

# TECHNICAL GUIDE

## SWITCHABLE FILM



# Technical Guide- Switchable Film



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## Thank you for Switching On

For over 13 years, Intelligent Glass has been developing its own range of patented switchable smart glass technology.

A British manufacturer dedicated to quality and reliability, the products manufactured by Intelligent Glass are designed to offer instant and controllable privacy at the press of a button.

We are pleased you have chosen Intelligent Glass for your project, the best choice for quality and reliable switchable smart glass solutions. We are dedicated to providing our customers with not only the very best PDLC products on the market, but also the very best expert support and after-care advice, enabling you to easily maintain your investment, keeping it in great condition for longer.

This document will assist you with installation steps, best practises for care as well as the technical aspects involved in the maintenance of your product.

We hope you enjoy your product and we look forward to working with you again.



# Technical Guide- Switchable Film

## 1. Shipping

A full 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, film and accessories in transit. A small box will be supplied externally to the crate containing electrical accessories purchased as part of the order.

It is the responsibility of the recipient to offload deliveries, unless otherwise agreed prior to dispatch. Correct handling methods should be observed when offloading. It is the customer's responsibility to notify Intelligent Glass if access to the delivery address site is restricted.

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

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

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

## 2. 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 the driver's signature obtained as a witness.

Pro Display TM 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 Pro Display TM Ltd are not responsible for shortages or damage if the party taking delivery of the goods fails to inspect the consignment at the time of delivery.**

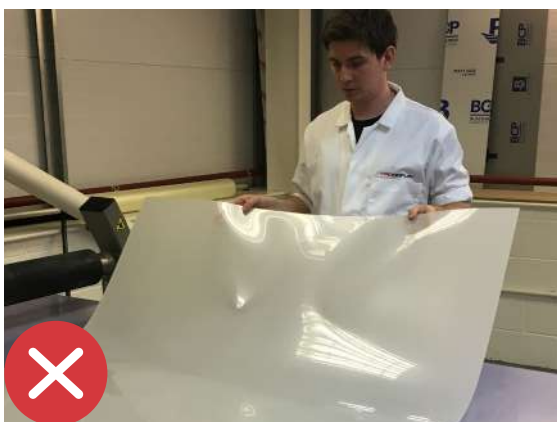


## 3. Storage

Switchable Film can sustain damage between unpacking and installation; therefore care should be taken when the product is being handled, in line with Pro Display TM Ltd recommended guidelines for the handling of switchable film included in this document. If the Film is not being installed immediately after un-crating, care must be taken to protect it and it **must** be stored flat, out of direct sunlight, 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 film.

## 4. Handling

- Never fold, bend or curve Switchable Film. Always keep the film flat and straight, as shown in picture
- Do not remove the protective liners until you are ready to install the film
- Wear Powder Free Nitrile gloves when handling the film
- When handling films, take particular care with the edges to avoid delamination



## 5. General Installation Guidance

The customer or installer should thoroughly inspect each piece of Switchable Film prior to installation. Never attempt to install products which you consider to be incorrectly sized, damaged, scratched, abraded or deficient in any other way. In the first instance contact Intelligent Glass for an initial assessment. Any attempt to install a deficient product will signify acceptance of its suitability and as such, cannot not be replaced.

Strictly comply to all Switchable Film installation guides.

Switchable Film adheres to glass using a silicone based cling layer, and is a DRY APPLY product.

**SMART FILM SHOULD NEVER BE WET APPLIED – THIS WILL IRREPAIRABLY DAMAGE THE FILM**

Film Dimensions should be 2 to 3mm smaller in each dimension than the visual area of the glass it is being applied to.

**NEVER ATTEMPT TO TRIM FILM ON SITE –PLEASE CONTACT INTELLIGENT GLASS FOR ADVICE**

The busbar or electrical connections should never be allowed to have contact with metal frames or trims.

Switchable Film should never be installed in situations where it may be subjected to loading or pressure or mechanical stress, for example, clamped between metal or plastic fittings, door furniture, and framework or subjected to any other form of concentrated mechanical loads or actions. We recommend that the electrical connections are positioned and exit at the top of any installation. When film is installed in environments where it may be subject to dampness or humidity, each edge must be completely sealed so as to be impervious to moisture ingress, and particular attention must be paid to sealing the bus bar edge.

We only recommend the use of **Intelligent Glass Specialist Sealant** as a sealant for use with any of our products; this can be supplied by us upon request.

Customer specified holes and cut outs produced during the manufacturing process may cause the edge of the smart film to discolour slightly, and as such will require 4-6mm coverage by a trim, escutcheon or bezel. Great care should be taken when installing fixings and fittings to the film, metal parts should never have direct contact with the surface of the film and film should be cut to fit around fixings, fittings and furniture. 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 also be considered.

When two or more films are being applied side by side on a single piece of glass, a gap of 2mm should be left to prevent an electrical short damaging the film edges. It is also recommended that the busbar tags of films being applied side by side are positioned with the same polarity adjoining each other (eg positive and positive or negative and negative).



