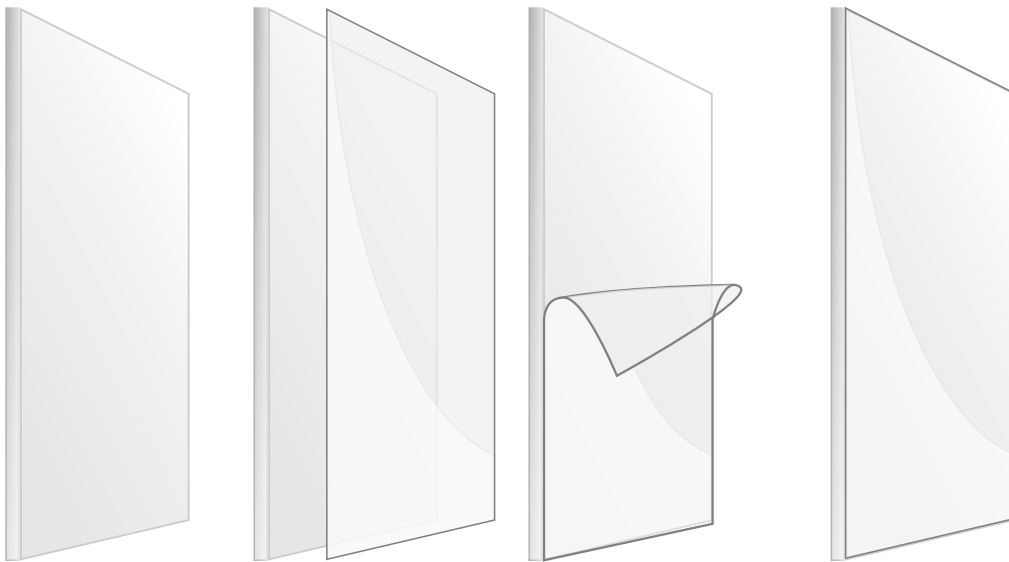


Smart Film User Manual

Self-adhesive smart film



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Warranty Provisions

- Contained in Filmbase's agreements with its direct customers, who (if distributors or resellers) then typically pass the benefits of the warranties through to their customers.
- In the event of any inconsistency between the terms of this summary of general warranty policies and contractual warranty provisions, the contractual warranty provisions control.

Service

- Provide corresponding technical support and technical cooperation for the products sold, and guarantee 24-hour technical hotline service.
- Filmbase provides online remote free services.
- For common simple fault problems: Filmbase provides remote technical guidance through instant messaging tools such as telephone, email, and remote software to help solve problems in the use of the equipment. Including but not limited to the connection problems of signal lines and power lines, system software problems of software use and parameter setting, and replacement of modules, power supplies, and system cards.
- If Filmbase provides engineers with on-site guidance for installation, commissioning, and maintenance, customers need to pay for travel, accommodation and other living expenses;

Safety Guidelines



CAUTION: Risk of electric shock.



CAUTION: Be aware of flammable materials.

Duration

- The duration of Filmbase's warranties for its broadband smart film products is generally **five (5) years**, provided that some products have different warranty periods as established by Filmbase from time to time such as:
 - **Remote control and Other Accessories: three (3) years**
 - **Power supply: three (3) years**
- The warranty period generally starts on the date of delivery by Filmbase to Filmbase's direct customer (typically a distributor) but in some situations for shorter-term warranty products (3 years or less), the warranty may start from the date of delivery by Filmbase's direct customer to the initial purchaser of the products from Filmbase's direct customer.

Repair and replacement

- When the online remote service cannot solve the problem, Filmbase will confirm with the customer whether to return to the factory for repair.
- If you need to return to the factory for repair, the customer can ship the product or parts that need to be repaired to the Filmbase production factory, and the customer bears the return shipping, insurance, customs and customs clearance costs. After the repair is completed, Filmbase will send the product or parts back to the customer, and only bear the return shipping cost.



CAUTION: Read this manual before the installation and keep this manual.



CAUTION: Keep the product dry without touching water.

Disclaimer

- Unless otherwise agreed, this warranty does not apply to consumables, including but not limited to connectors, networks, cables, optical cables, cables, power cables, signal cables, aviation connectors and other wire connection objects.
- All part of defects, malfunctions or damages caused by improper use, improper handling, improper operation, improper installation, disassembly of the display or any other improper behavior of the customer. And defects, malfunctions or damages caused by transportation.
- Unauthorized disassembly and repair without the permission and authorization of Filmbase.
- Failure to operate and maintain the product in accordance with the product manual.
- Man-made damage, physical damage, accident damage and product misuse damage, such as component defect damage, PCB board defect, etc.
- Product damage or malfunction caused by force majeure, including but not limited to force majeure events such as war, terrorist activities, floods, fires, earthquakes, lightning, etc.
- The product should be stored in a dry and ventilated environment. Any product defect, malfunction or damage caused by storage in an external environment that does not comply with the product manual, including but not limited to: extreme weather, humidity, salt spray, pressure, lightning, sealed environment, compressed space storage, etc.
- Use the product under conditions outside the product parameter range, including but not limited to lower or higher voltage conditions, extreme or excessive power surges, and inappropriate power conditions.
- During the installation process, defects, failures or damages caused by non-compliance with technical guidelines, instructions or precautions.
- Natural loss of brightness and color under normal conditions.
- Repair or attempted repair by anyone other than Filmbase.
- Other repairs not caused by product quality, design, and manufacturing.
- Inability to provide a valid warranty card, the product serial number sealing tape is torn off or damaged, the product shell or other external parts are damaged, or other valid certificates cannot be provided.
- Issues after the warranty period.
- For products that are not repairable due to improper operation, accidents, improper maintenance, and non-compliance with product specifications.

