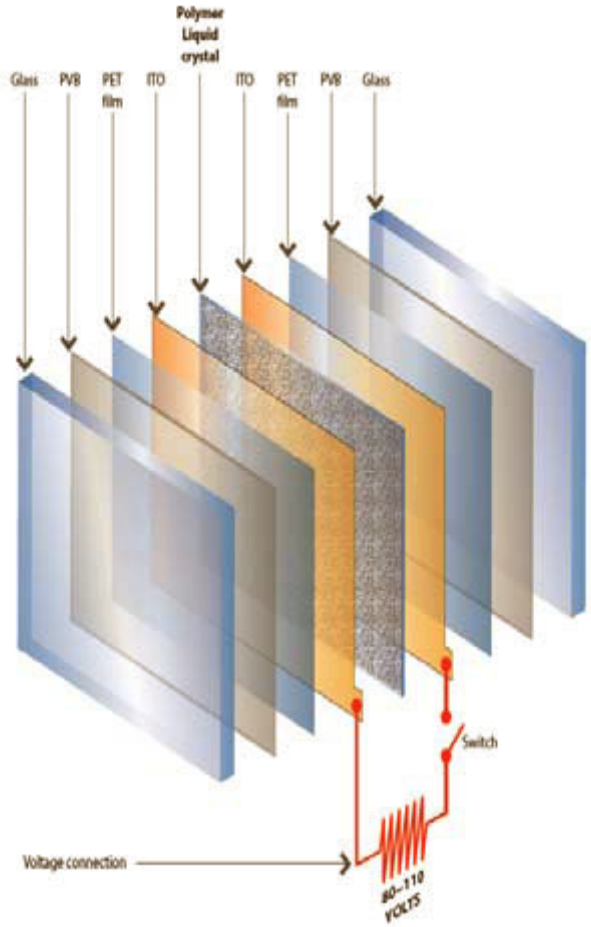
**LC glass** is a switchable Glass with i-Glass film; it is a unique product employing advanced liquid crystal encapsulation technology for incorporation into laminated glass products as used in :

**Architectural applications**
such as :

• **anti-glare** window and **controlled heat transmission** window (if combined with the appropriate coated glass with solar shading properties)
• office **partitions**, reception areas, **security** applications, museum and department stores **showcases**, glass doors
• bill boards and many other **"eye-catching"** visual displays .

**Audio visual applications**

such as **projection screens** in meeting rooms, **hotel leisure areas** etc. In this type of applications, It is advisable to use a combination of clear and grey toned glass. This enhances the clarity of projection.
The i-Glass film is a Liquid Crystal technology very similar to those electronic components as used in laptop computers and LCD TVs.
I-Glass film is manufactured by inserting an i-Glass proprietary Liquid Crystal Polymer Matrix between two layers of electrically conductive thermoplastic film.
Electrodes are applied to the specially conductive film, enabling an electrical charge to be applied to the i-Glass film and permit it to transform visually from opaque to clear.

