

P+L Systems' technical support is based on our extensive experience in proofing installations against pest birds, not on engineering expertise. Therefore, it is not possible for us to offer a fully qualified engineering recommendation. If you need assurance on integrity of installation design we recommend you seek the guidance of specialist materials consultants/structural engineers.

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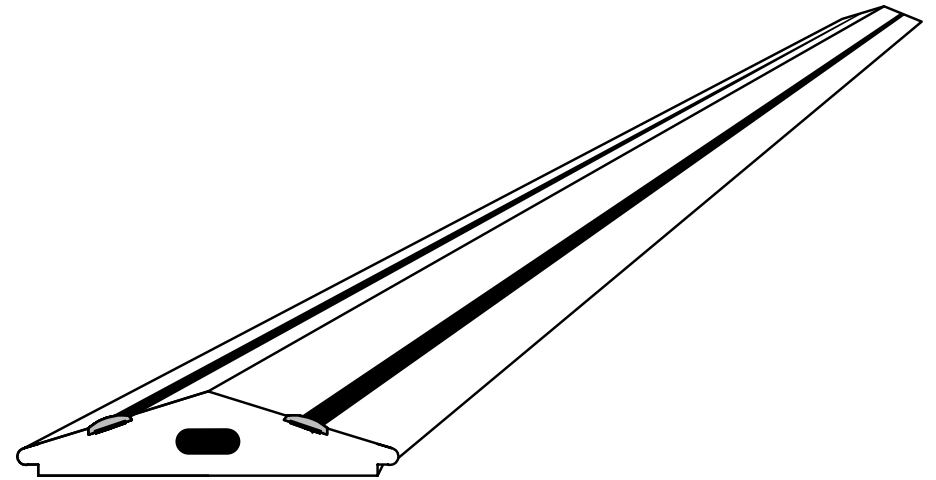


INVESTORS  
IN PEOPLE

### Description

Avishock Electric Bird Deterrent System

- Installation guide
- Guide d'installation
- Installationsanleitung
- Manuale per l'installazione
- Instrukcja dotycząca instalacji
- Guía de instalación
- Installatie handleiding



Information provided on these instructions is modified and updated from time to time. This is due to the constant redevelopment of our products. As such, it is not intended that you should rely on it or that it should form part of any contract. © 2015 Pelsis

Please read these instructions carefully and store in a safe place for future reference.

### AVISHOCK INSTALLATION GUIDELINES

- The Avishock Energiser is for use with Avishock Electric Bird Deterrent System only
- Only Avishock system components (Avishock Track, Energiser, Lead Wire, Connectors and Tools) should be used when installing the system
- No more than one Energiser must be connected to a run of Avishock Track
- Avishock 15 Step Installation Guide should be followed
- The PVC base will expand with heat e.g. a 20°C increase in temperature can cause an increased length of the track of around 3mm per metre. This is not normally noticeable. However, black track will absorb more heat and therefore expand more than stone coloured track in the same conditions. If black track is installed on a hot day directly onto a black metal substrate (which will also absorb more heat and get hotter than surrounding materials) then the expansion that occurs before the glue has dried could cause buckling. This is not normally an issue once the glue has dried.
- The copper does not expand as much as the base, therefore, when installing in hot conditions you will need to trim the ends of the track before fitting into the connectors. This will ensure the copper extends right to the end of the track and connects successfully with the teeth on the connector caps.

### PRECAUTIONS TO BE TAKEN WHEN INSTALLING AND WORKING WITH AVISHOCK

#### Shock Hazard

Avishock is high voltage (5,000 Volts DC) but very low current (0.2 milliamps) and in the form of a pulse, every 1.3 seconds.

- The shock felt if the system is touched when live is similar to that of an electric fence. The shock itself does not harm humans however the shock can startle. Therefore the principal hazard is falling when on access equipment. Ladders must not be used as a work platform.
- Installation and maintenance of Avishock must be carried out by installers who are trained and competent to do so. Although it is not a requirement to be a qualified electrician to install Avishock, appropriate Avishock training is required.

