked "Grounding" on the Control Hub, connect the panel-mounted ground connector to a grounding rod installed 4ft/1.2m deep in moist soil or the nearest electrical conduit.
- Preference should be given to the shortest possible electrical path while choosing the source for grounding.
- The system may be grounded to existing metal conduit in the roof ONLY if the metal conduit itself is grounded and can be verified through a visual inspection or continuity test.
- The images below are for reference only and the installer must follow local regulations for grounding techniques.



- It is preferred to use a standard copper grounding wire connected to a small segment of Symterra's Emitter Line using a Female Line Extender. The connection between the two segments should be carried out in accordance with local electrical codes and regulations.
- If a copper wire is not available, a wire with an outer diameter of $5.5 \text{ mm} \pm 0.2 \text{ mm}$ ($0.217 \text{ in} \pm 0.008 \text{ in}$) and an internal conductor outer diameter of $1.8 \text{ mm} \pm 0.2 \text{ mm}$ ($0.071 \text{ in} \pm 0.008 \text{ in}$) may be used with the Female Line Extender.
- The grounding wire should be rated according to your local grid voltage, such as 110V in the United States or 230V in Australia.



- Connection between the two wires should be done as per local regulations.

WARNING!

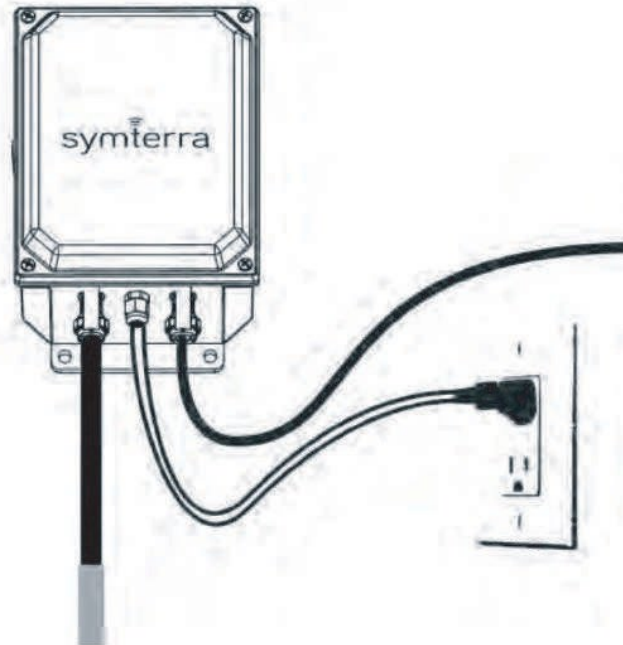


DO NOT ground the system to OR operate near gas pipes, water conduits, metal substrates!



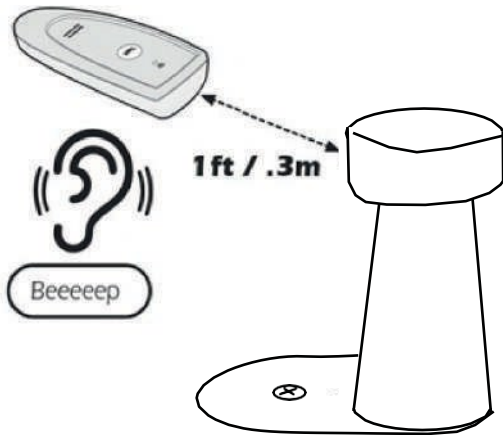
Step 3: Powering the System ON

Before the Symterra system is powered on, ensure all connections are secure, branch lengths comply with guidelines, proper grounding has taken place and components are properly installed. **Once this is completed, it is now safe to plug the Control Hub into the power source.**



Step 4: Final Checks & Testing

To verify the system is on and working properly, test the system using the Symterra Signal Detector to confirm that the signal range is active across all sections.



- Press the button down on the detector while holding it closely to the live wire.
- There will be an audible 'beep' when the button is pressed.
- Back your arm away from the live wire. When the beeping stops, the signal is no longer present.
- The signal should be detectable from a distance of at least 1ft/30cm away from the line.

IMPORTANT!



Nearby metal (e.g., wire mesh, fasteners) may affect the detector and reduce the detectable range or cause intermittent beeping. If this occurs, move away from large metal surfaces and re-test.

- Warning signs should be used in conjunction with the system
- Two warning signs are available:
 - Warning plates
 - Warning window stickers
- Warning signs should be fitted to every point where persons may gain ready access to the Live Wire connection
- The warning plate should be glued in place and positioned vertically, 15ft. (3 meters) apart on the face of the building where Live Wire is installed





5. OPERATING INSTRUCTIONS

Before using the Symterra Live Wire System, please read the **IMPORTANT SAFETY INSTRUCTIONS** on page 4.