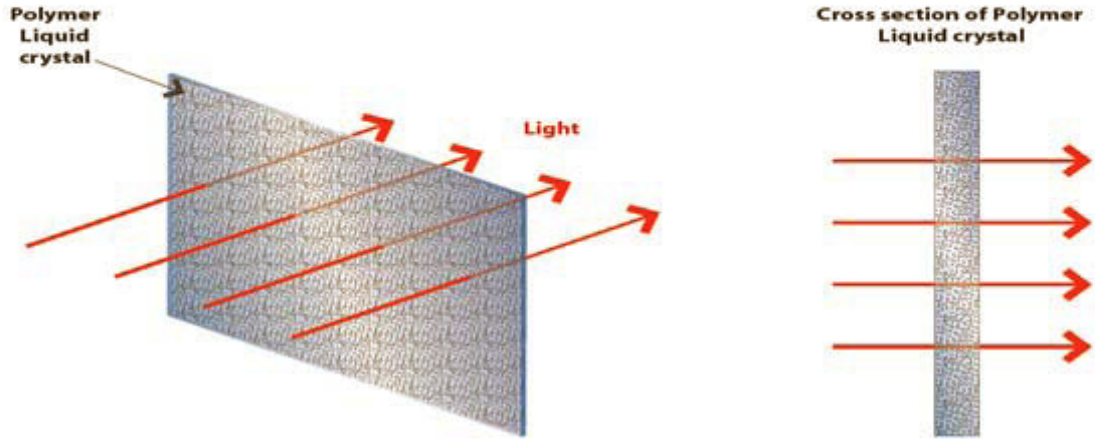



This processed film is then laminated between 2 layers of glass. The completed laminated panel can then be incorporated into glazing systems for use in internal and external (with all edges additionally sealed and only as the inner lite of an IGU, the outer lite being made of a laminated glass) applications.

LCD glass

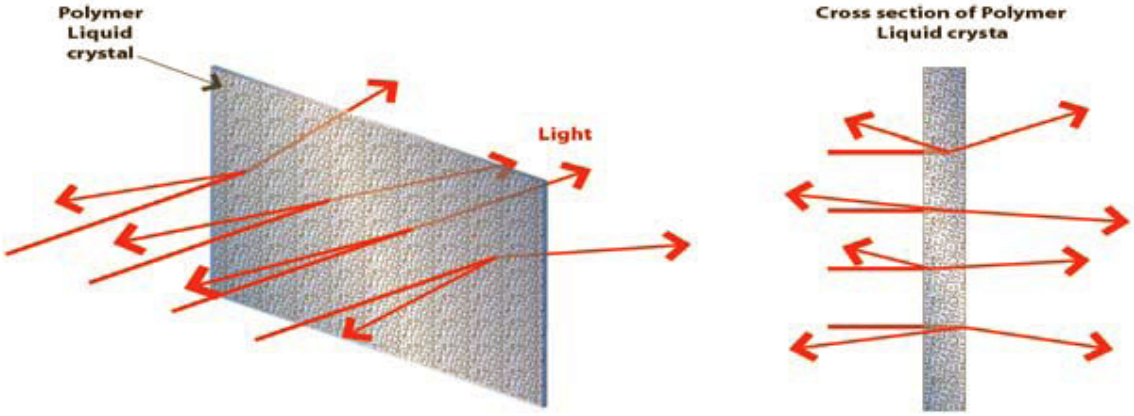
## Voltage ON

liquid crystal in light transmission mode
Film transparent




## Voltage OFF

liquid crystal in diffusion mode
Film Translucent




Via control of the supply voltage , the required translucency can be achieved in the alignment of the liquid crystal cells in permitting them to diffuse the visible light.
In its transparent state a degree of haze is still apparent. It is recommended that a sample product should be viewed and the performance data be viewed and understood.

**Switching & Dimming options**
Switching can be through general purpose mains switches or automated switching modules. Special dimming modules have to be used to achieve dimming effect. DMX controllers can be used as well.

## What does LC GLASS with i-Glass achieve

This glazing technology can impact both **life style** and **quality of the living and working environment :-**

**COMFORT**
• Dynamic partitioning of space with no hindrance to light transmission
• Electronic observation panels for doors
• See-through fridge doors

**PRIVACY**
The " Electronic glass blind " at the flick of a switch !

**SECURITY**
• Increased protection from intrusion
• Increased acoustic dampening

**INNOVATION** in the creation of new , alternative, spaces
• Projection areas
• See through appliances
• Indoor/outdoor living spaces
• Automotive glass roofs and windows

**INTEGRATION** *Into any space*
• Commercial or retail Exhibition
• Office or home

## Where to use LC GLASS with i-Glass

**Architectural**
• Commercial and residential applications
• Facades , windows , skylights
• interior partitions, walls, doors, staircases
• Displays , museum show cases ,

**Advertising**
• Point-of-purchase and promotional displays
• Real Estate windows
• Eye catching billboards and road signs , shopfront " transformation " from display in the day to advertising at night.

