1. FEATURES

Liquid crystal glass is laminated glass that is connected to a switch-operated electric circuit. The appearance of this glass changes depending on the position of the switch; when it is off, the glass is opaque; when the switch is turned back on, the glass becomes transparent.

This type of glass is made up of a thin film of liquid crystals laminated between two sheets of glass. When the crystals are activated by an electric current, they become aligned, making it possible to see through the glass. Conversely, when there is no electric current, the crystals become unaligned, rendering the glass opaque (see graph 1). The color of the crystals determines the color of the film. The film can be combined with different types of tinted glass to create many possible colors. Prel-Lam LC-LTI is UL certified in Canada and United States.
2. ADVANTAGES

- Controls light;
- Provides privacy;
- Prevents glare;
- Blocks UV light;
- Prevents de colouring of surfaces;
- Cuts noise;
- Eliminates the need for drapes or other window treatments;
- Enhances comfort.

3. USES

Architectural

- Private homes: doors and windows, interior partitions, bathrooms, etc.
- Commercial and institutional buildings: offices, meeting rooms, hospitals, laboratories, detention centers, exhibition halls, etc.
Automotive

- Busses, ambulances and other specialized vehicles;
- Trains, subways and tramways;
- Ships and pleasure craft.

Other applications

- Projection screens, elevators, household appliances, display lighting, etc.

4. TECHNICAL DATA

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5. DESCRIPTION:

1. Laminated glass

2. Electric wire
   - Diameter: 18 AWG;

3. Bus bar
   - 1/4" (6mm) wide. Can be installed on a short or on a long edge;

4. Permanent 5/8" (16 mm) clear border
   - Runs the length of the bus bar;
   - Needed on all units regardless of size;

5. Permanent 1/8" (3 mm) clear border
   - Runs along the three remaining edges
   - Needed on all units regardless of size;
6. STORAGE AND HANDLING

**Warning:** Never lift or handle liquid crystal glass by its electric wires. Never pull or push on the wires.

Full storage recommendations are found on the packing crate: please follow them closely. We recommend placing protective material between each panel and keeping this material dry at all times to prevent stain formation. Crates should be placed in a clean, dry, cool storage area where the temperature does not exceed the dew point. The storage temperature must range from -4°F to 158°F (-20°C to 70°C). Glass must never be stored in direct sunlight and must be protected with a light-colored opaque cover.

Improper handling could cause breakage and serious injury. All workers who pack, unpack or transport glass must follow all safety precautions, use proper equipment and wear protective clothing. Glass must be unpacked according to the instructions printed on the crates.

7. INSTALLATION

The glazier and the electrician must coordinate their installation of liquid crystal glass. The electrical connection for this type of glass calls for drilling holes in the frame and the installation of junction boxes near the units. The location of these boxes determines the exit point of the connecting wires.

**Frames**

The frames must be designed to provide the glass with structural support while allowing the glass to ‘float’ in the frame. At no time must the frame exert a load or pressure points on the glass. The frame joints must be properly sealed against air and water infiltration.

Holes must be drilled in the frame for the connecting wires. These holes should be larger than the diameter of the wires. If the glass is installed in an aluminum frame or a frame made of any other sharp material, the edges of the holes must be protected by rubber or plastic rings to avoid damage to the electric wires. The centers of the holes must be aligned with the exit point of the connecting wires. The wires must slide freely in the frame and must not be pinched or crushed.
**Tolerances, setting blocks, spacers**

The glass must be set at least 5/8” (16 mm) in the frame. The frame must be deep enough to hold the glass in position so that it can withstand wind loads. The frame must hide the permanent clear border around the perimeter of the liquid crystal glass.

The glass must be supported by two setting blocks. These must have a Shore A Durometer hardness of 85±5. Setting blocks must be spaced at intervals corresponding to one quarter the width of the unit and at least 6” (150 mm) from the corners. Insufficient tolerances on the face and the perimeter of the glass could cause breakage. Allow a minimum tolerance of 1/8” (3 mm) between the face of the molding and the edge blocking and 1/4” (6 mm) between the edge of the glass and the bottom of the frame (see graph 3 below).

The spacers should be placed between the glass and the edge blocking to prevent lateral movement once installed. This also keeps the sealant from spreading if applied with a gun or if sealing strips are used without blocks.

Graph 3
Sealant product

**Warning:** Moreover, top and down glass borders must be sealed with silicone sealant DOW 995 only. For vertical joints, apply nothing else then DOW 1199.

Drainage system

The perimeter of liquid crystal glass must never be exposed to water or moisture. This could cause the glass to delaminate and break. Any water that leaks through joints, condensation between the sections and other moisture in the system must run out through a series of drainage holes.

Electrical installation

**Warning:** Liquid crystal glass electric circuits must be protected by a ground fault circuit interrupter (GFCI).
Power Module:
A power module is supplied with the glass. One power module can supply electricity for a surface of 140 pi² (13 m²) of liquid crystal laminated glass. A power supply of 120 Volts is required as well as a ground fault circuit interrupter (GFCI) in order to protect the electric circuits. Use more than one power module when glass surface exceeds 140 pi².

Installation in a metal frame:
When the glass is installed in a metal frame, the frame must be properly grounded.

Inspecting the glass:
Before connecting liquid crystal glass, we recommend conducting a visual inspection. Check the links between the electric wires and the bus bars; the cables should be firmly welded to the tapes.

Junction boxes:
You must install a junction box for each unit. The junction boxes must be installed in an easily accessible location in the room in which the unit is installed.

8. MAINTENANCE

Protection during construction
During the construction period, window openings should be identified in some way. This could be a colored flag, strips of cloth or tape hung near the glass or at the top, sides or bottom of the frame. Make sure that the tape does not come into contact with the glass and that no mark or coating material is applied directly to the glass. To avoid weakening or breaking the glass, protect it with heavy plywood or plastic when welding, cutting, sandblasting or other potentially damaging work is conducted in the vicinity of the glass.

Initial cleaning
Abrasive residues can severely damage the surface of the glass during cleaning. Special precautions must be taken for the initial cleaning, when cleaning during the construction period or when the glass surfaces are extremely dirty.

The glass surfaces must be abundantly rinsed with clean water to eliminate as many abrasive residues as possible. However, water must never come into contact with the perimeter of the glass panels. While the glass is still wet, wipe a squeegee from top to bottom to remove excess water. Make sure that no abrasive residue gets between the squeegee and the surface of the glass. Clean the glass a second time with a clean, soft, grit free cloth and a non-abrasive and
non-alkaline cleaning solution. Rinse the glass immediately with clean water and remove excess water with a squeegee.

**Routine cleaning**
For routine cleaning, use a regular window cleaner or a mild soap and water solution. Spray the cleaning solution evenly over the surface or apply with a clean, soft, grit free cloth and rinse abundantly. The surface can be dried with a soft clean lint-free cloth or with a squeegee.

For additional information on Prel-Lam LC-LTI liquid crystal glass, contact our Customer Service department at 1-800-463-1325 CAN / 1-888-277-3526 USA or (418) 862-2274.

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The information contained herein is, to the best of our knowledge and belief, correct. This information is intended for reference purposes only. In no event will PrelcoMD be responsible for faulty usage of this product. The information contained herein may change as new developments occur and further experience is gained.