

Installation Guide

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Scan the QR code below to visit our online Smart Tint® installation guide for additional info. Your password to the site is the serial number to your film.



Necessary Installation Materials

1. **Smart Glass Spray:** Strengthens glass and fills in any microscopic pits and defects to create a smooth and ideal installation surface.
2. **Nanofiber Cloth:** Used to wipe glass clean of any residue or debris before the film installation.
3. **Plastic Razor Blade (For Glass Cleaning Only):** Used to scrape off any moisture and residue from the glass.
4. **Advanced Glass Cleaner:** Cleans glass surface.
5. **Installation Card:** Used to install film and get a clean install. Felt side is also used to push out any existing air bubbles.
6. **Smart Film® Edge Sealant:** Used to seal in edges of material to prevent damage caused by moisture, dirt, debris, etc.



DO NOT use water or any other liquids for installation other than the Smart Glass Spray (1#) and the Advanced Glass Cleaner (#4) for cleaning beforehand. This is a strictly **DRY INSTALL ONLY**. No liquids are to be applied once the film is being installed. Final installation surface must be clean and dry. We highly recommend seeking an industry professional for your installation.

Additional Recommended Installation Materials

7. Nitrile Gloves: Prevents the transfer of oils from your fingers to the film.

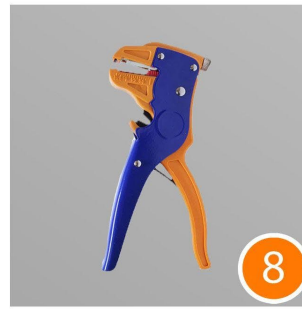
8. Wire Stripper: Allows for quick, clean and easy wire splices in the field.

9. 18 Gauge Electrical Wire: It is always handy to have extra wire available while working in the field. Our standard wire gauge is 18 gauge, so we recommend this for continuity sake.

10. Soldering Iron: It is always a wise idea to have a soldering iron handy while installing Smart Tint®. With all the handling required, wires may get ripped off and/or broken, so it is critical to be able to make repairs on the spot.

11. Lead Free Solder: We recommend using lead free solder because lead is a highly poisonous material which can affect almost every organ in your body. By using lead free solder, you can avoid the health risks.

12. Heat Shrink and/or Electrical Tape: For strengthening the connection between wires, it is recommended to apply heat shrink or electrical tape. This significantly lessens the chances of wires being ripped apart or broken.



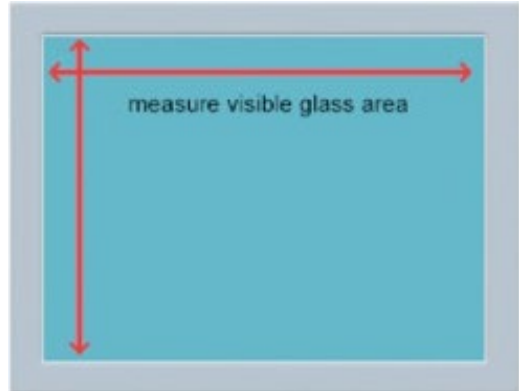
Measuring Recommendations

For frameless glass, measure from beveled edge to beveled edge. For framed systems, our **Smart Film® Edge Sealant** will seal all edges! Please note that there should be a $\frac{1}{8}$ " gap between all sides of the film and the edge of



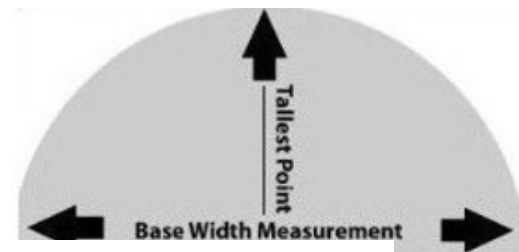
the window. This results in the overall piece of film being 1/4" shorter in height and width than the window.

Provide us the height and width of the visible glass area. We will confirm all measurements and the pre-wiring locations with our shop drawings that we will send you after order confirmation.



****Please note that all measurements and wire Locations are reconfirmed with shop drawings that we send you upon order confirmation. Any size modifications and custom wiring shall be completed at this time.****

For odd shapes, measure the rectangle or square they fit in



Smart Film® Edge Sealant

	Joint Widths			
Joint Depth	1/8"	1/4"	3/8"	1/2"
1/8"	96'	48'	36'	24'
1/4"	48'	24'	18'	12'

Installation Tips

Installation Tolerance:

- We always recommend an installation tolerance of 1/4" (1/8" x 2 = 1/4") or 6-7 mm (3mm x 2 = 6 mm) edge to edge of the visible glass area. This ensures that the film will not exceed the perimeter of the glass and leads to a more centered install. The installation tolerance also compensates for any uneven edges of the window frame and reduces the chances of on-site trimming. It is critical to leave installation tolerance for the wiring to be attached to the film. If you do not, the bus bar copper connections can peel from the film; thus breaking the electrical connection which will cause the film to fail.

