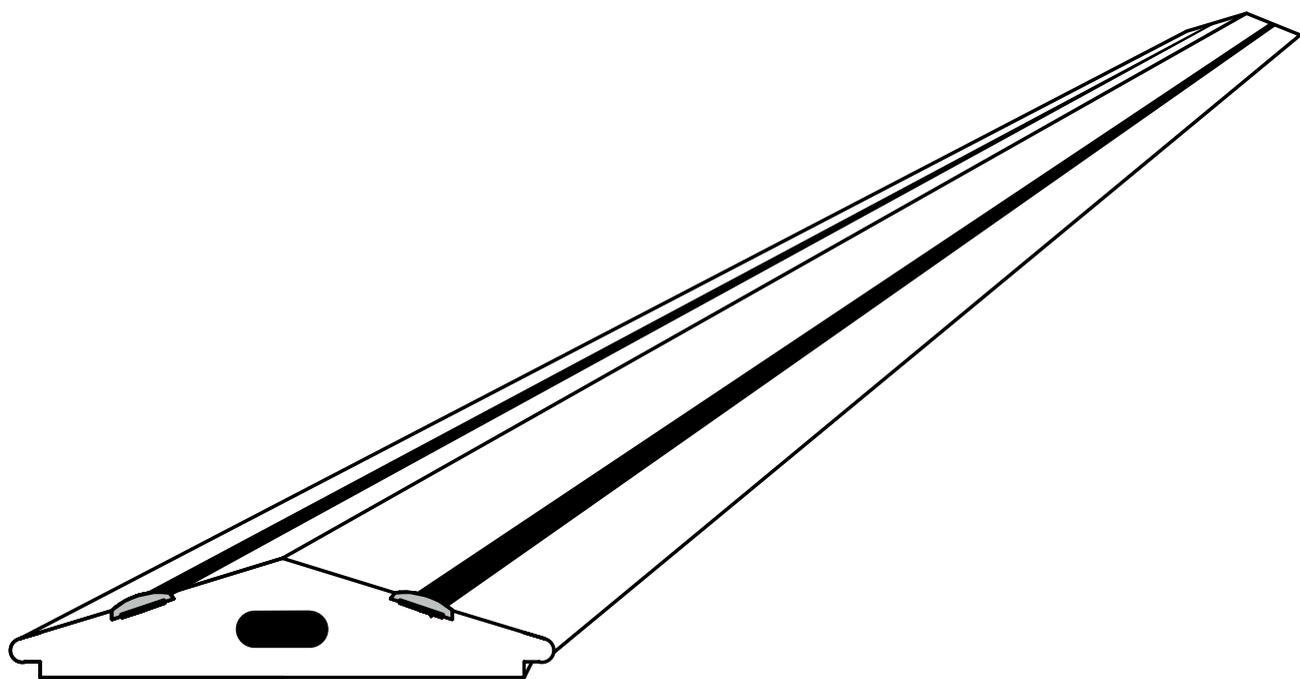


INSTALLATION GUIDE

– Installation guide

Description

Avishock Electric Bird Deterrent System



Introduction

Thank you for purchasing the Avishock system. Please read this User Guide to understand and ensure safe, proper, effective, and responsible use of the Avishock system.

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

Safety Precautions

Please ensure you have read and fully understood the safety precautions before operating this appliance. For further in-depth instructions please refer to the supplementary on-line user manual (www.networkbird.net).

Instructions for use of this product will vary depending on the model. Always read the product label before use.

- Always comply with any requirements for Personal Protective Equipment (PPE) as required by the product label.
- This appliance is to be kept out of reach from children. However, it can be used by children aged 8 years and above, as well as persons with reduced physical, sensory or mental capacities or lack of experience and knowledge, provided they have been given supervision or instruction concerning use of the appliance in a safe way, and understand the hazards involved.
- Children should not play with the appliance, and cleaning and user maintenance should not be made by children without supervision.
- Children should be supervised to ensure they do not play with the appliance.