#### Avoiding shock hazards:

- Isolate (unplug) the Energiser whilst Avishock is being worked on.
- Follow the Avishock 15 step installation instructions.

#### Warning signs

- Warning Signs must be fitted to every point where persons may gain access to the Avishock track and connectors.
- Warning Plates must be positioned vertically, 5m apart on the face of the building where Avishock is installed.
- If installing Avishock onto a window ledge, the double-sided Window Warning Stickers must be applied to the inside of the window so that it is visible from the inside and outside.

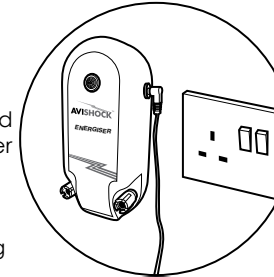
#### Customer sign off

- Ensure customers are aware of their responsibility regarding health and safety of their staff and contractors (see **page 6**).
- Ensure customers know where and how to isolate the energiser.

### DETAILED STEP-BY-STEP INSTALLATION GUIDE

#### 1. POSITION THE ENERGISER

- Position the Energiser close to the power supply (plug socket) supplied by the customer
- The Energiser can be easily installed to a wall by hooking it onto small screws (head diameter 5mm-8mm), using the holes in the back
- Encase, or locate the Energiser where it cannot be easily seen or disturbed
- The Energiser must however be easily accessible to the installer and other parties should the system need to be isolated (unplugged)
- The Energiser plug must be clearly labelled.



#### Internal Power Supply

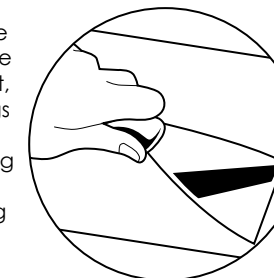
- If the Power Supply is situated inside the building, ensure that the lead wire is channelled from the track outside to the Energiser inside
- It is a requirement to use separate trunking from any other cables.

#### External Power Supply

- If the power supply is outside of the building, ensure the power supply (plug socket) and Energiser are encased in a water-proof casing
- The Energiser should remain isolated (unplugged) whilst working on the system.

#### 2. PREPARE INTENDED TRACK LOCATION

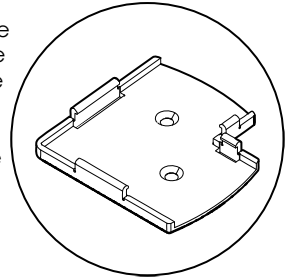
- Surfaces should be clean, dry and free from peeling paint, rust, bird droppings and other debris.
- Remove peeling paint, rust, bird droppings using a scraper/wire brush



- Remove any grease or oily deposits with Surface Cleaner
- If surface is porous (e.g. sandstone), apply Primer 150 to seal it
- Remove or repair articles that may damage the system.

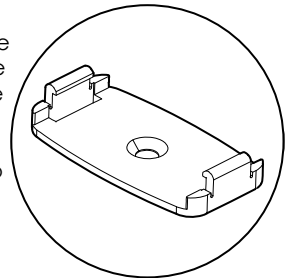
#### 3. INSTALL CORNER CONNECTOR BASES

- The bases can be screwed in place or glued in place using Avisil/Avifix Adhesive
- Position the base at the corner of the ledge and press firmly into place



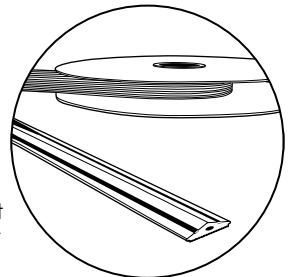
#### 4. INSTALL JUMPER BASES

- The bases can be screwed in place or glued in place using Avisil/Avifix Adhesive
- Align the base to the ledge edge and press firmly into place



