SHOCK TAPE INSTALLATION GUIDELINES

Read these guidelines before you install the Shock Tape. This is an electrical system that puts out an intermittent pulse low-impedence DC current ranging from 1,500 to 8,000 volts. It is important that you follow these guidelines for both a successful installation and your own safety. These guidelines are intended to be general and cover basic procedures that are used for most installations. Your installation may be different and require you to improvise or adapt these basic procedures to fit your needs.

What you need before you start

- A working knowledge of electrical connections
- Ability to perform simple mechanical procedures.
- Ability to improvise or adapt the Shock Tape System (if needed) to meet the conditions of the installation or installation surface.

If at any time you are not sure how to proceed, contact Nixalite of America Inc.

Tools & Supplies

You should have the following items to install the Shock Tape:

Shock Tape Roll	Energizer	Jumper Wire
Crimp sleeves	Wire Loops	Crimper/Stripper tool
Line Tester	Multi-Use Shears	

Energizers

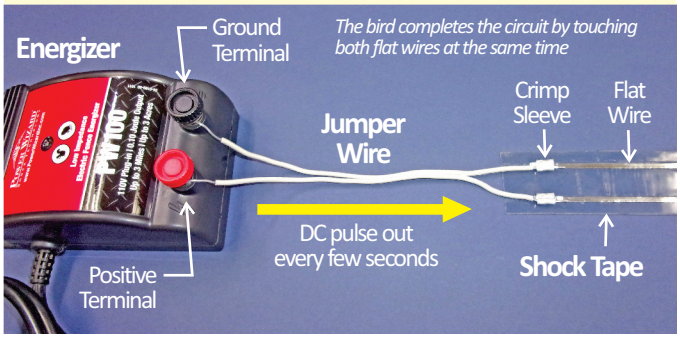
- The Energizers we offer are matched to the Shock Tape. Do not use any other power source as it could damage the system.
- Position the Energizer as close to the installation as possible.

Solar Powered Energizer

Plug-In Energizer

- Solar Powered Energizers must be positioned to capture as much sunlight as possible.
- Plug-In Energizers run on 115V AC current and can be plugged into any standard US power grid outlet. Position these inside a structure with the Jumper Wires running out to the Shock Tape.
- Plug-In Energizers are not weatherproof and must be protected. You can use a NEMA-3R rated utility box (not included) for protection. Outdoor Plug-In Energizers must use a weatherproof outlet.

Example: Energizer/Jumper Wire/Shock Tape Arrangement



Surface Preparation

- The installation surface must be clean, dry, dust free and stable.
- Safely remove all bird droppings and refuse from the surface.
- Avoid unsealed, deteriorated or loose surfaces like rusty steel, bare wood or unsealed concrete.
- Clean the surface with a solution of 50% isopropyl alcohol (rubbing alcohol) and 50% water.
- Do not use glass cleaners or oil based solvents. To clean heavily oiled surfaces, use a citrus based degreaser and follow up with the recommended alcohol/water solution.

Shock Tape Can Bond To

Metal[1] Paint Clay tile Asphalt Shingles[2] Marble Glass

[1] Can alter the color of unprotected copper [2] With mineral aggregate

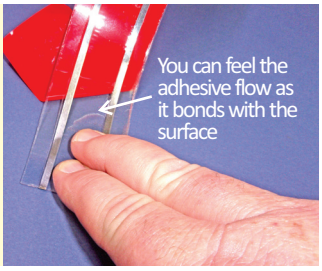
Shock Tape Will Not Bond To

Rubber EPDM Tar paper Unsealed concrete/stone
Rusted/corroded metal surface Unsealed or unpainted wood
Rough surface finishes (stucco, uneven stone, etc.)

Applying Shock Tape

- **The minimum surface temperature for applying Shock Tape is 45° F. or 8°C.** Do not install on lower temperature surfaces.
- The Shock Tape adhesive is **pressure sensitive** and must be applied with firm hand pressure. Use your hands so you can feel when the adhesive bonds to the surface. It will 'give' a little as it bonds.
- To start a row, peel back 2"(5cm) of red liner to expose the adhesive layer. Firmly press and smooth this onto the surface by hand.

Installing Shock Tape should be a "hands on" process. You will get a sense of how well the Shock Tape is bonding to the surface when you use your hands to firmly press and smooth the Shock Tape



- For straight runs, place the Shock Tape on the surface in line with the desired path. **Installing short sections at a time**, pull the red liner out from under the tape at a 90° angle and press the tape firmly onto the surface by hand. Uneven surfaces will require more hand pressure and smoothing to ensure a good bond.
- Make sure the entire width of the Shock Tape is well bonded to the surface. Loose edges allow debris and water to collect under the tape and degrade the adhesion over time.
- **Do not break or tear the clear acrylic tape**. This insulates the flat aluminum wires from the surface and prevents arcing. Do not use screws, nails, staples or other hardware to install Shock Tape.