## 6. Film Installation

### STEP 1: Equipment required

- Self Adhesive Switchable Film
- Window Scraper / Cleaning Blade
- Hard Rubber Roller
- Felt edged Squeegee
- Powder Free Nitrile Gloves
- Lint free cleaning cloths
- Liquid Glass Polish
- IPA Wipes
- 1.6mm (nominal) OD Electrical cable
- Cable Strippers
- Soldering Iron
- Lead Free Solder
- Specialist Sealant
- Non-metallic cover trims



### STEP 2: Glass Preparation

Spray the glass with a liquid glass polish and clean with a soft lint free cloth. **REPEAT THIS PROCESS** until the surface is **COMPLETELY CLEAN**.

If necessary, spray the glass with a liquid glass polish and carefully use a window scraper or blade to remove any dirt, blemishes or seeds from the surface of the glass. The surface needs to be **COMPLETELY SMOOTH**.

Using a lint free cloth, clean the glass surface meticulously with IPA (isopropyl alcohol) and leave to evaporate.



# Technical Guide- Switchable Film

## STEP 3: Preparation of the Film

Place the film in a safe, clean, flat area (preferably a table which supports the entire film), ensuring the adhesive / cling surface is face up.

Wipe down the protective liner applied to the self-adhesive cling layer of the Switchable Film to remove any dust.

Before commencing installation, ensure the film fits the area to be filmed by carefully positioning it against the surface whilst checking for the required clearances.



## STEP 4: Preparation of the Film for Application

Using the Edge Tab on the label remove the first 100mm (4") of the protective liner applied to the self-adhesive cling layer of the Switchable Film completely along the busbar edge.

**ENSURE YOUR WORKING ENVIRONMENT IS CLEAN AND DUST FREE.**



# Technical Guide- Switchable Film

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## STEP 5: Initial Positioning of Film on Glass

Accurately align the busbar edge of the Switchable Film with the top edge of the glass. When in position, gently run a finger along the film just below the busbar to achieve an initial adhesion of the film to the glass, with the 100mm (4") of cling layer already exposed.

**TO MINIMISE THE RISK OF DAMAGE TO THE FILM, DO NOT REMOVE THE LINER FROM THE UPPER / NON ADHESIVE SURFACE UNTIL THE INSTALLATION IS COMPLETED**



## STEP 6: Application of Film to Glass

Whilst gently supporting the film at the edges, and at a shallow angle to the glass surface, slowly pull away the liner from the cling surface and allow the film to adhere to the glass under its own weight. Use the roller to work out any air pockets to the sides or the working edge of the film. Should it not be possible to work out any air pockets between the film and the glass, slowly and carefully ease the film back from the glass and allow the film to re-adhere to the glass using its own weight, whilst working with the roller to remove the trapped air. Continue this process to the bottom of the film and it is fully installed on the surface of the glass.





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## STEP 7: Finalising Application

Use the felt edge squeegee, gently work out any remaining small bubbles to the edges of the film, ensuring that the edges have good contact with the glass.

**NOTE:** Should you need to lift the film from the glass once it has been fully applied, to avoid any damage to the edge of the film, use the tip of a fine blade (eg a scalpel or craft knife) to gently and carefully ease one of the bottom corners away from the glass, taking great care not to damage the silicone cling liner which adheres the film to the glass. **NEVER** use a thumb or finger nail. This will damage the corner and possibly cause delamination of the film.



## STEP 8: Wiring the Busbars

**PLEASE READ THIS SECTION IN CONJUNCTION WITH THE ELECTRICAL INSTALLATION NOTES TOWARDS THE END OF THIS GUIDE**

Once the installation of the film is satisfactorily completed, electrical installation can commence.

Begin by carefully soldering the electrical cables to the copper mesh tags. **NOTE:** there are two tags on the left side of the film and two tags on the right side. **ONLY ONE TAG FROM EACH SIDE IS USED.** Solder a cable to one of the mesh tags on the left (positive) and one of the mesh tags on the right (negative). **THE TWO REMAINING TAGS ARE SPARE.**

It is recommended that the film is tested for correct operation at this stage by temporarily connecting the cables to the transformer and switch to ensure that the film is switching from frosted to clear.

Once testing is complete, neatly fold the spare tags back to the film, this can be used if accidental damage occurs to the original connections.



# Technical Guide- Switchable Film

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## STEP 9: Removal of outer protective liner

Locate the top edge of the outer protective liner, (approximately 10-15mm below the busbar).

Starting in one corner, begin to ease the protective liner diagonally from the face of the smart film, until the liner is removed across its entire width.