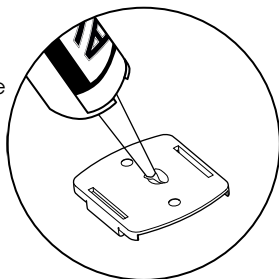
#### 5. LAY OUT TRACK AND CUT TO FIT

- Wheel the track out until you meet the corner connector, or the end of the surface that is to be protected
- Run the track over the Jumper Bases
- When you are comfortable you have allowed enough track to protect the entire length, cut the track straight across using Avishock Shears
- If the surface is a straight run of more than 20m, wheel the whole track out. At the end of the 20m track, you will need to install a Straight Connector (see Step 6).

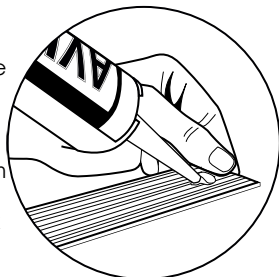


**6. INSTALL STRAIGHT CONNECTOR (IF REQUIRED)**

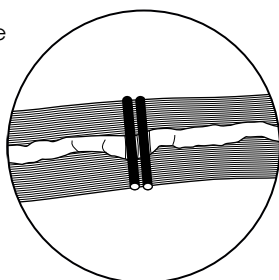
- The bases can be screwed in place or glued in place using Avisil/Avifix Adhesive
- Apply Avisil to the underside of the base
- Align the base to the ledge edge where required and press firmly into place

**7. APPLY GLUE TO THE TRACK BASE**

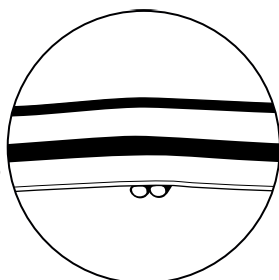
- The track should be glued in place using Avisil/Avifix Adhesive
- Run a bead of glue approx 6mm wide along the base of the track

**8. FIT DRAINAGE TUBES AND GLUE TRACK IN PLACE**

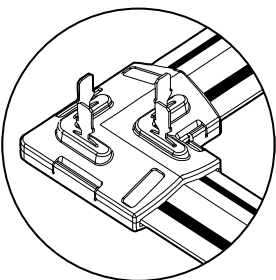
- Drainage may be required to allow water to run underneath the track
- Place tubes as required (e.g. 0.3 apart) onto the bead of glue along the back of the track
- Two or more tubes can be used at each location as required



- Flip the track
- Start at a Connector and press the track down into the connector base
- Align the track to the ledge edge
- Firmly press the track onto the surface
- Cut off any excess track at the end of a run.

**9. ATTACH TRACK TO CONNECTORS****Attaching to a Connector**

- For corners cut the track at 45° to fit into the corner connector, using the cutting guide on the Avishock track reel or the Avishock Cutting Guide Tool.
- For Straight Connectors, cut to length at 90°
- Take a locking cap and clip it over the track and into the connector base. PRESS DOWN HARD ON THE CAP, ideally with an implement, to ensure the teeth underneath penetrate right through the black conductive plastic strips of the track and make good contact with the copper conductors.
- If Lead Wire is not to be connected to the locking caps, press the protruding male connectors down and outwards. (Once the system is live the male connectors will conduct electricity, so pressing them down will prevent birds from trying to perch on the connectors)

**Attaching to a Jumper**

- Take a locking cap and clip it over the track and into the base
- PRESS DOWN HARD ON THE CAP, ideally with an implement, to ensure the teeth underneath penetrate right through the black conductive plastic strips of the track and make good contact with the copper conductors.