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.
- Use only one Energiser per track circuit.
- The distance between the tracks of any two independent track circuits must be at least 2.5m.
- Ensure only insulated high voltage cables are used as connecting wires.
- Do not fit track or connecting wires in such a way that they cross above overhead power or communication lines.
- Avoid installing track or connecting wires in such a way as to cross with overhead power lines. If it cannot be avoided, make the crossing underneath and at right angles to the power line.
- If track or connecting wires are installed near an overhead powerline the clearance must be as follows, for powerline voltages:
 - ≤1000V = 3 metres, ≥1000 and ≤33000 = 4 metres, >33000 = 8 metres
- If track or connecting wires are installed near an

overhead powerline the height of the installation must not exceed 3 meters. The height restriction applies within the following distances, for powerline voltages:

≤1000V = 2 metres, >1000 = 15 metres

- 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

WARNING: Avoid contacting electric track especially with the head, neck or torso.

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 like 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. Avishock must be installed, operated, and maintained in a manner that minimizes danger to persons, animals, or their surroundings.

Avoiding shock hazards:

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

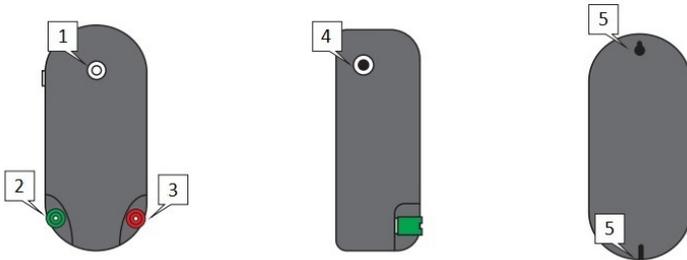
Warning signs

- 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

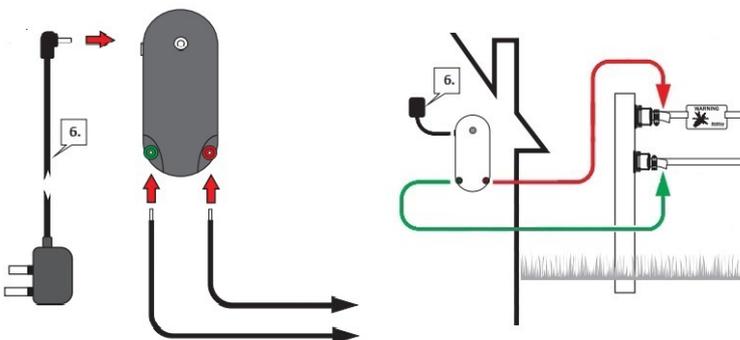
- Ensure customers are aware of their responsibility regarding health and safety of their staff and contractors (see page 6).
- Ensure customers know where and how to isolate the energiser.

Avishock models: SHK040 and SHK120 (Mains operated)

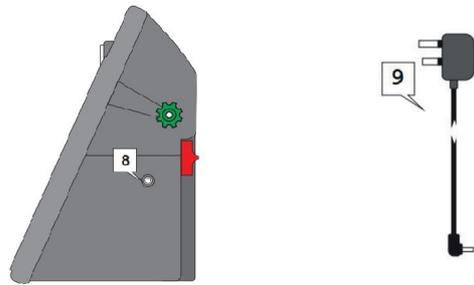
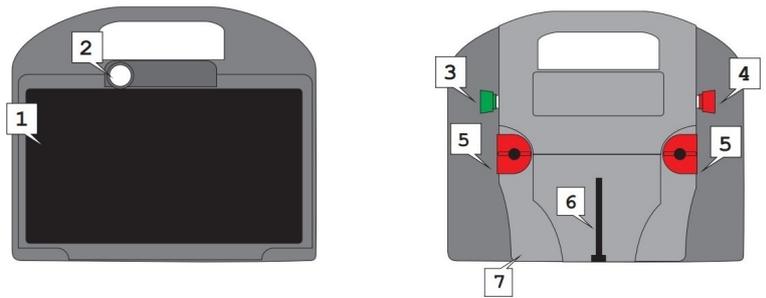