Product Care

- **Cleaning:**
 - (1) Always power the film off when cleaning and do not power on until 100% dry. Be careful not to disturb any electrical connections.
 - (2) Smart film should be cleaned with a soft cloth, and a small amount of water or isopropyl alcohol if necessary. Do not use any abrasive cleaners, or industrial strength glass cleaners.
 - (3) After installation of the smart film, please seal the edges with acid free silicone. Please use Toshiba 83 and Toshiba 381 only.
 - (4) Do not allow any metal or hard parts of the cleaning equipment to come into contact with the smart film, which may scratch the smart film. Remember, the surface of the film is scratch resistant not scratch proof.
- **Storage conditions:**

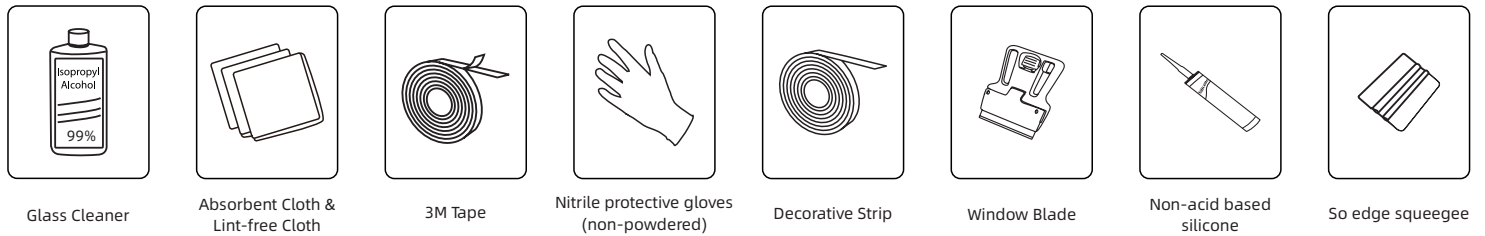
The self-adhesive smart film should be stored in a ventilated and dry environment with a temperature of 25±10 °C and a relative humidity of less than 70%, away from heat sources. liquid, do not get wet or soaked in water.
- **Warranty:**

5 years (indoor use)

Product Installation

- (1) Smart film is a dry installation only. Do not use water under any circumstances.
- (2) Please ensure the working environment is as clean and dust free as possible. We recommend installing the Smart Film in a very well-lit environment.
- (3) Do not remove the protective liner (Cling Side) until you are ready to install Smart Film. The Protective liner (Non-Cling Side) should remain attached until installation is completed.
- (4) When handling Smart Film always be careful with the edges to avoid delamination.
- (5) Never fold, bend or curve Smart Film. Always keep it flat and straight as shown below. Please be careful around busbar/electrode areas.
- (6) Abrasive cleaners, or industrial strength glass cleaners are not allowed.
- (7) Other glass silicone is forbidden except Toshiba 83, 381.
- (8) Sharp or rigid objects should be avoided to contact smart film.

Tools Required



*Note: If you need the above accessories, please buy them separately from FILMBASE.

Self-adhesive Smart Film Before Installation

- (1) Remove the film from the package and place it with the self-adhesive (cling) side of Smart Film facing up. Make sure you do not bend the film to avoid creating creases.
- (2) Connect the film to a power supply to ensure that the film is working and switching from clear to frosted. If the film is not working contact us for trouble shooting or a replacement covered under warranty. Please note that the film uses alternating current and there are + or - wires. Please ensure that the wires are correctly hooked up to the correct + and - before powering it on to avoid damage.
- (3) Apply smart film to the installation area to make sure it will fit to the glass area. If the edges of the window/door frame are not square, you can use scissors to trim the film to fit. We recommend that you use a pair of tailors scissors for the best results possible.