**Options**

• Monolithic laminated
• Insulating glass
• Flat and curved
• Framed or butt-joined
• Vertical and sloped applications
• Screen printed
• Etched glass decoration
• Touch panel devices

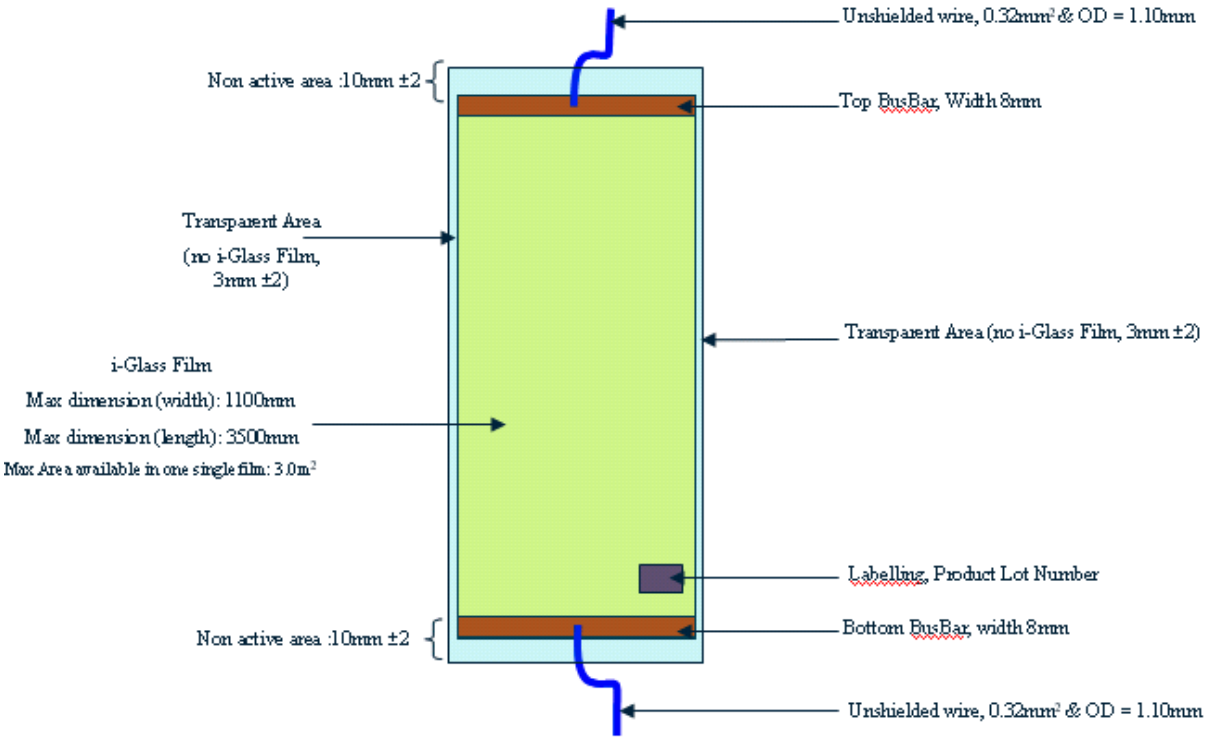
***Technical data***

| | on/Max | off/min |
|---|---|---|
| Light Transmission | 79% | 49% |
| Light Reflection | 13% | 19% |
| Haze | 8% | 99% |
| SHGCc | 0.69 | 0.51 |
| U-value | 5.7 | 5.7 |
| Switching Speed | <15ms | 50ms |
| Projection Viewing Angle | 180 degree | |
| Electrical input | 0-240 Volts A.C., | |
| Power Consumption | 5W/m square, less than 200 mA/m square | |
| Size | 1100 X 3500mm | 100 X 100mm |
| Appearance | Complies With EN ISO 12543-1 | |