Adequate Lighting:

- Ensure your working environment is well-lit. It is best to install Smart Tint® in natural light or under bright and even lighting. This helps identify any dust or debris that may have been overlooked on the installation surface. A well-lit installation environment helps ensure that the glass is clean and no piece of dirt looks overlooked.

A Clean Working Environment:

- Your installation environment needs to be as clean and dust-free as possible prior to beginning installation. Dust can easily contaminate Smart Tint® as it is being applied, and can be tricky to remove once applied. For those applying Smart Film during a renovation or construction project, this is a particularly important step, as dust, dirt and debris are a common occurrence.
- If contaminants such as dust and debris are in the air, we recommend taking an extra precautionary step in your installation project. We recommend spraying water mist into the air one hour prior to beginning the installation. This helps remove particulate matter from the air.
- Smart Tint® has a proprietary Smart Cling® Self Adhesive backing technology. We are the only Smart Film® in the industry that out-gasses on its own with a peel and stick back coating. Our Smart Film® is the only switchable film in the industry that will not cause solar fracturing and will out-gas small installation related air bubbles on its own over time.

Handle Smart Tint Carefully:

- Never buckle, fold or crease Smart Film®. Doing so can cause delamination of the film's layers; always keep the film flat and straight. When carrying film, roll it into a tube and carefully pick it up. Always lay it down gently on a flat surface.

DO NOT BUCKLE



DO NOT CREASE



DO NOT FOLD



HOLD FLAT



Additional Tips

- Do not remove the protective liner (Smart Cling® Self Adhesive side) until you are ready to install Smart Tint®. Never touch this side with your fingers.
- The protective liner on the adhesive side should only be peeled away 6"-8" (15cm-20cm) at a time. Only remove the backing completely after the Smart Film® has been applied to the glass and all air bubbles have been pressed away with a squeegee.
- Always be careful with the edges of the film to avoid delamination.
- When installing large pieces of Smart Tint®, it is important to have at least three or more people performing the install to prevent damage to the film.
- Wipe down both sides of the protective liner of the film with Smart Glass Spray (#1) or 90% Isopropyl Alcohol **ONLY** to remove and dust or debris from the shipping container.
- We recommend the outer dimensions of the film be 1/8" shorter than the glass around all edges.
- Smart Tint® is to be installed on the interior side of the window or installation surface.
- Do not remove the serial number on your piece of film. If removed, your Smart Tint® warranty will become invalidated.
- The electrical contact strip (A.K.A. Bus Bars) and wire leads should **NEVER** come into contact with any metal frame, trim, or surrounding objects. Install Smart Tint® Trim Kit to cover the entire side in which the wires are attached to the film. The trim kit protects the Bus Bars from moisture and any other elemental threats. The finished trim should be nonconductive. Always ensure the completed project is trimmed with nonconductive

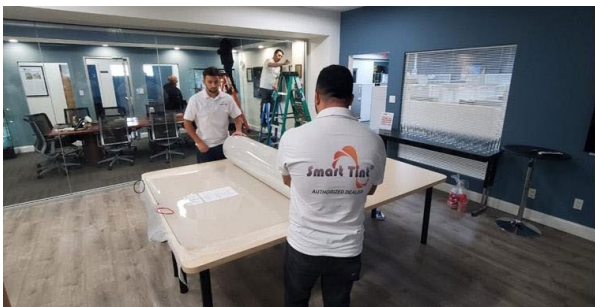
materials and that all exposed wires, leads, etc. are covered sufficiently to eliminate the possibility of electrical shock or fire.

****We are not responsible for improper installations and we highly recommend seeking an industry professional for your installation. Thank You.****

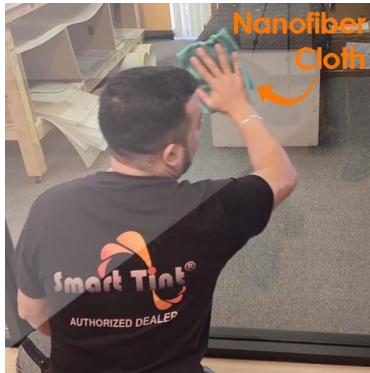
How to Install Smart Tint®

****Please note that this is a dry install only and the only time any form of liquid or spray is used is during the installation surface prep stages.****

