C2S-PDLC:- Product Specification/Datasheet

“Switchable/Privacy Glass”
Product Information:
C2S-PDLC™ is designed for “Privacy-on-Demand” meaning it provides instant privacy with a flick of a switch. All C2S-PDLC™ panels are bespoke and produced using a proprietary manufacturing process. With the application of a minute electrical current, C2S-PDLC™ turns from a translucent (private) state to clear state. C2S-PDLC™ is available in various configurations like single laminated glass, Fire-rated glass, Double Glazed Units etc.

Principle:
When the electric current is applied, the minute liquid crystals suspended in a di-electric medium in C2S-PDLC™ panels are aligned in one direction allowing the incident light to pass through. This makes the C2S-PDLC™ panels clear.

When the electric voltage is switched off, the liquid crystal align randomly thus scattering light. This causes C2S-PDLC™ to turn translucent or private.

Applications:

Residential:
Internal partitions, Porch, En-suite bathrooms, Conservatories, Doors, Windows

Commercial:
Partitions, doors, windows and roof-lights

Hospitality:
Hotel room partitions, En-suite partitions, balustrades, roof-lights, conference/meeting room partitions, bar and restaurant screens, toilet cubicles and balconies

Healthcare:
ICU partitions, Fire-rated doors, movable privacy screens, examination room screens and X-ray protection screens
Security:
Bank teller Counters, vision panels, bullet resistant glass, prison cell partitions and doors
Retail:
Shop Front windows, Projection screens, vanity screens and feature screens
Projection Screens:
High resolution rear projections screens and interactive displays

Advantages and Benefits:
- Instant and precise privacy control
- Exceptional optical qualities
- Blocks 99.5% damaging UV rays
- Highly durable, solid state technology with no moving parts
- Large sizes in various shapes
- Helps reduce ‘gold-fish syndrome’ in high density enclosed work spaces
- Long life: tested for over 5 million cycles
- Low maintenance
- Efficient use of space in build environment

Operation:
C2S-PDLC™ operation is as simple as the flick of a switch, the panel turns clear and transparent. Once the electric supply is cut off, the panel turns to its natural state of being translucent or private.

Shapes and Designs:

Control Systems:
C2S-PDLC™ panels can be operated using various control systems like a manual wall switch, remote control switches and fobs, motion sensors, light sensors, Crestron, ABX etc.

Durability Test Data:
Please refer to Attachment – I for the extensive range of durability test carried out on C2S-PDLC™.

Performance Data:
C2S-PDLC™ panels undergo an extensive range of performance tests to ensure that the product not only complies with all local and statutory requirements, but also is of the best
quality available anywhere in the world. Some of the tests carried out by us are not conducted by any other supplier. These are:

- 1000 hour Humidity Test: Randomly selected production samples are immersed in water at a high temperature for 1000 hours (approximately 42 days) and then tested for switching performance. All our test samples have passed this stringent quality test. Please refer to Attachment -2 for details of this test.
- Peel Test: Every batch of the switchable film used by us is tested for its peel strength in order to ensure that we have a consistently high adhesion level in every C2S-PDLC™ panel. Please refer to Attachment – 3 for more details about this test.

Besides these two stringent performance tests, C2S-PDLC™ panels are also tested for various other tests like Impact test, Optical Performance test and where applicable all tempered glass tests.

Configuration:
C2S-PDLC™ can be produced in various configurations as follows:

Colour:
Clear, Extra Clear (Standard), Grey, Bronze, Brown and Green

Glass Type (Laminated):
Annealed, Toughened/Tempered, Curved, Tinted.

Thickness:  Partitions: 10mm, 12mm, 14mm, 18mm and 22mm
            Doors 12mm and 14mm Tempered
            Double Glazed Units: from 24mm

Size: Maximum Height: 3000mm (as standard) but upto 4850mm
      Maximum Width: 1500mm (Standard).

Aspect Ratio: Upto 4:1 (For higher aspect ratio we will need to apply the electrical connections on the long edge or both top & bottom)

Tolerance: +/-2mm on OA size and +/-0.50mm on thickness. 4mm/linear meter bowing tolerance.

Storage: -10°C to +50°C
Switching Time:1/100 of second at room temperature
Electrical: Driving Voltage : 80V AC
           Current : less than 200mA/m²
           Power : upto 5W/m²

Life Span: Greater than 10 years
Warranty: 5 Years
Product Specification:

These Specifications apply for sale of goods sold by Concept2Solutions Ltd.

1. Laminated Specification – to BS EN 14449 & BS EN 12543
2. Toughened Specification – to BS6206A, BS EN12150 & BS EN 12600
3. Haze - It should be noted that there will always be an element of haze within the C2S-PDLC™. Switchable glass will never be as clear as clear glass due to the particles within the film interlayer. This haze will increase if the glass is viewed at from an angle or under direct lighting.
4. Delamination - will only be considered as unacceptable within the switchable area when visible with the naked eye from a distance equal to or greater than 3 metres from the surface of the glass. Delamination will not be covered under warranty if caused by use of incorrect sealant (see item 10) contamination (see item 11) or excessive pressure (See Item 12)
5. Bubbles - will only be considered as unacceptable within the switchable area when visible with the naked eye from a distance equal to or greater than 3 metres from the surface of the glass. Bubbles are acceptable within the non-switchable areas.
6. Pinholes - will only be considered as unacceptable when visible with the naked eye from a distance equal to or greater than 3 metres from the surface of the glass.
7. Non switchable areas - C2S-PDLC™ panels will have a clear border from the edge of the glass to the switchable area of up to 5mm in width on the non-busbar sides and up to 20mm on busbar side, this border area will always remain in the clear state with power on or off
8. Visual Imperfections - will only be considered as unacceptable when visible with the naked eye from a distance equal to or greater than 3 metres from the surface of the glass.
9. Scratches – No scratches will be visible with the naked eye from a distance equal to or greater than 3 metres from the surface of the glass.
10. Sealant – All Acidic and some Neutral sealants are extremely hazardous to C2S-PDLC products and can cause de-lamination and irreversible damage to the product. Only specialist sealant supplied by Concept2solutions Ltd is acceptable to use.
11. Contamination – C2S-PDLC must be fitted into the frame or opening as per our instructions, many surfaces and fixing products can damage the C2S-PDLC Interlayer. As a rule, the glass edges should be fully protected by our specialist sealant or dry mounted into a powder coated aluminium or UPVC frame using plastic spacers. The Glass should NOT touch timber, varnish, putty, treated metal or any other surface not specifically approved by Concept2solutions Ltd.
12. Installation / Fixings – Where door mechanisms / fixings such as door handles, pivots, strike boxes, locks etc. are to be fitted to the C2S-PDLC panels, care should be taken when fitting, as any excessive pressure will cause irreversible damage around the fixing area such as de-lamination or clearing of the liquid crystal.