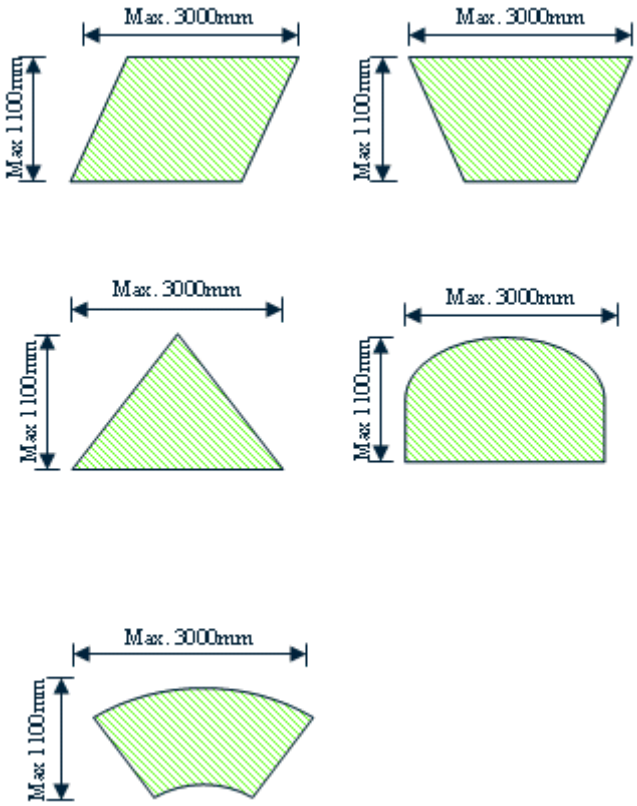
## Features & Advantages

1. Transmits only 48% of visible light when in the switched off translucent state, an unparalleled, very high opacity.
2. Transmits 76% of visible light in the switched on transparent state, a very high light transmission.

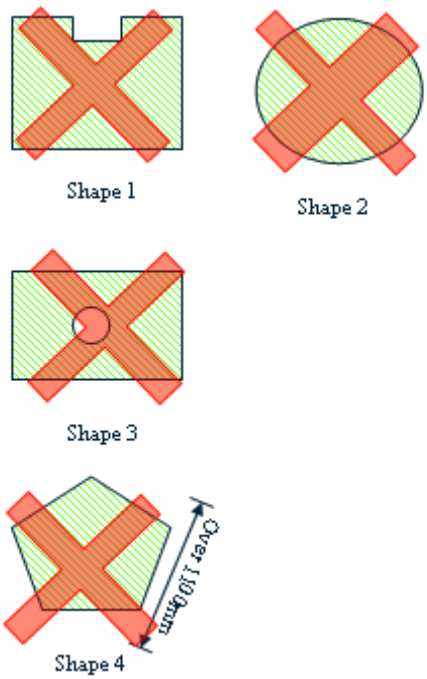
## Glass sizes



## Available shapes




Film shapes should not have any uneven straight sides or cut outs (as shown in shape 1). Products can not be circular or oval shaped (as shown in shape 2). Film can not have any kind of hole or cut out in the middle (as shown in shape 3). Products can not have a width of more than 1100mm (as shown in shape 4).