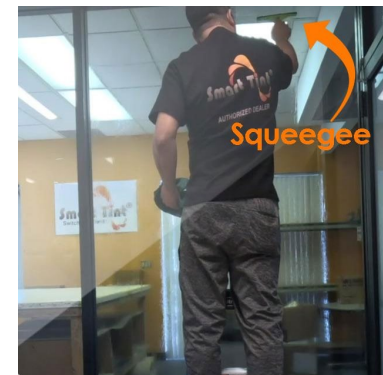
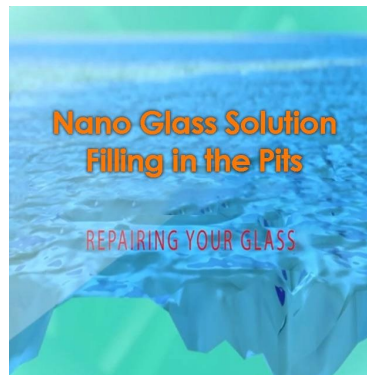
Step 1: Unbox Smart Tint® and gently unroll it onto a flat and clean surface. Lay the film flat and wipe down both sides of the release liner with our Advanced Glass Cleaner (#4) or 90% Isopropyl Alcohol to remove any debris, dirt and oil. Allow film to acclimate to room temperature. Keep film in a safe area while preparing the installation surface. **DO NOT** peel off the front release liner until the film is fully installed on the glass. This prevents damage



Step 2: Clean glass surface thoroughly before installing. Use our Advanced Glass Cleaner (#4) or you can use 90%+ Isopropyl Alcohol. Apply your solution on a Nanofiber Cloth (#2). **DO NOT** clean glass with a paper towel as it will leave small fibers which are difficult to remove. Also use a Plastic Razor Blade (#3) to remove any debris and dirt. **ONLY** use a Plastic Razor Blade to scrape off the glass and **DO NOT** use a traditional metal razor blade as a metal razor blade will scratch and pit the glass. A Plastic Razor blade will not scratch and pit the glass.



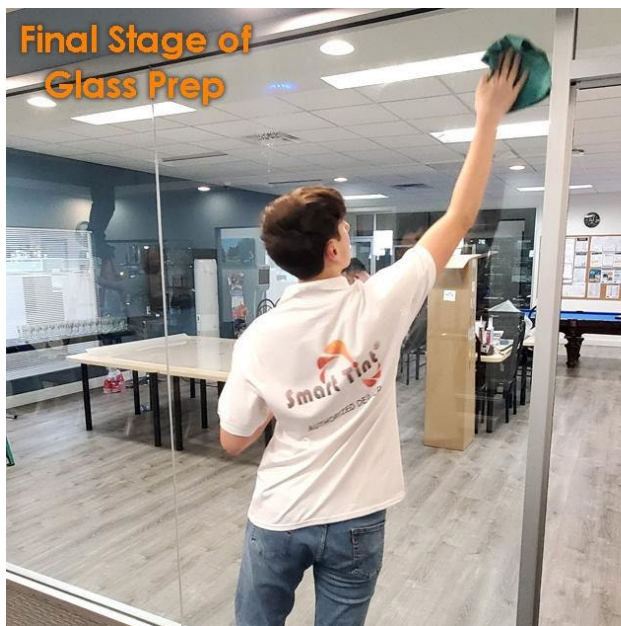
Step 3: Once the glass has been wiped clean, spray the Smart Glass Spray (#1) or Advanced Glass Cleaner (#4) on the installation surface. Wait five minutes for the solution to settle, then use a squeegee and to wipe off any excess solution.



Step 4: Use a Nanofiber Cloth (#2) to wipe glass 100% clean to remove any

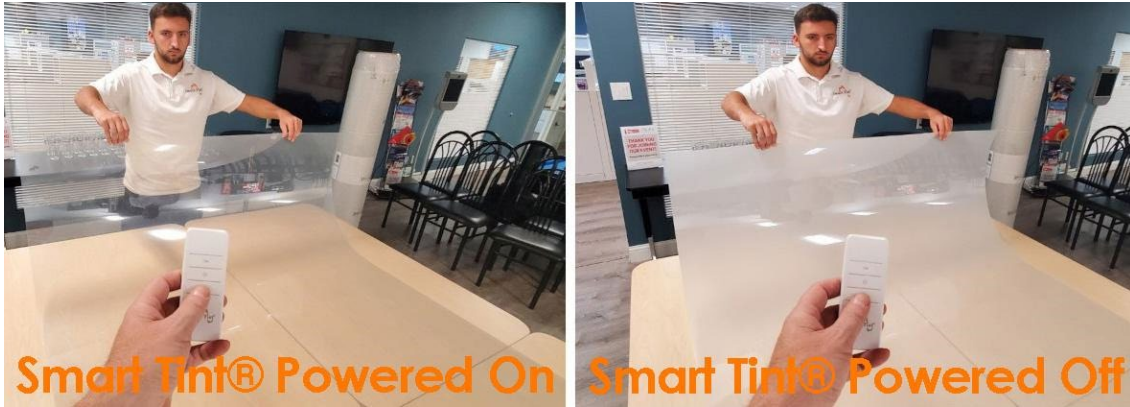


excess haze. Feel free to dampen the cloth with water to assist in removing said extra haze. Once completed, use a completely dry Nanofiber Cloth (#2) to dry the installation surface 100% before applying Smart Tint®.

