



Technical Guide for Switchable Glass.

Contents:

1. Shipping, Receiving & Un-crating
2. Installation
3. Glazing
4. Electrical
5. Cleaning and aftercare
6. Warranty

8 Stonehouse Street
Stonehouse
Plymouth
PL1 3PN

T: +44 (0)1752 252583
F: +44(0)1752 663563

E: info@adswindowfilms.co.uk
W: www.adswindowfilms.co.uk



Shipping

A fully crating and shipping service is available for UK and worldwide export.

Where required, shipping crates are individually made for each customer order. These crates are robust and designed to provide protection of glass and accessories in transit.

A small box is attached to the base of the crate containing any electrical accessories purchased as part of the order.

It is the responsibility of the recipient to offload deliveries unless otherwise agreed prior to dispatch and correct methods should be observed when offloading.

If no preferred carrier is stated shipping for within the UK, consignments will be shipped through ground carriers. For overseas customers consignments can be shipped via air, sea or road depending on location, cost and timescale.

Overseas customers are responsible for customs and clearance at the destination country.

All consignments are sent Freight Collect and insured to the full value of the goods, a quotation for crating, shipping and insurance will be provided prior to dispatch.

Receiving

Before signing for and accepting the shipment from the carrier, the crates should be inspected for shortages or damage. If shortages or damage is found the shipping documentation should so be noted and driver's signature obtained as a witness.

ADS Window Films Ltd should be notified of any short deliveries and/or damage to goods immediately or in any event within 24 hours of delivery in order to pursue a claim with the carrier.

The Carrier or ADS are not responsible for shortages or damage if the person receiving the goods fails to inspect the consignment.

Un-crating

Switchable Glass panels are heavy and the crate should be placed on a level even surface prior to commencing un-crating.

Warning: glass panels are positioned vertically in crates, precautions should be taken to prevent panels tipping forward prior to removal of the front panel.

Storage

Glass often sustains edge damage between manufacturing and installation; therefore care should be taken when the product is being handled, in line with local recommended guidelines for the handling of glass panels.

If the Switchable Glass is not being installed immediately after un-crating, care must be taken to protect the panels and store them in conditions where the relative humidity is less than 80% and a near constant temperature between -20 and +50 °C in order to prevent the formation of condensation on the glass.

8 Stonehouse Street
Stonehouse
Plymouth
PL1 3PN

T: +44 (0)1752 252583
F: +44(0)1752 663563

E: info@adswindowfilms.co.uk
W: www.adswindowfilms.co.uk



Installation

General:

Clients or their installers should inspect each piece of Switchable Glass prior to installation.

Do not install panels which are incorrectly sized, damaged, scratched, abraded or deficient in any other way.

Adhere to all Switchable Glass installation guides.

Never install Switchable Glass in pressure glazing systems that does not have positive stop.

Switchable Glass should never be installed in situations where it may be subjected to any form of loading or pressure or mechanical stress, for example installation into misaligned, damaged or warped framework or pivot points or to concentrated mechanical loads or actions.

Glazing to exterior and wet interior applications must be wet sealed in a suitable frame and impervious to moisture, with provision for the weeping of condensation that may form in the glazing system.

Electrical connections must be positioned and exit at the head of any installation in wet environment applications and must be completely sealed so as to be impervious to moisture ingress.

We only recommend the use of Dow Corning AS7096N, which can be supplied upon request.

Ensure all glazing gaskets joints are cut and sealed in accordance with the relevant manufacture's instructions to provide a watertight seal wherever joints are made.

All glass pieces must be supported by two setting blocks. The blocks should have a Shore A Durometer hardness of 8 +/- 5 and be silicone compatible. The preferred location for setting blocks is at quarter points. The electrical connections should not be used to support the glass.

Great care should be taken when installing fixings and fittings to the glass, metal parts should never have direct contact with the surface of the glass or the film and fittings attached by threaded fixings should be tightened to a maximum torque of 1 Nm. To avoid the risk of mechanical threaded fixing becoming loose over time the use of a high quality thread adhesive in line with the manufacturer's instructions should be considered.