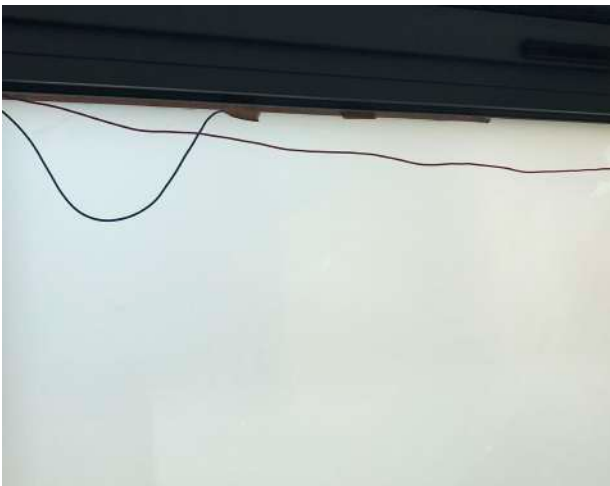
Slowly and smoothly, in a downward motion, pull the liner from the surface of the smart film.



## STEP 10: Trimming Off

Adhere a strip of narrow (5mm) clear double sided adhesive tape along the top of the film over the busbar to tack the cables in place.

**The bus bars and cables must be securely covered with a suitable nonconductive trim and sealed with Intelligent Glass Specialist Sealant to prevent the ingress of moisture onto the electrical connections.**



## 7. Electrical Installation Notes

IG Switchable Film 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 framework close to or adjoining the wiring of the panel MUST be earthed. IG Switchable Film 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 the operation of IG Smart Film 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. Any metal frames must be earthed and totally sealed to prevent the ingress of moisture or water.

Switchable Film operates at 110VAC. If the local mains voltage is higher than 110VAC, a step down transformer is required. Pro Display TM Ltd manufacture and supply a range of thermally protected isolating transformers.

Failure to use Pro Display TM Ltd Transformers may result in irreparable damage to the Switchable Film. This is not covered by the warranty detailed from page 20.

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

6VA - 0.5M2

50VA - 2 M2

200VA - 10M2

500VA - 25M2

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

Selecting the right one should be done in accordance with **BS 7671:Requirements for Electrical Installations** and will ensure that the device will not give unwanted tripping due to high inrush currents generated by the transformer(s).

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 panels.

Before turning on the power to a new installation, the electrician should 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. Transformer Data Sheets

### 6VA Isolating Transformer

Electrical:-

Input: 230v ~ AV 50/60Hz. Full Load Current 0.045A

Output: 110v ~ AC at 0.054A

Max Power rating: 6VA

Off Load Voltage: 138v

Thermal Protection Self: Resettable thermal fuse 120 ° C

Manufactured and tested in accordance with the relevant sections of EN61558

Connections:-

Input: Black 0.75mm 2 Core Cable 0.9mts Long

Output: White 0.75mm 2 Core Cable 0.9mts Long

Construction:-

Moulded Plastic Box with 2 mounting Feet

Fully Encapsulated

Input / Output at opposite ends

Dimensions:-

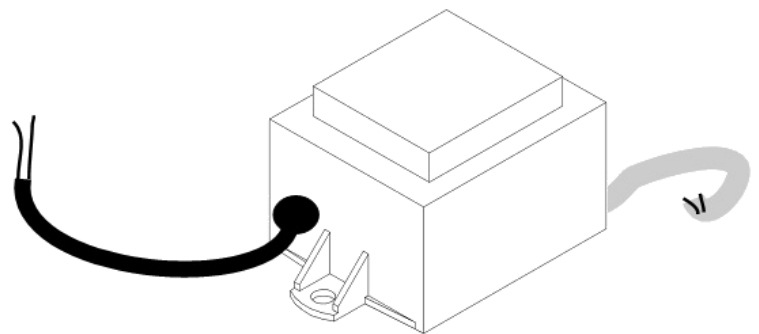
Width: 45.3mm

Length: 54.3mm

Length Including Fixing feet: 74mm

Height: 43.1mm

Fixing Centres: 65mm Hole Size 4.2mm Dia



# Technical Guide- Switchable Film

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## 50VA Isolating Transformer

Electrical:-

Input: 230V ~ AC 50/60Hz. Full Load Current 0.3A

Output: 110v ~ AC at 0.45A

Max Power rating: 50VA

Off Load Voltage: 120.8v

Thermal Protection: Self-Resettable thermal fuse 120 ° C

Manufactured and tested in accordance with the relevant sections of EN61558

Connections:-

Input: Black 0.75mm 2 Core Cable 0.9mts Long

Output: White 0.75 2 Core Cable 0.9mts Long

Constructions:-

Black Moulded Plastic Box with 4 mounting Feet

Fully Encapsulated

Input / Output at opposite Ends

Dimensions:-

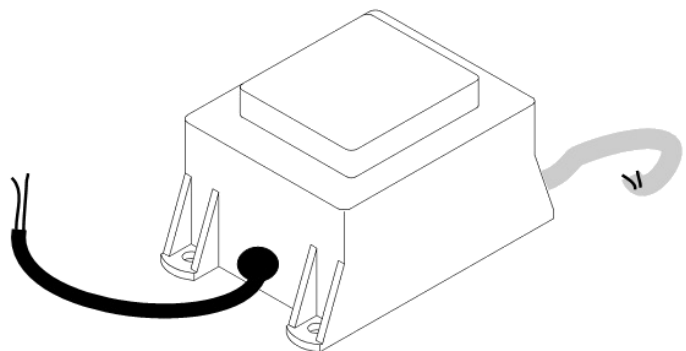
Width: 69mm

Length: 82mm

Length Including Fixing Feet: 99.6mm

Height: 68mm

Fixing Centres: 90mm



# Technical Guide- Switchable Fim

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## 200VA Isolating Transformer