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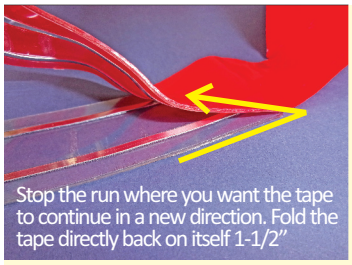
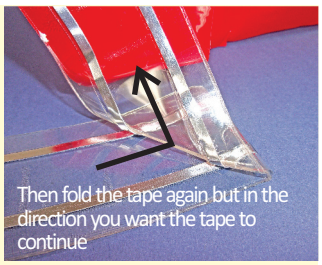
Folding At Corners

You can make a turn in the Shock Tape path by folding it back upon itself then continuing in the desired direction.

- When you come to a corner, stop and fold the Shock Tape back on to itself for 1-1/2" (3.8cm).
- Fold the tape again, but in the direction you wish the tape to continue.
- Once the corner has been formed, pull the red liner off the back of the tape and firmly press and smooth the folded corner.





Using this method allows you to install quickly around corners without cutting or unnecessary connections. Firmly press and smooth the folded corner by hand so it will stay flat.

At The End of a Shock Tape Run

Where the tape comes to the end of the surface or the end of the run, peel both flat aluminum wires back at least 1/2" (1.3cm) and cut them off. This keeps the flat wires back from the end of the tape and arcing to a conductive surface like sheet metal.

Jumper Wire

Jumper Wire is used to connect the Energizer to the Shock Tape and one run of Shock Tape to another. The Jumper Wire is matched to this system - do not use any other type of wire.

- Plan the path of your Jumper Wires. Try to use the shortest path between connections while keeping the wires out of sight. **Dry fit the Jumper Wires before you cut to length**. When you do cut, allow at least an extra 12" (30.4cm) of wire at each connection.
- To connect Jumper Wire to the Energizer, remove at least 2" (5.1cm) of insulation off of both wires. Wrap the wire around the threaded terminals, install the washers then plastic nuts that come with the Energizer. Make sure there is only bare wire under the plastic nuts.

Connecting Jumper Wires to the Energizer

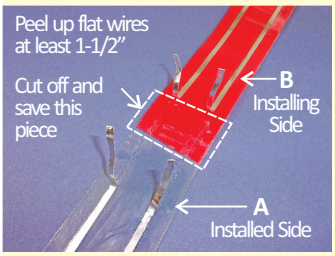
One washer goes under the wire and one goes over it. Snug the plastic caps finger tight. Do not over tighten!

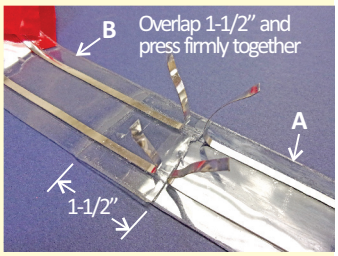
- To connect Jumper Wire to the Shock Tape with Crimp Sleeves, refer to the following sections on **Splice Taps** and **End Taps.**
- Use Wire Loops to secure and organize the Jumper Wires. Install a wire loop about 6"(15.2cm) from the closest connection. Install as often as needed to keep the wires organized and close to the surface.

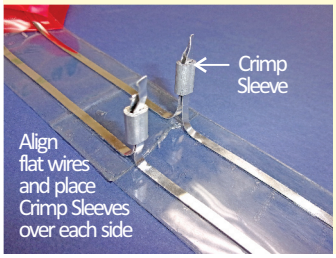
Splicing Shock Tape Together

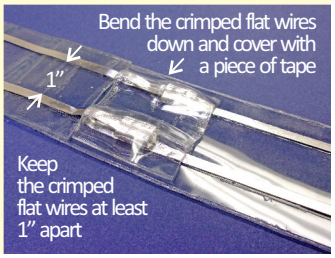
- At the end of the installed Shock Tape **(A)**, peel the 2 flat wires off the tape at least 1-1/2"(3.8cm). Fold them back out of the way.
- At the end of the tape you are installing **(B)** peel the 2 flat wires off the tape at least 1-1/2" (3.8cm) Fold them back out of the way. Cut off the section of tape with no flat wires. Save this piece.
- On the tape you are installing **(B)**, pull off a few inches of the red liner and apply over the end of the installed tape **(A)**. Overlap the two by 1-1/2" (3.8cm). Apply firm pressure to bond the two overlapped tapes.
- Align the flat wires from the same side of the tape. Slide a Crimp Sleeve over both flat wires and crimp the sleeve at least twice. Repeat for opposite side of the tape. Push the connections down onto the tape, making sure that they are at least 1" (2.5cm) apart.
- Using the Shock Tape piece you saved, pull off the red backing and apply it over the connections. This insulates, immobilizes and protects the connections.