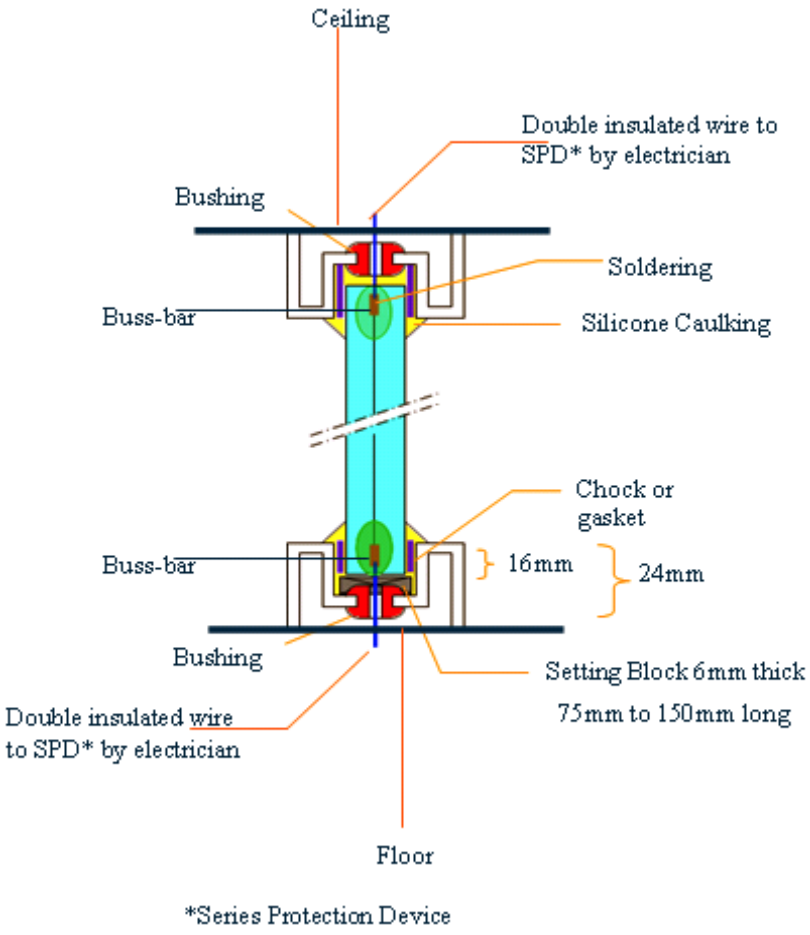



## Installation of glass and Framing

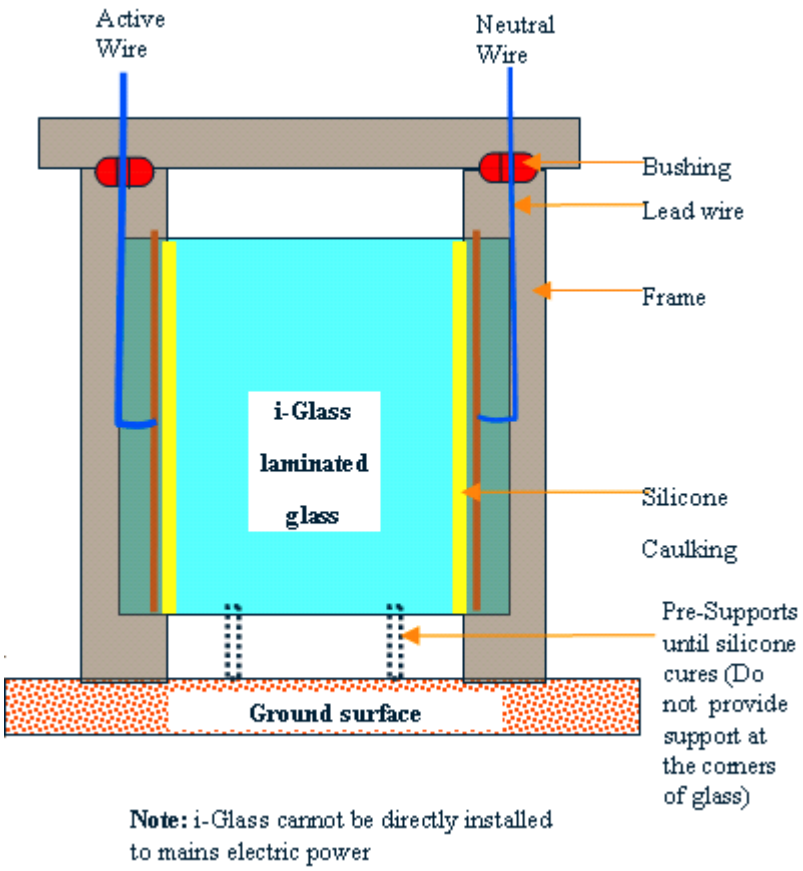
**LC GLASS** laminated glass must be handled with care and although it is a laminated glass, has specific requirements