Electrical:-

Input: 230v ~ AC 50/60Hz. Full Load Current 1.08A

Output: 110v ~ AC at 1.8A

Max Power rating: 200VA

Regulation: 7%

Thermal Protection: Self-Resettable thermal fuse 120 ° C

Manufactured and tested in accordance with the relevant sections of EN61558

Connections:-

Input: Terminal Block

Output: Terminal Block

Construction:-

Black Moulded Plastic Box with 4 mounting Feet

Fully Encapsulated

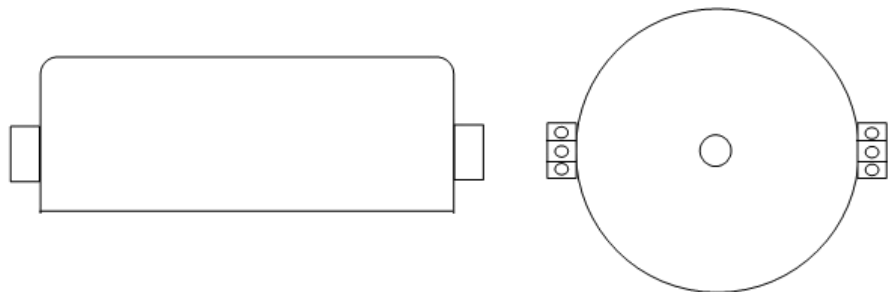
Input / Output at opposite Ends

Dimensions:-

Diameter: 125mm

Height: 66mm

Mounting Hole Size: 6.1mm Dia



# Technical Guide- Switchable Film

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## 500VA Isolating Transformer

Electrical:-

Input: 230v ~ AC 50/60Hz. Full Load Current 2.5A

Output: 110v ~ AC at 4.5A

Max Power rating: 500VA

Regulation: 5%

Thermal Protection: Self-Resettable thermal fuse 120 ° C

Manufactured and tested in accordance with the relevant sections of EN61558

Connections:-

Input: Black 0.75mm 2 Core Cable 0.9mts Long

Output: White 0.75mm 2 Core Cable 0.9mts Long

Construction:-

Black Moulded Plastic Box with 4 mounting Feet

Fully Encapsulated

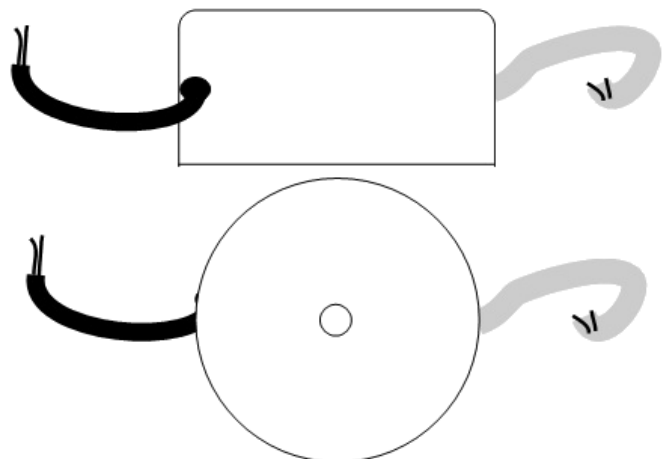
Input / Output at opposite Ends

Dimensions:-

Diameter: 152mm

Height: 83mm

Mounting Hole Size: 8.2mm Dia



## 9. PDLC Data Sheet

ITEM	MEASURING ARTICLE	TEST CONDITION	UNIT	VALUE	
THICKNESS	FILM THICKNESS	MICROMETRE	mm	STANDARD FILM 0.5mm +/- 10%	
				STANDARD FILM 0.7mm +/- 10%	
OPTICAL CHARACTER	ON	TRANSMITTANCE	SPECTRO PHOTOMETER	78	
		HAZE		5	
	OFF	THICKNESS		7	
		HAZE		78	
UV FILTER	SELF-ADHESIVE FILM	WITHIN 1 YEAR		99%	
DIMENSIONAL STABILITY	HEAT SHRINKAGE	MD	100 °C X 30min	%	0.5
		TD			0.5

### Technical Specifications

ITO film – 350 microns  
 LC polymer coating – 100 microns  
 Protective coatings – 75 microns  
 Self-adhesive layer – 45 microns  
 Power – 110v  
 Frequency – 50-60 Hz  
 Electrical current – 0.1 amperes per square metre  
 Power consumption – 7 watts per square metre  
 Switching – less than 1 second  
 Operation mode – On (transparent) / Off (opaque)  
 Light transmittance – On (75%) / Off (67%)