Splicing Shock Tape Together









Making a 'Splice Tap' Connection

- At the end of the installed tape **(A)**, peel the 2 flat wires off the tape at least 1-1/2"(3.8cm). Fold them back out of the way.
- At the end of the tape you are installing **(B)** peel the 2 flat wires off the tape at least 3"(7.6cm). Fold them back out of the way. Cut off the section of tape with no wires. Save this piece.
- On the tape you are installing **(B)**, pull off a few inches of the red liner and apply over the end of the installed tape. Overlap the two tapes by 1-1/2" (3.8cm). Apply firm pressure to bond the two overlapped tapes.
- You should have 1-1/2" (3.8cm) of stripped flat wire on the installed tape (**A**) and 3" (7.6cm) on the tape you are installing **(B)**.
- Align the flat wires from the same side of the tape and slide a Crimp Sleeve over both long and short flat wires. Crimp the sleeve so it is close to the Shock Tape. This connects the installed tape **(A)** to the tape you are installing **(B).**

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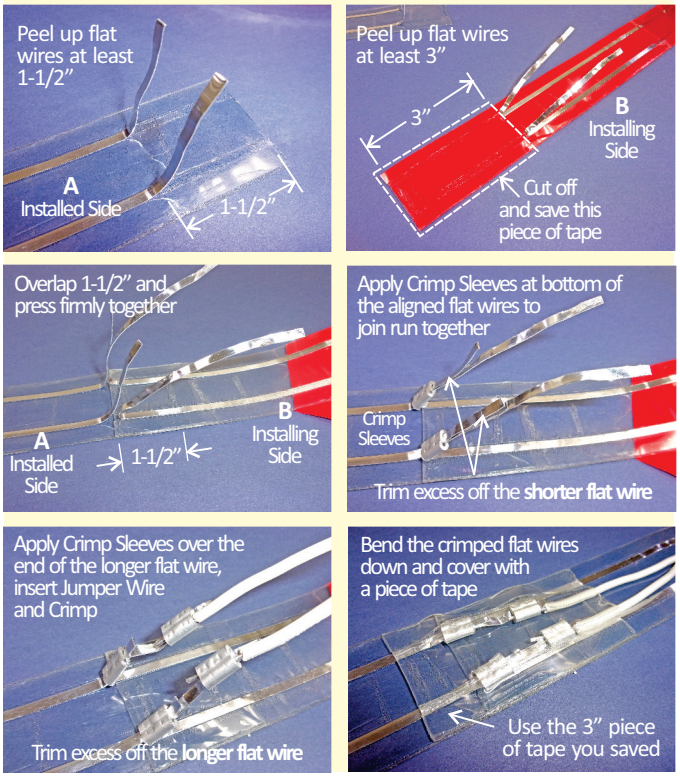
- Slide another Crimp Sleeve over the longer flat wire ONLY. Strip the insulation of the Jumper Wire back 1/2" (1.3cm) and pass the wire all the way through the Crimp Sleeve and crimp in place. This connects the installed Shock Tape to the Jumper Wire.
- Keep the connections spaced at least 1" (2.5cm) from each other.
- Using the Shock Tape piece you saved, pull off the red backing and apply it over the connections. This insulates, immobilizes and protects the connections.

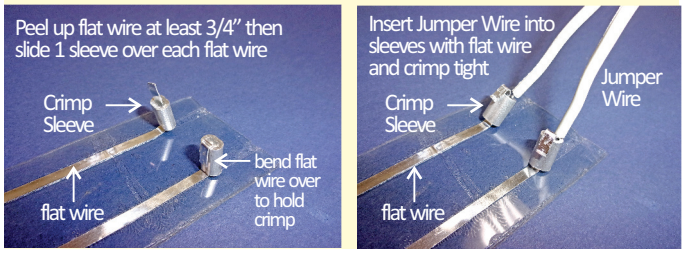
Splice Tap Connections



Making an End Tap

- At the end of any installed Shock Tape run, peel back both flat aluminum wires at least 3/4" (1.9cm).
- Slide one sleeve on each flat wire and bend the flat wire over the end of the sleeve so it can't fall off.
- Strip the Jumper Wire insulation back 1/2" (1.3cm) and pass it all the way through the Crimp Sleeve. Crimp the sleeve over the flat wire and Jumper Wire.

End Tap Connections



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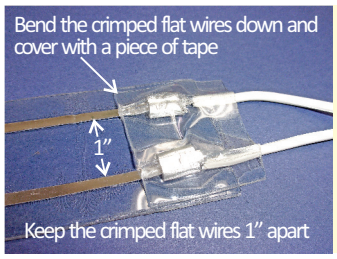
- Keep the wire and connections at least 1" (2.5cm) from each other.
- Apply a cut piece of Shock Tape with the flat wires removed to insulate, immobilize and protect your connections.