Unexplained Breakages

This can occur even after all precautions for glass handing, storage and protection has been observed, this is beyond the control of the manufactured and as such is not warrantable. Breakages of this nature can include but is not limited to:

Thermal Stress

Glazing System Pressures

Accidental Damage during Installation

Excessive Wind loading

8 Stonehouse Street
Stonehouse
Plymouth
PL1 3PN

T: +44 (0)1752 252583
F: +44(0)1752 663563

E: info@adswindowfilms.co.uk
W: www.adswindowfilms.co.uk



Glazing

Prior to commencing installation examine all and make good any unsatisfactory conditions relating to the glazing system, stops, gaskets, channels, rebates which may impair the successful and safe installation of Switchable Glass or Film.

Internal Applications

Dry Glazing: this is the recommended interior glazing method.

Butt Joint Glazing: can be used in internal applications we recommend the use of Dow Corning AS7096N "seamless glazing" effects, alternatively the use of clear dry plastic jointing trims may be placed between abutted glass panels. (The use of polished edge glass is recommended)

Wet Glazing: If a sealant is required use only Dow Corning AS7096N, which can be supplied upon request.

External Applications:

Wet Glazing: Pre-shimmed Glazing tapes and Dow Corning AS7096N are required to create a seal impervious to moisture, with provision for the weeping of condensation that way form in the glazing system.

Framing Systems and Design

Switchable Glass is suitable for glazing a wide range of steel, timber, aluminium and UPVC systems.

Frame edge clearance and face clearances may be used although a minimum bite edge of 10mm for IG Switchable Glazing and Laminate Glazing and 16mm for Independent Glazed Units (IGUs)

Inadequate clearance for the edges can cause damage due to glass-to-frame contact, a minimum edge clearance of 3mm is recommended to reduce this possibility.

Glass larger than 0.6m² should be placed on four Shore S Durometer hardness of 85 +/- 5 and be silicone compatible. The preferred location for setting blocks is at quarter points.

The blocks should be 1.5mm narrower than the channel width. Lock Strip Gasket Systems can also require setting blocks, refer to manufacturer for recommendations.

Glass Protection

ADS Window Films Ltd. cannot be held liable for damage caused by other parties. Once glass has been installed it is the responsibility the main contractor or building owner to provide protection and cleaning.

8 Stonehouse Street
Stonehouse
Plymouth
PL1 3PN

T: +44 (0)1752 252583
F: +44(0)1752 663563

E: info@adswindowfilms.co.uk
W: www.adswindowfilms.co.uk



Electrical Installation

Switchable Glass is an electrical component and should be provided for in the electrical layout including the provision of fused spurs, switches, cable management and electrical connection boxes. All installations must meet the requirements of local regulations and guidelines and be carried out by a qualified electrician.

Any metal frames which may come into contact with the wiring of the panel **MUST** be earthed.

Switchable Film or glass must **NEVER** be installed in direct contact with a metal frame.

If in doubt consult a qualified electrician prior to commencing any installation work.

Before installation commences bus bars, connection leads and cables should be inspected to ensure the integrity of insulation.

Where ever possible it is recommended that operation of Switchable Film or Glass is tested prior to commencement of installation.

Great Care should be taken to ensure that exposed bus bars, leads or cables do not come into contact with framework and any metal frames must be earthed and are totally sealed to prevent the ingress of moisture or water.

Switchable Glass operates at 110VAC, if the local mains voltage is higher than 110VAC a step down transformer is required. ADS Window Films Ltd supply a range of thermally protected isolating transformers that are matched to meet the requirements of each installation.

Failure to use either ADS Window Films Ltd transformers or those of an equivalent specification may result in irreparable damage to the Switchable Glass or Film. (Datasheets can be supplied on request).

Multiple Switchable Glass panels can be connected in parallel to a single transformer up to the maximum M2 rating of each transformer:

50VA – 2M2
200VA – 10M2
500VA – 25M2

An RCD with an MCB, or a RCBO should be used along with a fused spur at the connection point for Switchable Glass to provide local isolation.

It is imperative that the manual switch or remote control is wired into the circuit on the mains voltage side of the transformer; failure to observe this requirement may lead to irreparable damage of the IG Switchable Glass panels.

Before turning on the power to a new installation the electrician must test the resistance reading between the frame and the bus bar feed cables to ensure that the reading resistance is infinite. If this is not the case the short circuit should be found and insulated accordingly.