### Test Procedures

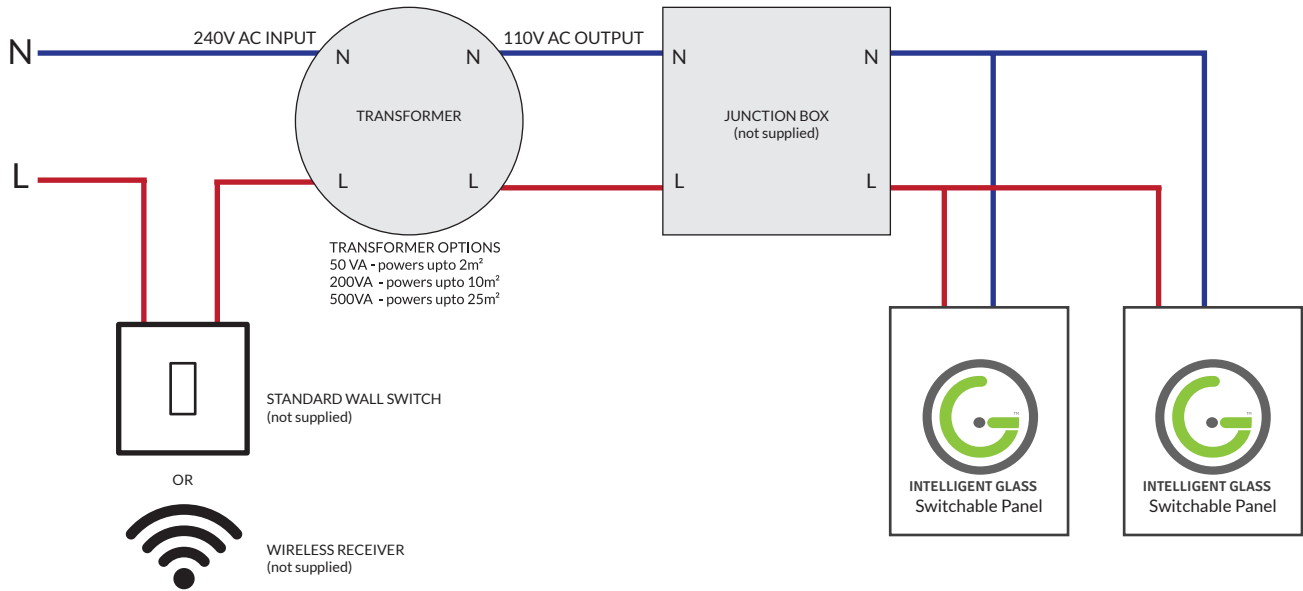
Tested over 3 million switches  
 High temperature – >70 ° C (14 days)  
 High temperature / humidity – >50 ° C / 95% RH (14 days)  
 Cold temperature – minus 20 ° C (14 days)