1. Edge clearance and cover – A clearance of 8mm to frame rebate with 10mm cover (16mm cover is required to fully mask busbars). Therefore frames need to have 24mm deep rebates and ideally 3mm face clearance (+6mm on glass thickness)
2. Electrical wiring is required to the busbars. It is strongly recommended that setting blocks are used on busbar edges and the electrical wires are pre-installed with the bushing in place
3. Only neutral non-acetic silicone sealant should be used for glazing. Dow Corning 795 or GE Multisil could be used.

Note: Even in interior applications, there must be a perfect drainage of the frame so to prevent any contact of water with the edge of i-Glass laminated glass.




*Series Protection Device



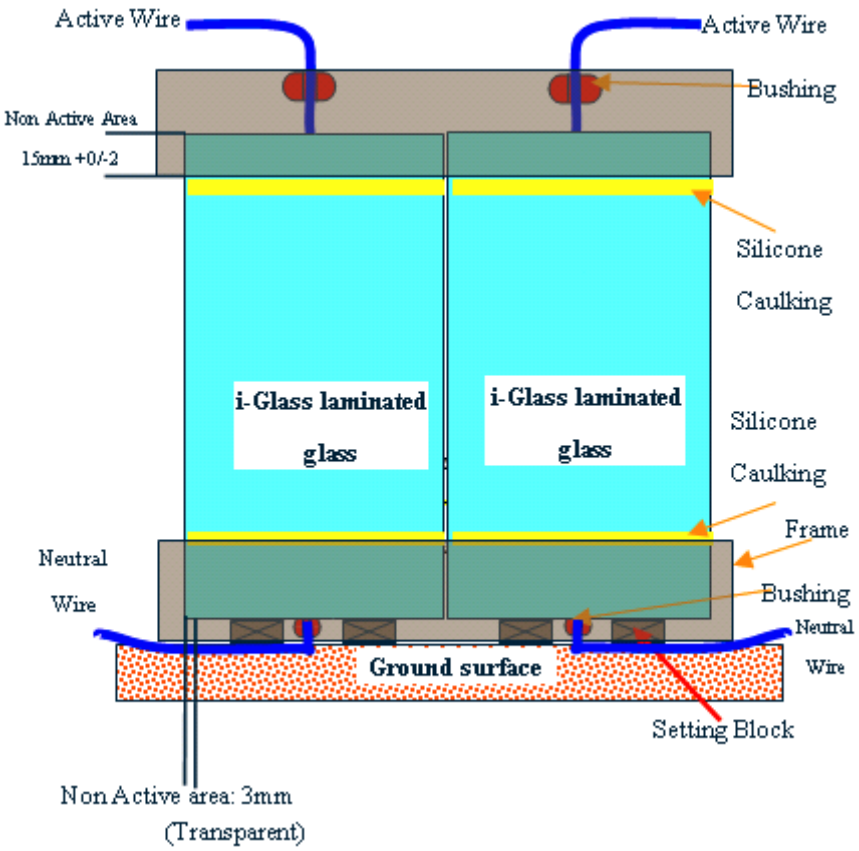

**Considerations for Fully Framed Windows**

1. The busbars are in a 15mm zone from the frame. This area does not switch, we recommend enough frame cover to incorporate this zone
2. Setting blocks must support the full thickness of the glass and be 75-150mm long
3. It is preferred that the electrical connection is at the top of the frame. There needs to be at least 8mm clearance to allow for the electric wiring clearance, a frame with a 24mm pocket is required

**Considerations for Internal Partitions**

Internal partitions are the only application that silicone butt joints may be used.