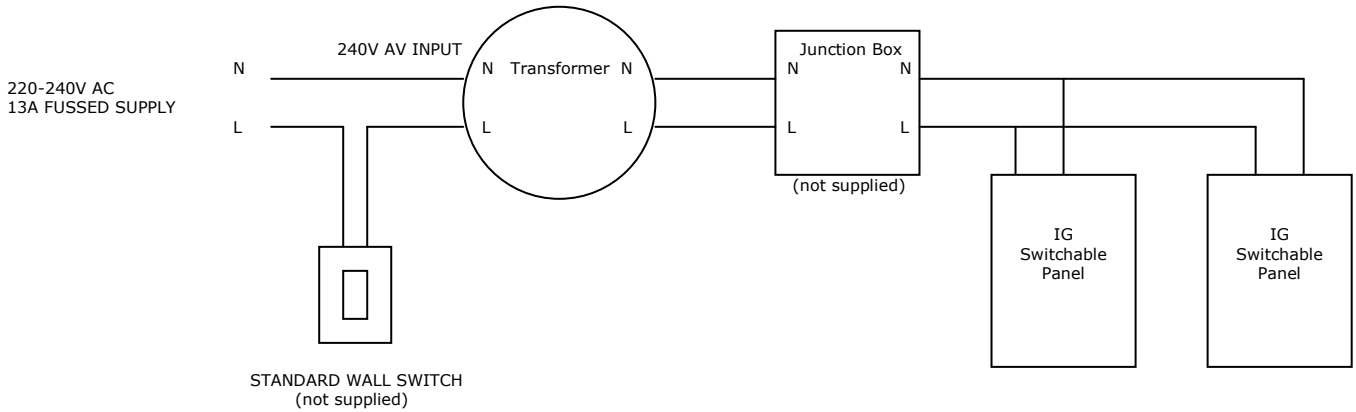
8 Stonehouse Street
Stonehouse
Plymouth
PL1 3PN

T: +44 (0)1752 252583
F: +44(0)1752 663563

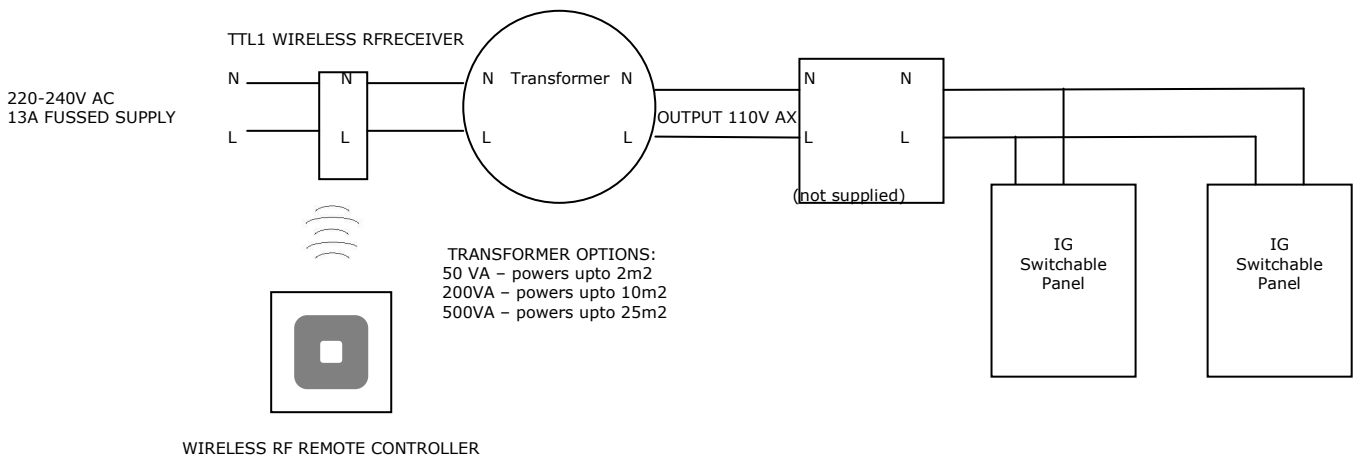
E: info@adswindowfilms.co.uk
W: www.adswindowfilms.co.uk

Wiring Diagrams

Switchable Glass & Film Standard Wiring Diagram



Switchable Glass & Film Wireless Wiring Diagram



8 Stonehouse Street
Stonehouse
Plymouth
PL1 3PN

T: +44 (0)1752 252583
F: +44(0)1752 663563

E: info@adswindowfilms.co.uk
W: www.adswindowfilms.co.uk



Cleaning and Aftercare

Once the glass is installed, the glazing contractor should make provisions to ensure that glass surfaces are protected from possible damage caused by the construction practices of other trades.