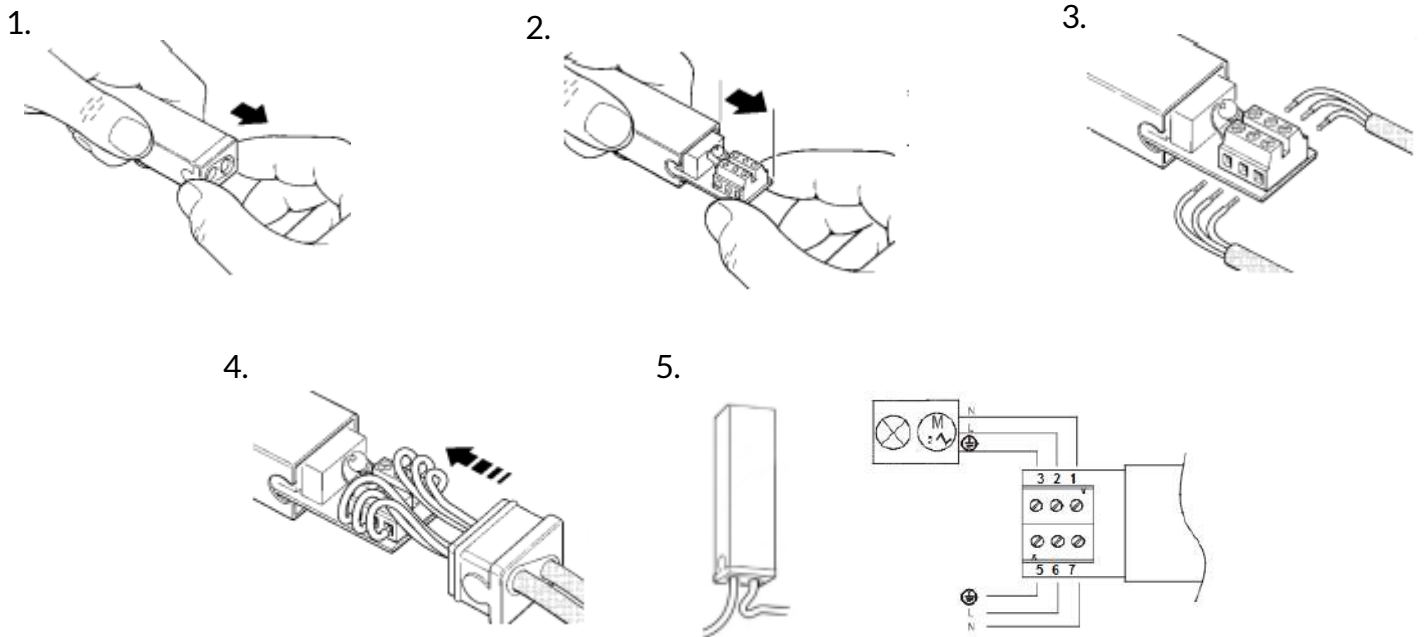
# Technical Guide- Switchable Film

## 10. Wiring Diagrams

### IG Switchable Glass & Film **Standard / Wireless** Wiring Diagram



## 10. Wiring Diagram (Receiver)



## 11. Cleaning and Aftercare

Once the Switchable Film has been installed, the glazing contractor should make provisions to ensure that the films 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 film surfaces are severely soiled, in order to prevent marking or damage caused by abrasive contaminants.

In the event that the film surfaces become heavily contaminated with abrasive particles, the surface of the film should initially be blown with a low pressure compressed air or electrical blower to remove as much of the contaminant as possible.

Any remaining surface contamination should be removed by gently flicking the surface of the film with a soft bristled cleaning/dusting brush.

**Caution must be taken to ensure that any remaining abrasive materials do not become trapped and dragged across the film surface and the brush; otherwise the surfaces may be scratched.**

**All Switchable Glass and Film products must be cleaned with Soft IPA wipes which can be purchased from Intelligent Glass.**

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

**NEVER ATTEMPT TO CLEAN WITH A WET CLOTH AND BUCKET OR OTHER WINDOW CLEANING TECHNIQUE WHICH DRENCHES THE SURFACE OF THE GLASS OR FILM. THIS WILL CAUSE IRREPARABLE DAMAGE TO THE PRODUCT AND WILL INVALIDATE THE WARRANTY.**

To ensure many years of problem free operation we recommend that IG Switchable Glass receives regular resting hours of 8 hours at a time.

**Annual checks:** We recommend that the client checks that all wiring is in good condition, framing materials are free of any damage and that the transformer and switch are in good visible order. The areas adjoining the Switchable Glass including walls, ceilings and floors should be checked for structural integrity, excess humidity and temperature. Should any of these items appear unusual, the client should immediately notify the original supplier / installer / contractor or Intelligent Glass.

## 12. Declaration of Conformity

### DECLARATION OF CONFORMITY

The product here with complies with the requirements of the Low Voltage Directive **2006/95/EC** and the EMC directive **2004/108/EC**.

The CE marking has been affixed on the device according to article 10 of the EMC directive 2004/108/EC.

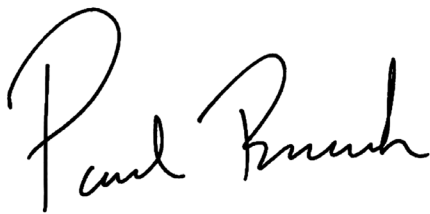
CONFORMS TO THE FOLLOWING STANDARDS:

SAFETY:

**IEC 60950-1: 2005-f AI: 2012**

**EN 60950-1: 2006 +A12: 2011**

The technical file and other documentation are on file with Pro Display TM Ltd.



PAUL BESWICK

C.E.O.



**MANUFACTURER:**

PRO DISPLAY TM LTD

**ADDRESS:**

UNIT 5  
SHORTWOOD BUSINESS PARK  
HOYLAND  
BARNSELY  
SOUTH YORKSHIRE  
UNITED KINGDOM  
S74 9LH

**PRODUCT NAME:**

SWITCHABLE GLASS / FILM

## 13. Warranty

13. PRO DISPLAY TM LTD warrants that Switchable Film products should be free from defects, assuming normal use and correct installation for a period of 2 years from the date of invoice, unless otherwise stated.

To activate the Warranty, send clear digital images of each section switched off and on to: [warranty@intelligentglass.co.uk](mailto:warranty@intelligentglass.co.uk). Please confirm: a) the date of installation and b) the name, address and telephone number of the installer. **Your warranty will only be valid once we have received these images and your order has been paid in full.**

Defects include loss of switching where the electrical system and supply has been correctly installed and functioning correctly.

13.1 All samples, drawings, descriptive matter, specifications and advertising issued by PRO DISPLAY TM LTD and any descriptions or illustrations contained in PRO DISPLAY TM LTD'S catalogues or brochures are issued or published for the sole purpose of giving an approximate idea of the Goods and/or Services described in them. They shall not form part of the Contract and this is not a sale by sample.