The "End Tap" is the fastest type of connection. Use it to connect power between individual rows and from the Energizer. Always insulate, immobilize and protect your crimped connections with pieces of stripped Shock Tape.

Testing your installation

- **Important** - special Line Testers are required for measuring high voltage, intermittent pulse, DC power. A standard voltage meters will not work. A simple and inexpensive 8 light Line Tester is available for the Shock Tape system.

You can not use a standard voltage meter to measure the intermittent pulse, low-impedance DC power. You must have a Line Tester that is designed to read this power. A Line Tester is required to test your installation so include it in your order.

- With everything installed and connected, make sure the Energizer is turned off. Remove the Jumper Wires from the Energizer terminals.
- Turn on the Energizer and use the Line Tester to measure the voltage directly at the terminals. A reading between 3 and 10 Kilovolts DC is acceptable (1 Kilovolt = 1,000 volts).
- Turn off the Energizer then reconnect the Jumper Wires. Turn on the Energizer and use the Line Tester to measure the voltage at the terminals again. This should be lower than the first reading. A reading of at least 1.5 Kilovolts DC (1,500 volts) is acceptable.
- Test the voltage on all your Shock Tape runs. The voltage should be the same as when you tested at the Energizer with the Jumper Wires connected. If the voltage reads much higher, swap the tester leads to the opposite flat wire. The lower voltage will be the correct value.

Troubleshooting

If you get a voltage reading that is less than 1.5 Kilovolts (1,500 Volts DC) check the following:

- Look for pieces of flat wire or Jumper Wire laying across the track. It does not have to actually touch both sides to cause a short.
- Check for connection sleeves or wires that touch or are very close to each other. This can cause a short.
- Check the ends of Shock Tape on metal surfaces. You must trim the flat wires back at least 1/2" (1.3cm) from the end of the tape to prevent arcing or shorts between the flat wire and surface.
- **Stop and listen**. If you have a short in the installation, you may hear an intermittent snapping noise or slight buzzing. Follow your ears to the short and correct the problem causing the arcing.

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How Many Rows of Tape?

Size of bird, depth of surface and number of birds present determines the recommended number of rows

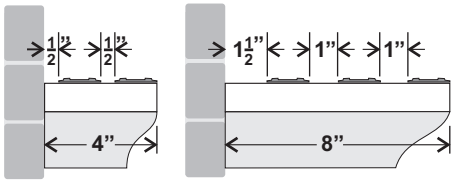
Suggested Spacing:

For small birds and/or heavy infestations, install outer run of tape flush with the outside edge(s). Space interior runs up to 1" apart.

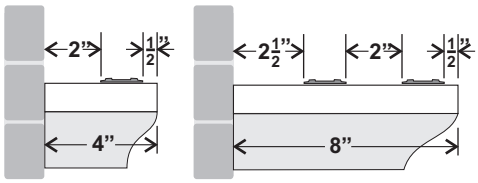
For larger birds and/or where fewer birds are present, install outer run of tape up to 1" from the outside edge. Space interior runs up to 3" apart.

Maximum spacing between rows is 5" and should be used ONLY on wide surfaces where there are just a few large birds present.

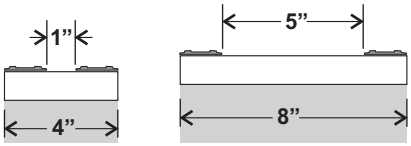
Example: Small Birds and/or Heavy Infestations



Example: Large birds where few birds are present

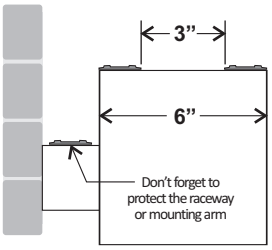


Example: Double sided parapet ledges



Small Birds *Big Birds*

Example: Signs, light fixtures & other surfaces



Installation Examples

The flexible adhesive backed Shock Tape can be installed on all types of surface shapes and materials. The installation examples shown are just a few of the many applications for the Shock Tape Peel & Stick Bird Deterrent.

Florida Pool Cover - on all steel supports

Along edge of loading dock canopy

Rooftop Shade Structure

Expansion joints

Stepped ledges

Standing Seams

Channel Sign Letters

Hand Rails

Light fixtures	Window Sills	Roof Peaks	Chimney Caps
Sign Letters	Air Conditioners	Steel Beams	Parapets
Open Framing	Walls & Fences	Pipes & Ducts	Boat Docks

If at any time you have questions or are unsure on how to proceed, contact Nixalite of America Inc. We can help you with your product selection and installation.

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