Key	
1.	Pulse indicator light
2.	Negative connection terminal
3.	Positive connection terminal
4.	Power input jack
5.	Mounting holes
6.	Power adapter for mains connection

Connecting it together:

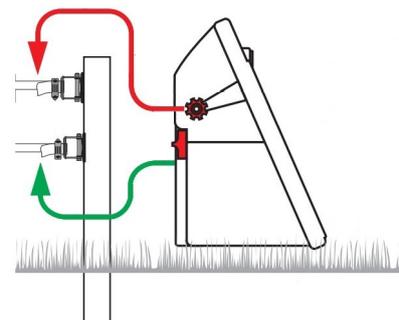
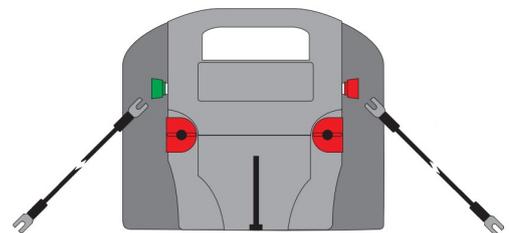


Avishock models: SHK018 and SHK017 (Solar / Battery operated)



Key	
1.	Solar panel
2.	ON/OFF switch with pulse / low battery indicator
3.	Negative connection terminal
4.	Positive connection terminal
5.	Battery access twist knobs
6.	Mounting slot
7.	Battery box
8.	Battery charge socket
9.	Battery charger

Connecting it together:

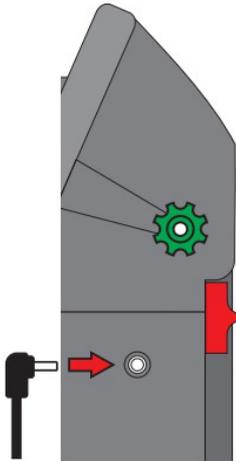


Charge the battery:

- Plug the battery charger into the battery charge socket on the energiser.
- Plug the battery charger into a wall socket
- It is recommended to charge the battery for 12 Hours before use.



Do not connect the mains charger to operate the energiser

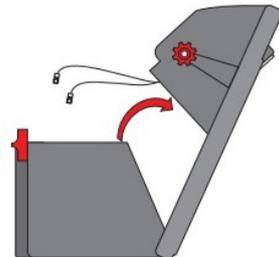
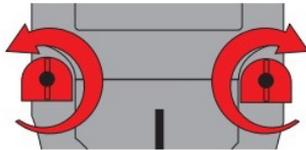


Warning do not use non-rechargeable batteries while the energiser is supplied by the mains.

During charging, vented rechargeable batteries must be placed in a well-ventilated area.

Battery access:

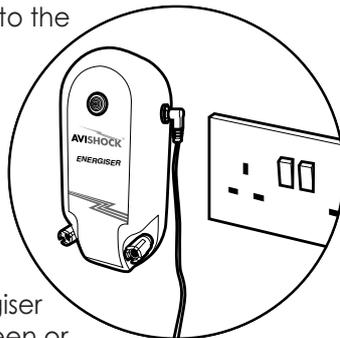
- Rotate the red twist knobs outwards by 90° and pull the panel section forward.
- The battery can then be removed by unscrewing the battery retaining strap.



1. POSITION THE ENERGISER

SHK040 and SHK120 Models (Mains)

- 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 channeled 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.

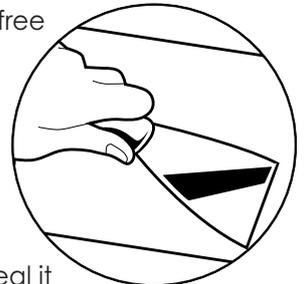
SHK018 and SHK017 Models (Solar)

- Position the energiser with the panel facing south with a clear line of sight avoiding any obstructions to allow for maximum solar energy to reach the panel.
- It is recommended to charge the energiser for 12 Hours using the supplied mains charger prior to use.