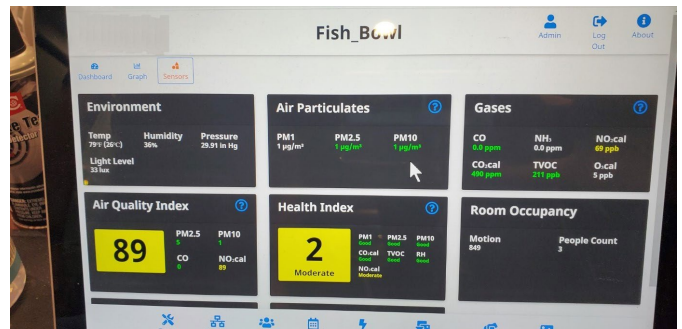
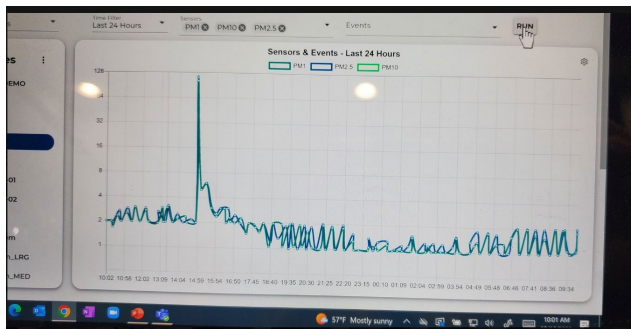


****It is HIGHLY RECOMMENDED to have three or more installers working to install the film as it can be difficult to install by just one person alone. Installing Smart Tint® by yourself can lead to kinking the film and delaminating its layers, and is therefore not recommended.****

Step 5: Test the film before installing it onto the installation surface. Make sure the film is laying on the flat and clean surface. This is to check for any defects or any problems that the film may have in the unlikely occurrence. Wire up the Smart Tint® and power the film on and off to switch between clear and opaque.



Before installing Smart Tint®, it's recommended to measure the air particles present in the room so the installation area is clean and dust free. You can use an air particulate meter to measure the dust content in the room; it should not be higher than PM2.5.



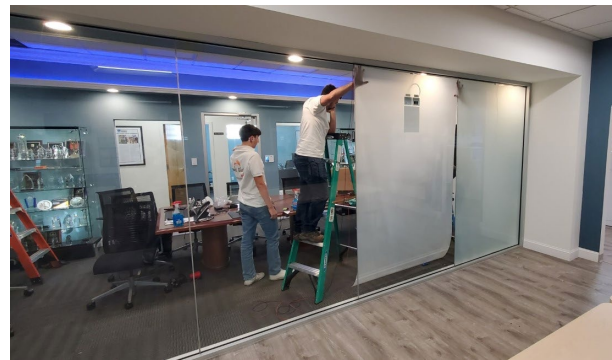
Step 6: After the glass is prepared, transport the panel(s) of Smart Tint® by rolling it up and carefully transporting it to the installation surface. We once again

recommend having at least three installers work on the project as there is less room for damage and error.

Step 7: Have at least two installers firmly hold up the film against the glass without peeling off the release liner to confirm that the Smart Tint® is cut to the



correct size. ***Please note that you should NOT have to perform any on-site trimming to the film. All film is professionally cut in-house utilizing professional equipment at our Smart Tint® manufacturing facility. All Smart Tint® is cut in accordance with the shop drawings that we provide you. All final dimensions, wire locations, etc. can be located on the shop drawings you receive prior to shipment.***

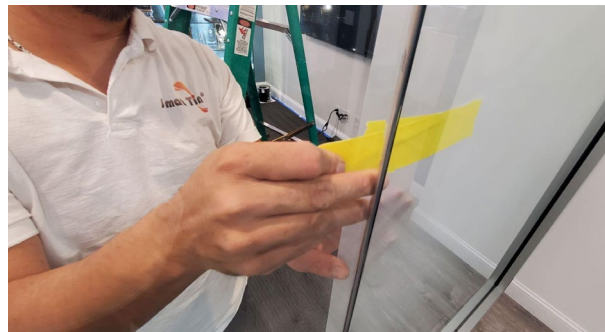
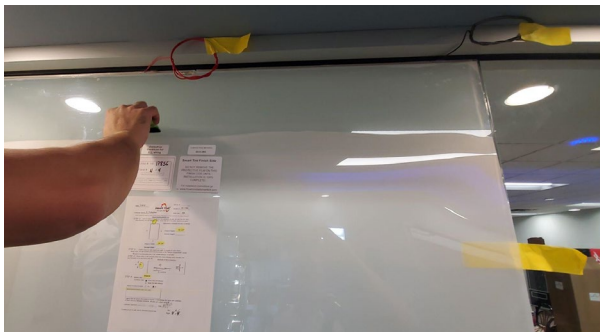


Step 8: Once the film is aligned on the installation surface, begin peeling back the real release liner 6"-8" (15cm-20cm) at a time. Do not peel back the entire release liner all at once, it is a gradual process. As you gradually pull down the release liner to expose our Smart Cling® Self Adhesive to the glass, use the Installation Card (#5) to adhere the film to the glass by applying moderate pressure. Always start from the top of the film and work your way down. We recommend having a minimum of two technicians firmly holding the film in place to ensure alignment. Holding the film straight in place is a critical step to the install.