**10. POSITION WARNING SIGNS**

- Avishock Warning Signs should be used in conjunction with the system
- Two Warning Signs are available
  - Warning Plates
  - Window Warning Stickers

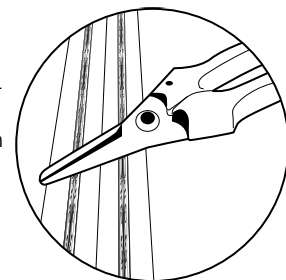


- Warning Signs should be fitted to every point where persons may gain ready access to the track and connectors
- The Warning Plate should be glued in place using Avisil Adhesive and positioned vertically, 5m apart on the face of the building where Avishock is installed
- If installing the track onto a window ledge, stick the double-sided Window Warning Stickers to the inside of the window so that they are visible from the inside and outside.

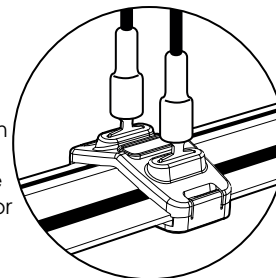
- Using the red (0.5 - 1.0) indent of the Connector Crimper Tool, crimp the barrel of the ring terminal to the lead wire
- Remove the red plastic terminal nuts from the Energiser
- Hook the Connector Ring Terminals onto each of the terminals of the Energiser
- Screw the red plastic terminal nuts back onto the Energiser.

**13. VISUAL CHECK**

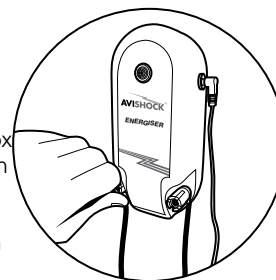
- Ensure no tools or other obstructions are left on the track
- Wipe the track down with Big Wipes Industrial+ to ensure the track is free from dirt and debris.
- Check that the Lead Wire is correctly attached to the Connectors and Energisers
- ENSURE THAT EVERYBODY HAS STOPPED WORKING ON THE SYSTEM.

**11. CONNECT LEAD WIRE TO TRACK**

- Take one end of the Lead Wire from the reel
- Separate the wires at the ends using Avishock Shears
- Use the Wire Stripper to remove approximately 7mm of insulation from each wire
- Attach a Female Spade Connector to each wire
- Using the red (0.5 - 1.0) indent of the Connector Crimper Tool, crimp the barrel of the connector to the Lead Wire
- Insert the crimped Female Spade Connector onto the protruding male spades of the Connectors or Jumpers.
- Run the Lead Wire from the connector/jumper to a connector/jumper on another track or the energiser
- Follow contours of the surface to ensure a neat and discreet solution
- Secure the Lead Wire to the surface using Wire Guides at 300mm intervals
- Cut the lead wire to length using Avishock Shears

**12. CONNECT LEAD WIRE TO ENERGISER**

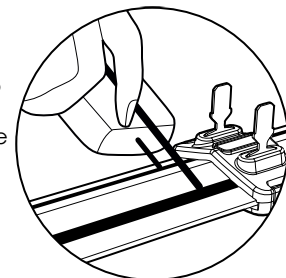
- Separate wires at ends using Avishock Shears
- Use Wire Stripper to remove approx 7mm of insulation from each wire
- Attach a Ring Terminal to each wire

**14. PLUG IN ENERGISER**

- Insert the Energiser lead jack plug into the power socket in the side of the Energiser
- Insert the plug into the chosen plug socket and switch on.
- The green light on the Energiser will flash to indicate power is on.

**15. TEST TRACK WITH A DIGITAL VOLTAGE TESTER**

- Use the Digital Voltage Tester to check that the track is powered
- Test the track at all dead ends to ensure that the entire track is live
- Put one probe to one conductor strip and the other to the second conductor strip
- You should expect to see a reading of between 4,000V and 5,500V (4.0 – 5.5KV)
- If there is no/low power see Troubleshooting.



## TROUBLESHOOTING

### Power light not flashing on Energiser

- See step 14 - Plug in Energiser
- If the problem persists please contact your supplier.