Special care must be taken during the initial cleaning, cleaning during the construction period, or when glass surfaces are severely soiled in order to prevent glass damage caused by abrasive contaminants.

In the event that the glass surfaces become heavily contaminated with abrasive particles it must first be flushed with clean water to remove as many contaminants as possible.

Great care **MUST** be taken to ensure that the electrical connections to the glass do not become wet during this procedure.

With the glass surface still heavily wetted, carefully work a squeegee from top to bottom removing excess water.

Caution must be taken to ensure that any remaining abrasive materials do not become trapped between the glass surface and the squeegee; otherwise the glass surfaces may become scratched.

The glass should then be cleaned with a clean, soft, grit free cloth and a mild, non-abrasive, non-alkaline cleaning solution and rinsed immediately with clean water. Excess water should be removed from glass surfaces with squeegee.

For routine cleaning, use a conventional window washing solution or mild soap and water. Uniformly spray the cleaning solution or apply it with a clean, soft, grit free applicator and rinse thoroughly. The glass surface should be either wiped dry with a clean, grit free cloth or squeezed dry.

Do not allow any metal or hard parts of the cleaning equipment to have direct contact with the glass surfaces.

Exposed Switchable Film surfaces (Standard Switchable Glass or Switchable Film for retrofit) should be cleaned initially with either a low pressure compressed air or electrical blower to remove any abrasive contaminants.

Only once this has been carried out should the film surface be cleaned with Soft IPA wipes and/or a PH Neutral, non-abrasive liquid glass cleaning product applied sparingly with lint free, clean, soft cloth.

Do not allow any metal or hard parts of the cleaning equipment to contact the plastic surfaces.

Please note that the plastic surface of the film can be marked or scratched if the care and cleaning instructions are not followed.

8 Stonehouse Street
Stonehouse
Plymouth
PL1 3PN

T: +44 (0)1752 252583
F: +44(0)1752 663563

E: info@adswindowfilms.co.uk
W: www.adswindowfilms.co.uk



Warranty

ADS Window Films Ltd. warrants that Switchable Glass and Self Adhesive Film products should be free from defects, assuming normal use and correct installation for a period of 1 year from the date of the invoice unless otherwise stated.

Defects include loss of switching where the electrical system and supply has been correctly installed and functioning correctly and / or delamination of the panel which is a result of a manufacturing fault.

In the event of a breach of warranty ADS Window Films Ltd 's sole obligation and the Customer's sole remedy is the repair or replacement of the defective product.

The Reseller or Customer should promptly notify ADS Window Films Ltd of any defect in products and upon obtaining return authorisation should ship the goods to ADS Window Films Ltd for analysis unless otherwise agreed.

ADS Window Films Ltd will bear the expense to repair or replace the products supplied but will not accept any costs incurred by others which are associated with transportation, gaining access, removal, replacement, installation or consequential loss claims of any kind.

To ensure the safe and proper operation of Switchable Glass and Film it must be installed by a qualified electrician and should be delivered, handled, installed, protected, cleaned and used in compliance with all local legislation, regulations and codes of practice and in accordance with the requirements set out in the Switchable Glass and Film Technical Guide.

ADS Window Films Ltd is not responsible for the replacement or repair of products which are damaged as a result of external events such as, but not limited to: natural disasters, improper use, and incorrect installation, use of incorrect silicones or unauthorised parts.

Haze: Switchable Glass and Film products are not as optically clear as standard float glass. Some degree of haze will always appear due to the nature of the product. All switchable glass and film has some degree of haze and this is not a reason in itself for rejection or a refund.

Glass Quality: Glass used in the makeup of Switchable Glass panels conforms to the Visual Quality Standard as described by the UK Glass and Glazing Federation.

Film Quality: It must be noted that manufacturing process of the switchable film means that the PET surfaces can be exposed to very minor surface scratching which is not covered by the warranty. There may also be very slight variations in the thickness of the liquid crystal over the surface area during the coating process; this is not classed as a fault and falls within the scope of our manufacturing tolerances.

Please note that this warranty document does not apply at all or in part to the Standard Switchable (OEM) Film supplied to glass processors for lamination or other form of processing or incorporation. Please refer to Standard Film Warranty Document.

8 Stonehouse Street
Stonehouse
Plymouth
PL1 3PN

T: +44 (0)1752 252583
F: +44(0)1752 663563

E: info@adswindowfilms.co.uk
W: www.adswindowfilms.co.uk