13.2 Subject to any additional warranty terms notified to the Buyer in writing in advance relating to the Goods and subject to 13.4 below, PRO DISPLAY TM LTD warrants that: (a) where applicable, the Goods will meet the Goods Specification in all material respects for the Warranty Period where the Goods are at all times stored, installed, used, maintained and handled in strict accordance with any and all written instructions provided or made available by PRO DISPLAY TM LTD to the Buyer which relate to the usage, storage, maintenance or other handling of the Goods (the "Instructions"). PRO DISPLAY TM LTD does not warrant or give any guarantees that the Goods will meet the Goods Specification where the Buyer does not strictly comply with the Instructions; and/or (b) where applicable, the Services will be performed using reasonable skill and care.

13.3 PRO DISPLAY TM LTD does not warrant or give any guarantees that the Goods and/or Services will be fit for purpose and it shall be for the Buyer to determine that the Goods and/or Services, as applicable, are fit for the Buyer's purpose prior to placing an Order.

13.4 Subject to clause 13.5 below where the Goods do not comply with the warranty given at 13 above, PRO DISPLAY TM LTD shall at PRO DISPLAY TM LTD's option repair or replace such Goods (or the defective part) or refund the price paid by the Buyer for the relevant Goods provided: (i) written notice of any defect in the Goods is given by the Buyer to PRO DISPLAY TM LTD within 24 hours from the date of delivery of the same or, where the defect was not apparent on reasonable inspection of the Goods within 24 hours of discovery of the defect; and (ii) notice of a defect is received by PRO DISPLAY TM LTD within the relevant Warranty Period for the defective item of Goods; and (iii) the Goods have at all times been properly transported, stored, installed, handled, maintained and otherwise used in accordance with the Instructions prior to the discovery of the defect; and (iv) the Goods have not been subject to any abnormal, improper or unauthorised use, modification or maintenance; and (v) at PRO DISPLAY TM LTD's request, the Buyer provides a brief report and digital photos of the Goods to assist PRO DISPLAY TM LTD in determining the nature of the defect; and (vi) at PRO DISPLAY TM LTD's request, the Goods are returned to PRO DISPLAY TM LTD at the Buyer's cost for inspection in its original packaging to such address as PRO DISPLAY TM LTD may indicate.

## Technical Guide- Switchable Film

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The Buyer must ensure all returned Goods are fully insured during transit. The Buyer agrees that, subject to 13.7 below, this shall be PRO DISPLAY TM LTD's sole liability in respect of a breach of the warranty given in condition 13.2(a) above; and PRO DISPLAY TM LTD shall have no liability in respect of any defect which is not notified to PRO DISPLAY TM LTD in accordance with this clause 10.4.

13.5 PRO DISPLAY TM LTD shall have no liability to the Buyer in respect of a defect in Goods if it occurs as a result of fair wear and tear; willful damage; neglect; abnormal working conditions; failure by the Buyer or any third party to comply with the Instructions; or misuse or alteration or repair of the Goods without PRO DISPLAY TM LTD's prior express approval.

13.6 Any request to return Goods must be made to PRO DISPLAY TM LTD in writing, which may in its sole discretion allow or refuse it. If a request is allowed an authorisation notice shall be issued to the Buyer and a returns number issued. No Goods will be accepted for return without a valid authorisation notice. All items to be returned must be securely packed together with all documents and accessories in the original packaging and with the returns number clearly stated.

13.7 In the event that the Services do not comply with the warranty given at condition 13.2(b) above, provided the Buyer notifies PRO DISPLAY TM LTD in writing within 7 days of the date of the breach, PRO DISPLAY TM LTD shall at its option refund the price paid by the Buyer for the relevant Services or re-perform the defective Services (or relevant part thereof). The Buyer agrees this shall be PRO DISPLAY TM LTD's sole liability in respect of a breach of condition 13.2(b). To ensure the safe and proper operation of IG Smart 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 Intelligent Glass Switchable Film Technical Guide. PRO DISPLAY TM LTD is not responsible for the replacement or repair of products which are damaged as a result of, but not limited to: natural disasters, improper use, and incorrect installation, use of incorrect silicones or unauthorised parts.

**Haze:** Switchable Film products are not as optically clear as standard glass. All PDLC smart glass and film has some degree of haze and this is not a reason in itself for rejection.

**Switching Time:** Whilst the transition time from frosted to clear (on) is usually less than 1 second, the transition time from clear to fully frosted (off) can vary depending upon ambient temperature, length of time the glass has been switched clear and age of the product, such variability in transition is normal and not classed as a fault.

**Glass Quality:** Glass used in the makeup of Switchable Film products 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 Smart 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, causing slight tint variation; this is not classed as a fault.