2. PREPARE INTENDED TRACK LOCATION

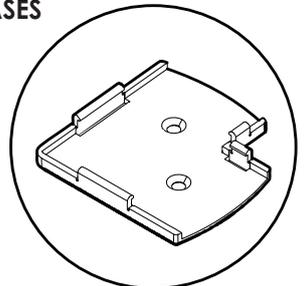
Surfaces should be clean, dry and free from peeling paint, rust, bird droppings and other debris.

- 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.



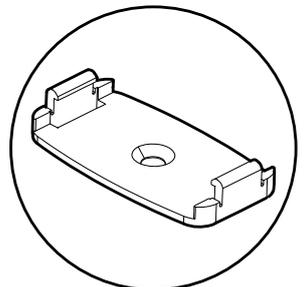
3. INSTALL CORNER CONNECTOR BASES

- 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



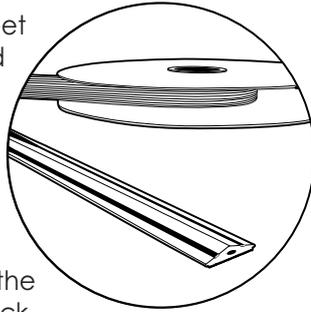
4. INSTALL JUMPER BASES

- 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



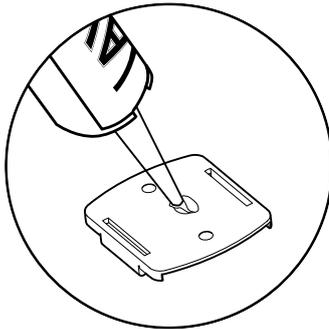
5. LAY OUT TRACK AND CUT TO FIT

- 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).



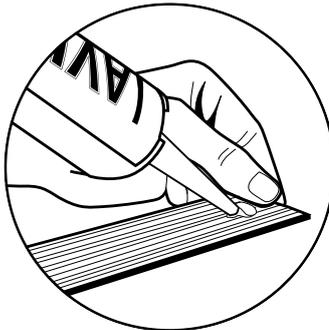
6. INSTALL STRAIGHT CONNECTOR (IF REQUIRED)

- 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



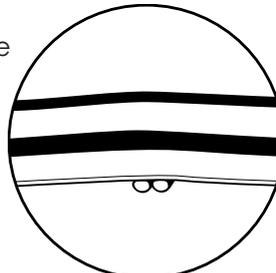
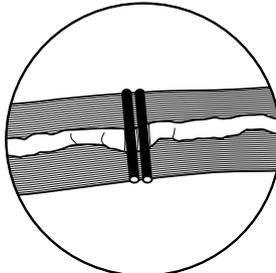
7. APPLY GLUE TO THE TRACK BASE

- 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

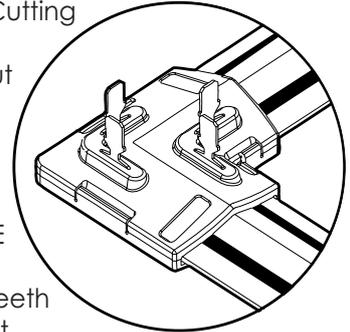
- Drainage may be required to allow water to run underneath the track
- Place tubes as required (e.g. 0.3 apart) onto the bead of glue along the back of the track
- Two or more tubes can be used at each location as required
- Flip the track
- Start at a Connector and press the track down into the connector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

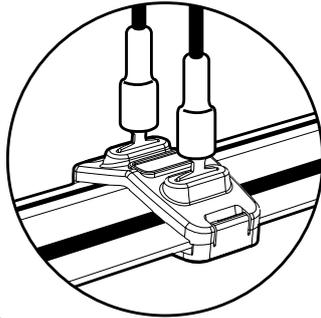
10. POSITION WARNING SIGNS

- Avishock Warning Signs must 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.