5.1 Starting the System

1. Confirm that all live wires are properly connected and that all components are securely fastened.
2. Verify that the system has been grounded in accordance with local codes and Symterra's grounding procedure.
3. Plug the Control Hub into a grounded electrical outlet.
4. Use the Symterra Signal Detector to confirm the system is transmitting a deterrent signal. Hold the detector 1 inch (2.5 cm) from the live wire and listen for a beep. Back away slowly until the signal is no longer detected — typically at a distance of 12 inches (30 cm).

The system will operate continuously while powered.

5.2 Controls and User Interface

- The Symterra Live Wire System has no external switches or user-operated controls. The system activates automatically when connected to power.
- The Control Hub must not be opened or tampered with. Servicing or internal inspection must only be carried out by Symterra-authorized personnel.

5.3 Intended Use

- This system is intended for commercial use only. It is not designed for household environments.

5.4 Approved Accessories

- Only Symterra-approved components and accessories must be used with this system. Using non-certified emitters, connectors, or extensions may result in system failure, personal injury, and loss of warranty coverage.

6. TROUBLESHOOTING

Problem	Possible Cause	Solution
Symterra Control Hub fails to turn on	- Poor power cable connection. - The GFCI is switched off.	- Use a non-contact voltage meter to check the power connections. - Reset the circuit interrupter on the GFCI.
The system does not repel birds.	- No power. - Bad signals.	- Check the LED light on the Control Hub. - Check the signal range. Ensure you receive a signal at least 1 ft /30cm away from the components. - Check that a problematic segment is connected correctly if a signal is undetected. - Check to see if the system is grounded or not. Ensure the grounding rod is secured and has a clear, uninterrupted connection to the Control Hub. - Ensure that the support heights align with the provided table and verify that the live wire does not touch the substrate or come too close, as this could degrade the deterring signal.



Ensure the fuses are intact. If necessary, replace fuses only with appropriate replacements rated to:

- Current: 500 mA
- Voltage AC: 250 Volts
- Breaking current capacity 250 Volts: 35 A
- Size: 0.205 x 0.787 inches / 5 mm x 20 mm
- Response time: Slow Blow

IMPORTANT!



If you encounter any issues, please contact Symterra Support by emailing us at: solutions@bird-x.com

7. WARRANTY

Seller warrants to Customer that for a period of twenty-four (24) months from the date of shipment by Seller, all Goods will:

- (a) be free from any defects in workmanship, material and design;
- (b) conform to applicable specifications and other requirements specified by Seller;
- (c) be fit for their intended purpose and operate as intended;
- (d) be merchantable;
- (e) be free and clear of all liens, security interests or other encumbrances.

Customers may return Goods for a full refund (less shipping and restocking fee) within thirty (30) days from the date of shipment by Seller if not completely satisfied with the performance of the Goods. This warranty is valid only for the original purchaser and is non-transferable. Proof of purchase, such as a dated sales receipt or invoice, may be required to obtain warranty service. The warranty does not cover damages resulting from misuse, improper installation, accidents, unauthorized repairs, alterations, or acts beyond the control of Bird-X.

7.1 Claims Process

If the product fails due to defects in materials or workmanship during the coverage period, we will replace the product at no additional cost. Replacement products may be new or refurbished at our discretion.

To initiate the claims process, please contact our Customer Care Team by sending an email to solutions@bird-x.com and a Bird-X representative will contact you within three (3) business days. It is imperative to include the following information in your correspondence:

- Date of System Installation & Date of Noted Issue
- Serial Number(s)
- Please include an image of the unit in your claim to verify the unit is free of damage.
- Shipping Address
- Proof of purchase of the extended warranty coverage

If your Claim is approved, a Return Shipping Label will be provided to you. You must return the faulty unit before the replacement unit will be sent to the address provided.

Lost/Damaged Shipments: In the event that a defective unit is being returned under this warranty, the customer is not responsible for any loss or damage that may occur during shipping. Once the defective unit is handed over to the shipping carrier, liability for the safe and timely delivery of the unit is transferred to the shipping carrier and/or Bird-X. If the shipping carrier loses the unit or if it is damaged in transit, the customer will not be held liable. Bird-X will ensure that the customer receives either a replacement unit or a full refund, as outlined in the warranty terms.

7.2 Disclaimer

Bird-X assumes no liability for improper installation, misuse, or failure to follow safety guidelines. Performance may vary based on environmental conditions, such as rain and snow, and site-specific factors. The user is responsible for ensuring compliance with local regulations. The manufacturer disclaims all warranties, express or implied, except as explicitly stated in the product warranty.