1. Electrical connection for active is at top of partition, neutral at sill
2. Setting blocks must support full thickness of glass and be 75-150mm



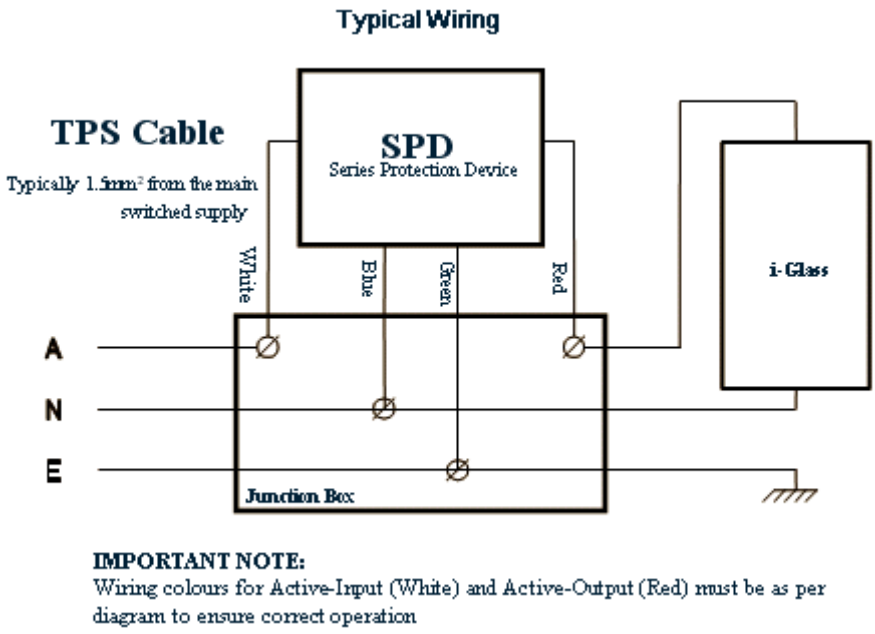

***Installation and Wiring Diagram***

The electrical installation must be done by a qualified electrician. It is important to ensure that the on/off switch is located between the mains power and the SPD units. Use of certified SPD electric driver unit is mandatory. Please ask for the correct type of driver required for your installation.

1. All wiring and electrical installation to conform to all state authorities, regulatory acts and local standards
2. Use one SPD electric driver per panel
3. Earth leakage protection should be implemented using a Residual Current Device (RCD). This device shall conform to AS3190(if in Australia) or applicable local state standards and regulations and be rated at 30mA trip value
4. All metal fixing frames to be earthed.
5. All hook-up wiring to be double insulated. PVC/PVC, general purpose single cable to 0.6/1KV potential level.
6. Installed panels, wiring and SPD should be tested by electrician for the following items:

- Continuity of earthing system (applicable to metal-framed installations only)
- insulation resistance ('Megger' test > 1MΩ at 500V)
- correct circuit connections and operation

SPD can be connected to special sine wave dimmers – contact us for specific instructions





**i-Glass Series Protection Device (SPD)**

**LC GLASS** laminated glass panels require connection to mains power via the i-Glass Series Protection Device electric driver. They are the only electrical devices approved for connecting i-Glass laminated glass panels to mains power. They are sized depending on i-Glass laminated glass' product area.

**Specifications**

• **Physical**
Dimension H x W x D (mm)
Size 2-40: 56 x 130 x 75
Size 45-50: 87 x 150 x 87
Weight: 0.67Kg max
• Distance between glass panel and SPD: a maximum distance of up to 50 lineal metres is recommended.
• Electromagnetic Interferences (EMI): due to its unique technology, SPD does not generate EMI. Hence, wires do not need to be shielded and SPD-wires and glass panels will not interfere with critical equipment in hospitals, control rooms, …..