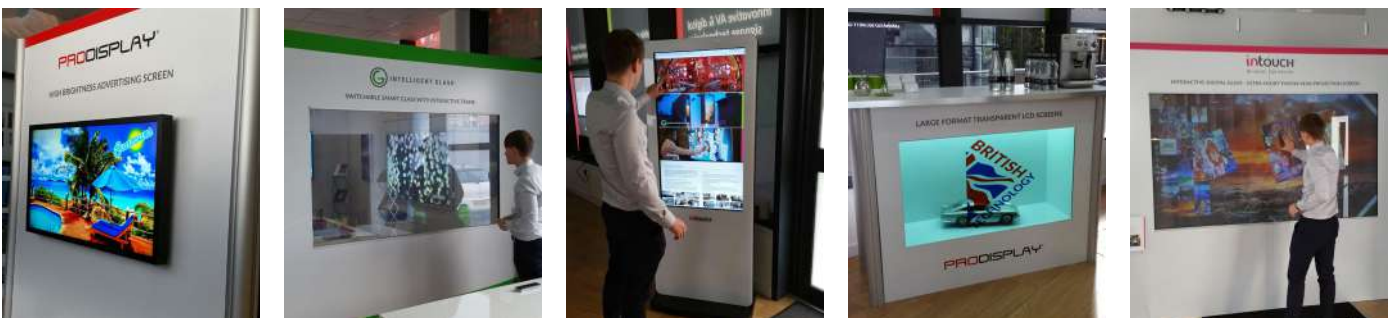
**Tolerances for Mirror Vision, Toughened, Laminated and DGU Smart Glass Products:** +/- 3mm

**Tolerances for all Film, Foil and Interactive Products:** +/- 1.5mm

**UV Stability:** Switchable Film is warranted for a period of 1 year from purchase against discolouration or damage caused through UV exposure.

**DGUs:** The warranty for Switchable DGUs mounted in a timber frame is 12 months from installation date.

## The **SCREENGALLERY**



## Technology You Can Experience

*"Experience the visual wonder of Pro Display, feel the magic of intouch and control the power of Intelligent Glass."*

Our Screen Gallery in Wakefield provides you with an opportunity to share in our vision and see some of the most advanced screen technologies the world has to offer. Conveniently located directly opposite Wakefield Westgate train station, you can easily get to The Screen Gallery using a variety of transportation methods. Visits are by invitation only, so if you would like to see the technological marvels we have to offer, please enquire today.

### Did you know?

The Screen Gallery is also available for hire for private functions and other events. Please get in touch if you would like to know more.

# The Pro Display Group

**PRODISPLAY**<sup>®</sup>  
AV & digital signage solutions

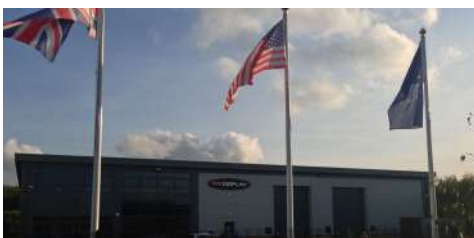
*"Pro Display manufactures an innovative range of AV & Digital Signage solutions designed to advertise, inform and entertain"*

 **INTELLIGENT GLASS**<sup>®</sup>  
Switchable smart glass technology

*"Intelligent Glass manufactures the widest range of switchable glass and film solutions, designed for commercial and residential applications"*

**intouch**<sup>™</sup>  
Touch screen technologies

*"intouch brings you the future of multi-touch today, with a range of solutions designed for new installations and retrofit applications"*



Get in touch

email [sales@prodisplay.co.uk](mailto:sales@prodisplay.co.uk)  
call +44 1226 740 007  
or visit [prodisplay.com](http://prodisplay.com)



**infoComm**



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# About Pro Display

## History

Pro Display has a rich heritage of innovation in the professional visual display market. Our early innovations include the first full-colour LED screens introduced into Europe in the 1990s and LED perimeter systems in the early 2000s.

Pro Display continues to make substantial investment in R&D, developing its range of optical screens and films to meet the needs of the commercial and residential AV markets, and many other industry sectors.



## Worldwide Shipping

In 2016, Pro Display shipped to over 80 countries worldwide. In the last 5 years we've shipped to a total of more than 150.

This means that we understand the rigours and regulations of international shipping. Our export team works hard to ensure that your products arrive exactly when and where you need them, along with all the correct export documentation.

## Made in Britain

Pro Display is a British manufacturer with its European headquarters near Sheffield, UK.

Here we manufacture, assemble and dispatch a wide range of professional grade visual display solutions, smart glass and interactive touch technologies.

If you're interested in reselling Pro Display products, visit our website today to sign up as a Registered Reseller, and share in our vision.







Resellers and integrators specify our products for some of the world's leading brands:



### Did you know?

Pro Display have over 25 years worth of Research & Development experience in optical screen technology.






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## #SwitchOn

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## PRODISPLAY® Partner to the AV industry

**NEC**  
**EPSON**  
**Panasonic**  
**HITACHI**

Pro Display has built strong and close relationships with the leading projector manufacturers worldwide.

The projector is only one half of the equation, as any professional AV installer will agree. Choosing a quality screen is hugely important for professional results.

The quality and reputation of Pro Display's screens is such that they are often used by brands like NEC, Epson, Panasonic and Hitachi, on their own trade show stands, partnered with their newest and best projector hardware.

Choosing a Pro Display screen completes the equation, delivering image performance beyond your expectations.