Self-adhesive Smart Film Installation Instructions

- (1) Make sure the self-adhesive (cling) side of Smart Film is facing up.
 - (2) Place Smart Film on a dust free and flat surface. Wipe the cling side with alcohol to remove any dust. Keep the busbars secure.
 - (3) Use a window scraper or blade to remove any dirt / blemishes from the glass surface. Repeat this procedure until the surface and edges of the glass are free from glue residue, smooth with no dirt or dirty spots which will affect the installation of smart film. Clean glass is extremely important. Any dirt, dust will create bubbles during installation.
 - (4) Spray the glass with glass with alcohol and clean with an absorbent cloth. Repeat this process until the surface is completely clean and dry. Look at the glass from different angles to make sure it is completely clean.
 - (5) Put on clean nitrile gloves and peel off 3 inches of the protective liner covering the self-adhesive side.
 - (6) Align the edge of the Smart Film on all edges of the glass and run your finger to press down along the top edge (the adhesive strip will hold the film in the place).
 - (7) Gradually pull away the protective liner no more than 5 inches at a time. Using the so edge squeegee move downwards on Smart Film working in horizontal lines left to right to disperse any air bubbles. Do so slowly, inch by inch to avoid any bubbles. If any small bubbles are still visible, carefully lift the film and reapply.
- If any bubbles are visible, mark the spot with an erasable marker, lift the film and carefully check for any dust particles. If dust has gotten stuck to the film use an adhesive tape or lint roller to carefully remove the dust particles. Reapply Smart Film using the squeegee.
- (8) Repeat the above process until you have a bubble free installation. Use so edge squeegee to squeeze out any small bubbles along the edges of the film.
 - (9) Once the smart film is installed, connect the busbar wires to the transformer soldering and shrink tubing or by using splice insulated butt connector. For best results, use cable guides or channel cable along the edge of the window.
 - (10) Connect the transformer to the power source and power on the film (switching from opaque to clear).
 - (11) Lift the tag and carefully remove the protective liner (non-cling side).
 - (12) For additional security or when using the Smart Film in a high moisture environment use non-acid based silicone (e.g. Dow corning (1199) along the edges of the film).

*Note: The above is the installation method of self-adhesive smart film sheets. For details of the installation method of laminated smart film and roll film processing methods, please contact FILMBASE for detailed steps.

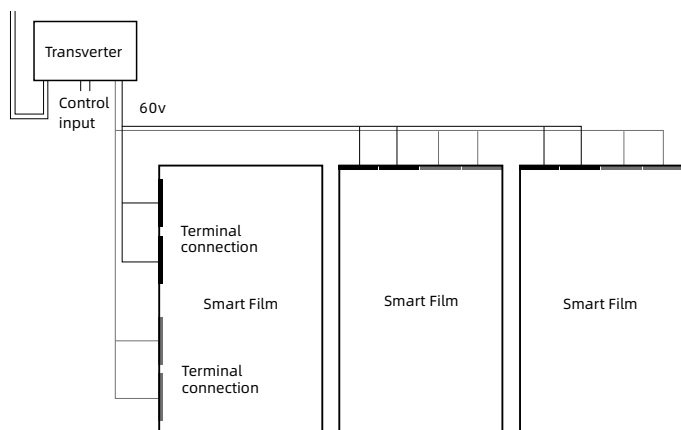


Self-adhesive Smart Film Parameters

		84-85%High transmittance PDLC film	87-88%High transmittance PDLC film	91-92%Extra clear PDLC film
Thickness	Total thickness (without protective film)	0.38mm	0.38mm	0.38mm
Total light transmittance	ON	84-85%	87-88%	91-92%
	OFF	78-79%	75-80%	78-80%
Haze	ON	3%±1	3.2%±1	2-3%
	OFF	95%±1	95%±1	95%±1
Sheet	Width	1000,1200,1500,1800mm		
	Length	According to customer requirements		
Roll	Width	1020,1220,1520,1850mm		
	Length	≤ 50m/Roll		
Roll tube	Inner Diameter	6 inches		
Operating voltage	ON	60V		
Power consumption	ON	≤ 5W/m ²		
Viewing angle	ON	≥ 160°		
Uv blocking rate	OFF	≥ 99%		
Infrared blocking rate	OFF	≥ 60%		
Response time	OFF→ON	≤ 30ms		
	ON→OFF	≤ 200ms		
Operating temperature	--	-30°C ~ 95°C		
Lifetime	--	10 -15 years		
Switching times	--	≥2 million times		

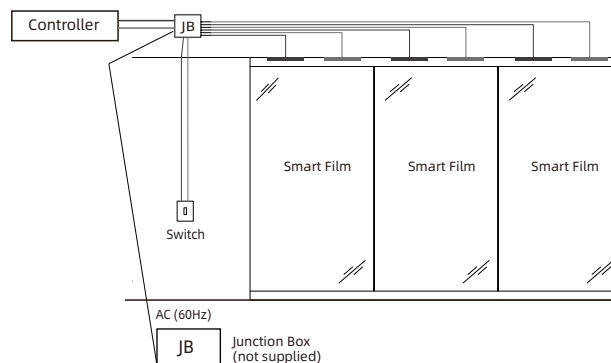
*Note: The Specifications are for reference, actual values may vary.

Connecting To Power



Control Options

110V AC (60Hz) Input, All Panels Controlled With One Switch



65V AC (60Hz) Input, Each Panel Controlled Independently