Use the installation card to get rid of air bubbles, place the installation card right before the air bubble and apply moderate pressure force towards it. Slowly push the air bubble the same direction as the edge of the film until you have reached the edge. By this point the air bubble should have been out gassed. To remove any dirt, dust or debris from the Smart Cling® Self Adhesive backing, roll up a piece of painters tape around your finger with the sticky side out, and then tap the piece of debris so it adheres to the tape around your finger. It is a similar concept as applying a lint roller to remove lint from your clothing.

Please remember to take your time with the install and do not rush. Rushing will likely lead to kinking the film, an excessive amount of air bubbles, overall damage to the film, etc.

Smart Tip: An easier way to peel back the release liner while installing is to make two handles with painters tape. Simply grab a piece of tape long enough for you to hold on to while folded, then attach it to the top of the peeled back release liner, fold over to the other side, and now you have two grips for while you are installing the film! Please reference the images below.





****For Reference: While installer #1 uses the Installation Card (#5) to adhere the film to the installation surface, installers #2, #3 and #4 are applying pressure to the film against the installation surface to keep it in place and prevent it from sliding while being installed.****

Step 9: Repeat Step 8 until you have reached the bottom of the film. Once you reach the last 6”-8” (15cm-20cm) of film, you can finally peel off the protective release liner completely and proceed as you have been.

The Electronics Behind Smart Tint®

****We always recommend using a licensed electrician for your project to ensure that all the electrical components are properly installed****

Please Note: All power supplies are customizable to easily integrate for small, medium and large custom applications utilizing one piece of Smart Film® or multiple pieces operating simultaneously. We include engineering time with all orders to discuss integration logistics and operational scope of your project prior to finalizing your order. Smart Tint® is a low voltage technology and every project is custom. We recommend all wiring for this technology to be installed

by a licensed electrician to ensure that all film is wired in parallel and not in series. You can refer to the diagram below for a point of reference. It is recommended to use a 16-2 plenum rated/shielded/stranded wire when connecting the film to the transformer up to 100 feet away. Each piece of film should have its own dedicated wire.

Multiple pieces of Smart Film® can only have the wiring installed in parallel and NOT in series and NOT daisy Chained.

One power supply can control multiple pieces of film simultaneously if desired. This will protect your project from interference's such as LED lighting and other electrical environmental factors that can cause issues with the film's performance insuring proper operation at maximum performance.

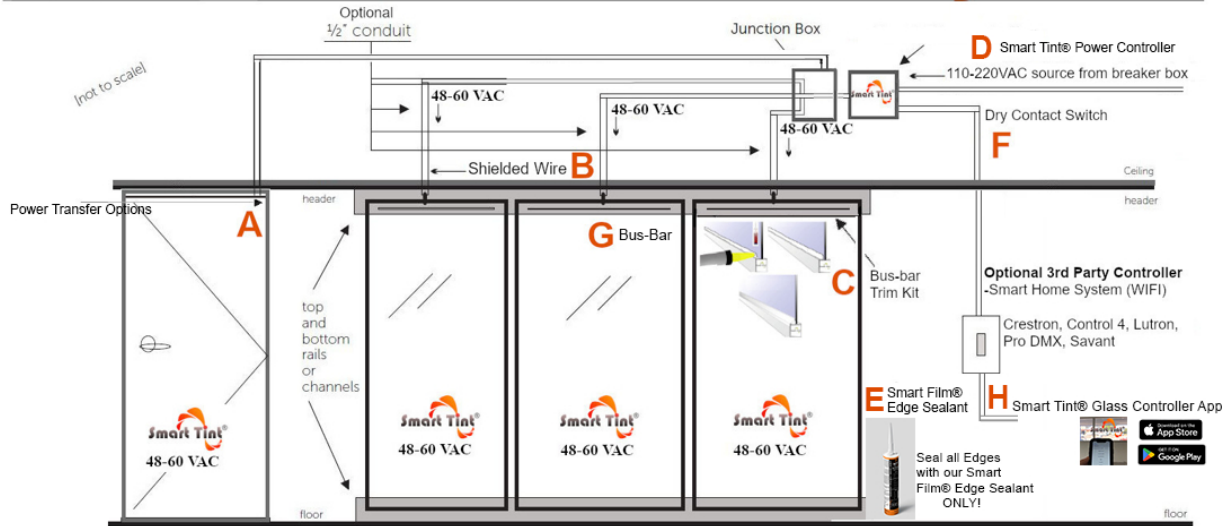
Please remember to acclimate the film to the installation environment by keeping it in its un powered state for a minimum of 24 hours post installation after removing the protective liner on the finished side of the technology allowing for any edge sealants to properly dry and accommodate material out gassing. This will provide the best end result.