### Power light flashing on Energiser, but no or low power to the track

- Isolate (unplug) the Energiser whilst working on the system
- Test the voltage across energiser terminals with no track connected is  $5KV \pm 0.5KV$ 
  - If incorrect please contact your supplier
- Check the lead wire is connected properly to the energiser and track
- Check that the Female Spade Connectors are correctly crimped. Refer to Steps 11 and 12
- Check that the Energiser : Track ratio is correct
  - Small Energiser powers up to approx 2km of track/lead wire
  - Large Energiser powers approx 2km to 4km track/lead wire
- If the power dropped after the use of a Jumper or Connector ensure they are positioned correctly and the caps pushed on hard (see Step 9) so that the pins are connecting with the copper conductors of the track
- Return to Step 14 – Plug in Energiser.

### Arcing and Shorting

Arcing can be identified by hearing and/or seeing it. It may be caused by poor connectivity or obstructions on the track. Refer to steps 9 and 13 respectively.

A dead short can occur if the end of the track is cut flush to metal cladding - leave a small gap e.g. 10mm

### Water

- If the track is submerged under water the system can stop working
- Water bridging the top of the track can cause arcing
- Full power should return once the system is dry again
- To resolve, see Step 7 - Drainage.

## MAINTENANCE

A maintenance inspection is advised on at least an annual basis; more frequently if it is a sensitive site.

### Check for Bird Activity on the Track

If birds are seen to be landing on the track then a problem is likely and further inspection is required.

### Check voltages

Measure the voltage of the track at its extremities using the AVISHOCK™ voltmeter. It should be between 4.0 KV and 5.5 KV. If it reads outside this range then refer to the 'Troubleshooting' section in this leaflet.

### Check for Damage

Ensure no track has become damaged by other contractors on the building, or by falling debris etc. If damage is found then replace the affected sections.

### Check for Accumulation of Litter/Vegetation

If litter has become lodged on the track or if vegetation has grown over it, then ensure this is removed.

### Check for Bird Droppings

If there are any areas where bird droppings have accumulated on the track then check higher sections of the building to make sure any perches directly above the track are proofed.

### Check for Adhesion

If any parts of the track have come unstuck for any reason, re-fix them in place.

### Clean the Track

To maintain the track function in optimum condition, clean the track with e.g. Big Wipes.

### Check the Warning Signs

Ensure the warning signs are still in position and clearly legible. If not, then clean or replace.

### Check Staff Familiarity with the AVISHOCK™

Ensure management and any staff responsible for building maintenance or contractors understand their responsibilities; how the system works; the safety hazards of working in the vicinity of the AVISHOCK™; and how to switch the system off and on.

## CUSTOMER RESPONSIBILITIES REGARDING HEALTH AND SAFETY

Under the Health and Safety at Work Act 1974, installers have a responsibility to advise their customers on how to ensure the safe ongoing use of AVISHOCK™ and how to isolate (unplug) the system when requested to do so by personnel working on the structure.

### It is the installer's responsibility to advise their customer to:

- Remove the power lead to the energiser to ensure that the energiser cannot be plugged back in inadvertently or otherwise during work on the building in the vicinity of the AVISHOCK™
- Ensure that warning signs are maintained
- Include the energisers in routine Portable Appliance (PAT) Testing of electrical equipment
- Under the Health and Safety at Work Act 1974, the customer/user has a responsibility to follow the advice of the installer and to advise their contractors/staff on the safe use of AVISHOCK™.

It is the customer's responsibility to advise their contractors/staff to:

- Inform those who might come into contact with the AVISHOCK™ system during the course of their work, that the energiser must be isolated (unplugged) prior to them working on the building
- Ensure that they know how to isolate (unplug) the system
- Specify that ladders are not used on the building whilst AVISHOCK™ is live

### SAFETY LEGISLATION

- Health and Safety at Work Act 1974
- Electricity at Work Regulations 1989
- Management of Health and Safety at Work Regulations 1999
- Work at Height Regulations 2005
- BS EN60335-2-76:2005+A12:2010 Household and similar electrical appliances – Safety – Part 2-76: Particular requirements for electric fence energisers.