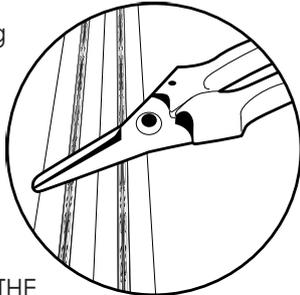
11. CONNECT LEAD WIRE TO TRACK

- 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. 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.



13. CONNECT LEAD WIRE TO ENERGISER

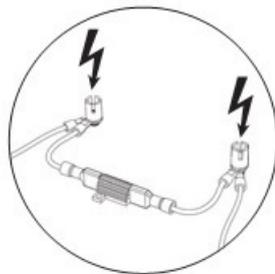
- Separate wires at ends using Avishock Shears
- Use Wire Stripper to remove approx 7mm of insulation from each wire
- Attach a Ring Terminal to each wire

SHORT TRACK LENGTHS

We advise using a resistor bridge on Avishock models SHK040 and SHK018 which either have short track lengths, or suffer from persistent arcing in order to avoid recurring arcing. There are two resistor sizes available for use with these Avishock models.

Product Codes: MAINSBRIDGE330R / SOLARBRIDGE680R

Description: 330ohm resistor bridge, designed for use with the SHK040 model only.
680ohm resistor bridge, designed for use with the SHK018 model only.



STEPS:

1. Isolate the Energiser, by disconnecting the power lead or for solar models, by pressing the ON/OFF switch.
2. Remove both plastic terminal nuts from the Energiser (If installing on an existing system, leave both Avishock track connections on the Energiser).
3. Hook each connector ring terminal on the voltage reducer onto either side of the terminals of the Energiser in any orientation, so that a bridge is made across the Energiser.
4. Ensure that the voltage reducer is stably mounted onto Energiser and that all connectors are firmly in place.
5. Screw both plastic terminal nuts back onto the Energiser.
6. Power the Energiser back on, by reconnecting the power lead or for solar models, by pressing the ON/OFF switch.

14. PLUG IN ENERGISER

SHK040 and SHK120 Models (Mains)

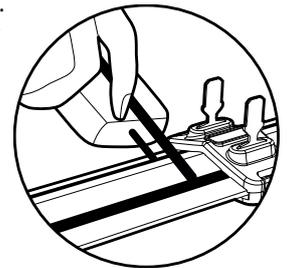
- Insert the Energiser lead jack plug into the power socket in the side of the Energiser.
- Insert the plug into the chosen plug socket and switch on.
- The green light on the Energiser will flash to indicate power is on.

SHK018 and SHK067 Models (Solar)

- Unscrew the positive and negative connection terminals on the rear of the energiser.
- Slide the positive and negative connection leads onto the terminals.
- Tighten the terminals to securely hold in place.
- Press the ON / OFF switch on the front of the energiser. The switch will flash green in time with the pulse.

15. TEST TRACK WITH A DIGITAL VOLTAGE TESTER

- Use a 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 above 4,000V.
- 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 above 4KV
 - 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 8 - 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 above 4.0 KV. If it reads below this level 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



This symbol (figure 1) on the product(s) and/or accompanying documents means that used electrical and electronic equipment (WEEE) should not be mixed with general household waste. For proper treatment, recovery and recycling, please take this product(s) to designated collection points where it will be accepted free of charge.

(figure 1)

Alternatively, in some countries, you may be able to return your products to your local retailer upon purchase of an equivalent new product.

Disposing of this product correctly will help save valuable resources and prevent any potential negative effects on human health and the environment, which could otherwise arise from inappropriate waste handling.

Please contact your local authority for further details of your nearest designated collection point.

Penalties may be applicable for incorrect disposal of this waste, in accordance with your national legislation.

For professional users in the European Union. If you wish to discard electrical and electronic equipment (EEE), please contact your dealer or supplier for further information.

For disposal in countries outside of the European Union. This symbol is only valid in the European Union (EU). If you wish to discard of this product, please contact your local authorities or dealer and ask for the correct method of disposal.