We will consult with your electrician pre-film installation ONLY to review any questions that they may have in regards to operational scope and project pre wiring. Post Installation consultations / troubleshooting are on a per project basis only and billable.

We have an array of power control units to accommodate for power inputs of 12-24vdc , 110-120 vac, 220-240vac all providing the correct output voltages to the film when installed and wired in accordance with our recommendation. Our systems are third party control compatible and these logistics will be discussed with the engineering time we provide with every order pre installation consultation.

Any post installation questions in regards to your third party control system (Lutron, Crestron, DMX, Arduino, etc.) need to be directed to your electrician or third party integration company. We do not provide support for any 3rd party control systems we simply provide access for them to integrate with our controllers for on/off functionality only. We also offer our own App to control your system as an add-on module. Contact our Sales Team with any questions.

PROFESSIONAL INSTALLATION RECOMMENDED ONLY for the film and all electrical wiring.



sales@smarttint.com www.smarttint.com

A. Power Transfer Options



B. 16-2 Plenum Rated/Shielded/Stranded Wire



C. Smart Tint® Trim Kit



D. Smart Tint® Power Supply



E. Smart Film® Edge Sealant



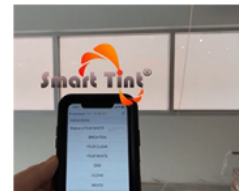
F. Contact Switch System



G. Electrical Bus Bar Connections



H. Smart Tint® Glass Controller



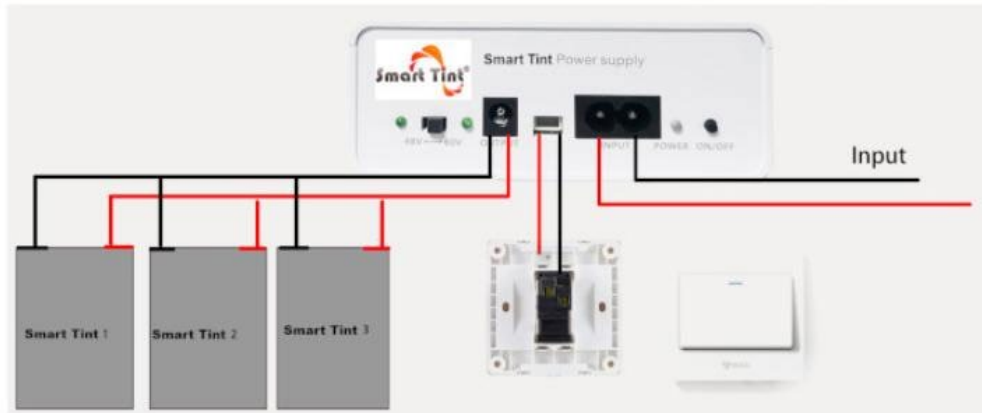
**Pictured above is a wiring schematic to better illustrate how every component ties together. We also have our own app called "Smart Tint® Glass Control"*

which serves as a remote control and timer system as well. The FREE app is available at the Apple App Store and Google Play Store and requires an additional WIFI module to integrate. See below for app details.

Power Control Unit: The Smart Tint® Power Control Unit is the middleman between the film and your standard wall outlet. The Power Control Unit plugs directly into a standard wall outlet and is controlled via a wireless remote. Input voltage 120vac or 220vac / output voltage 48vac or 60 vac.



Smart Tint Standard Wiring Diagram



Once the film is installed on the glass, follow these steps in regards to the electrical wire leads to ensure everything is connected properly:

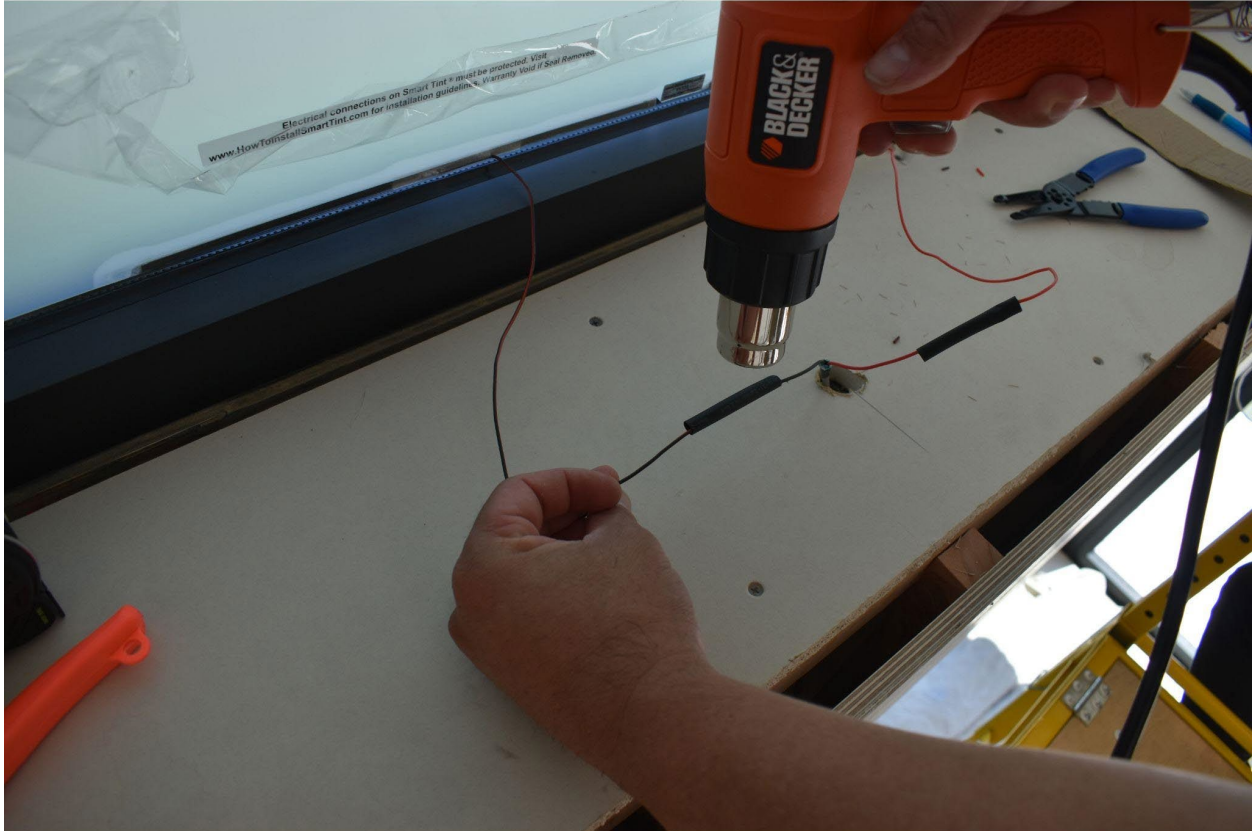
Grab two “Butt Splice” connectors and connect the leads from the bus bars to the power control unit junction wires. Once both wire ends are placed in the connector, crimp them together as shown in the image. Repeat this step for both red and black sets of wires.



Remember: Always red to red and black to black! Never cross the wires!

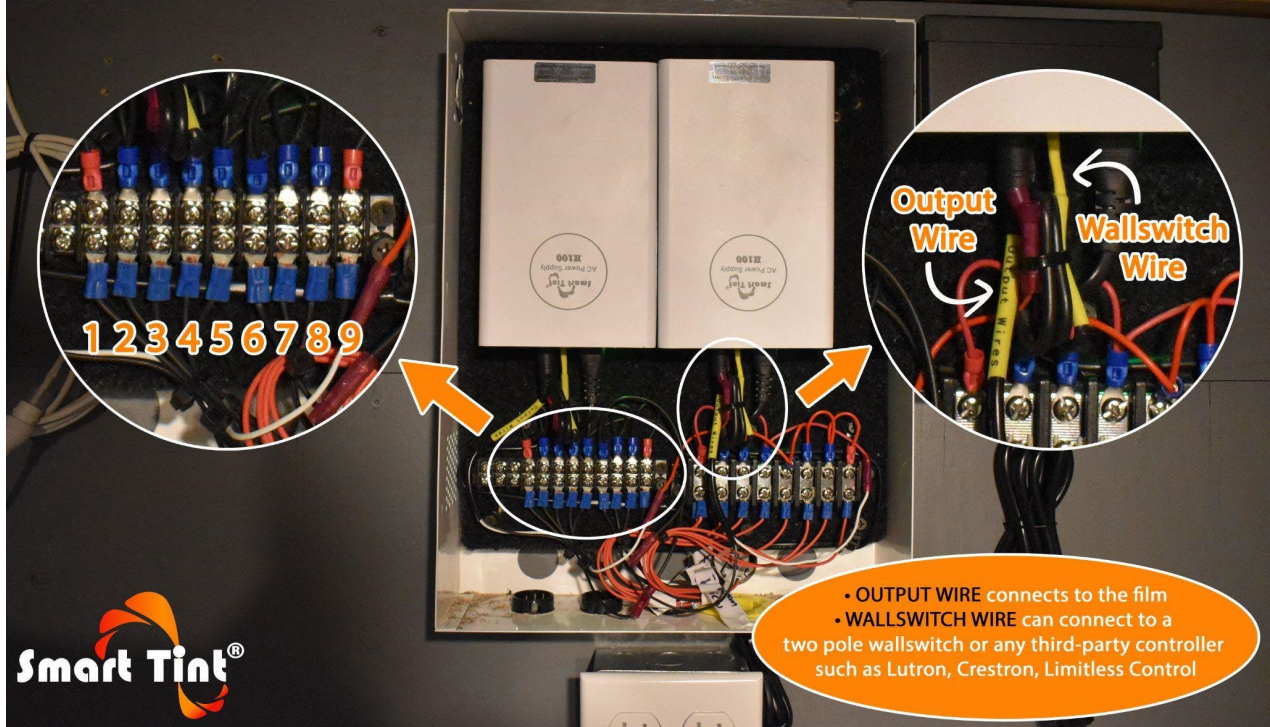
OPTIONAL STEP:

Cut a piece of heat shrink to go over the 18 gauge wire. Slide the piece of heatshrink over the "Butt Splice" connector. Heat it with a heat gun for five to ten seconds. This offers additional protection in wet environments.



It is very important to leave roughly 1 inch of exposed wire between the Smart Tint® and heat shrink.

Electrical Connections

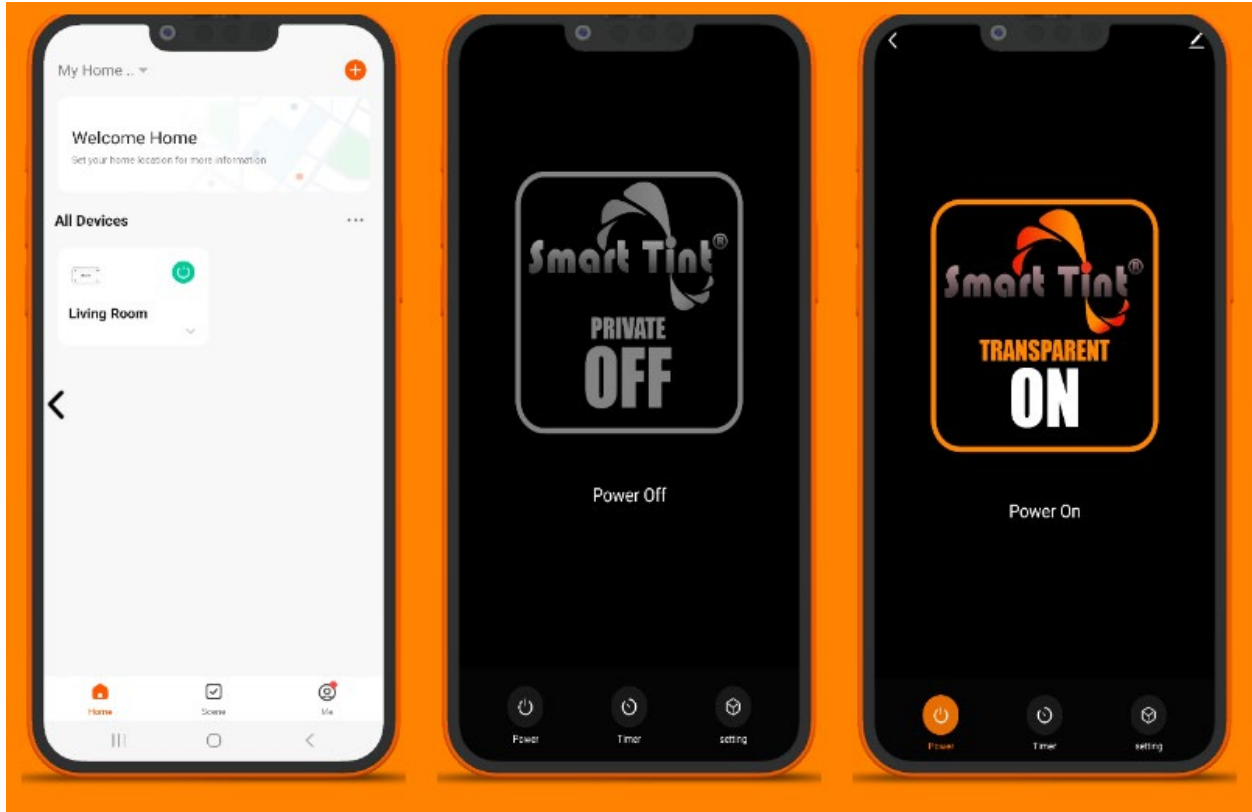


Feel free to reference this example of a professional installation.



Optional Step: Download our official Smart Tint® app and control your Smart Tint® from your mobile phone! To download, search “Smart Tint® Glass Controller” in the Apple App Store or Google Play Store! You can also scan the QR code below.

For more info, visit <https://www.smarttint.com/smart-tint-glass-controller>



**Scan the QR code above to download the “Smart Tint® Glass Controller” app!
For more info and how to install videos, visit <https://howtoinstallsmarttint.com>
Enter the password “SmartTintPro” to access exclusive content!**