



Smart Film Solutions

INSTALLATION MANUAL

PDLC Smart Film

Professional Installation Standards
& Compliance Guide

DOCUMENT VERSION

V2.0

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MANUFACTURER

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01 SECTION INSTALLATION TOOLS & PREPARATION

Before starting installation, ensure all professional tools below are prepared and completely dry. Non-standard tools may cause installation defects or product damage.

Glass Scraper & Blades Remove stubborn glue residue, paint, and hidden particles from glass surface.	Felt-Edge Squeegee Flatten film and secure segments without scratching the protective surface.
Isopropyl Alcohol 99% Deep cleaning agent. Ensures zero residual moisture haze on glass.	Lint-Free Microfiber Cloths Prevents lint shedding and surface contamination during cleaning.
Precision Utility Knife Clean edge trimming, adjustments, and wire channel opening.	Insulation Tape & Strippers For secure wire joint wrapping and professional electrical preparation.
Neutral Structural Silicone Premium waterproof edge-sealing. Zero shrinkage, zero solvents.	

INSTALLATION PROCESS OVERVIEW



02 SECTION ENVIRONMENT & PREPARATION

- 01 Strict Water Control:** Glass surface, all tools, and the entire workspace must remain absolutely dry. Wet installation or high-humidity application is strictly prohibited.
- 02 Two-Person Operation:** Unpacking and installation must be performed by at least two trained personnel. Never fold, sharply bend, or apply localized pressure — permanently damages the internal liquid crystal layer.
- 03 Dimension Verification:** Finished smart film should be 2mm smaller than glass on all four sides to provide adequate margin for edge-sealing.
- 04 Field Trimming (Anti-Short Circuit):** Trim with self-adhesive side facing upward. Scrape edges perpendicularly after cutting to remove burrs and prevent edge material short circuits.
- 05 Pre-Installation Power Test:** Inspect for scratches and defects. Perform power-on test to confirm smooth transparent/opaque switching BEFORE glass application.

03 SECTION GLASS CLEANING & APPLICATION PROTOCOL

- 06 Deep Cleaning (Mandatory Scraper):** Remove all glue residue, dust, and stubborn stains. **Required:** Use specialized glass scraper over the entire surface to eliminate microscopic debris invisible to the naked eye.
- 07 Segmented Film Peeling:** Identify the Self-Adhesive Side (must face glass). Peel protective backing only 5-10cm at a time, squeegee flat before continuing. Never peel backing all at once — static charge instantly attracts airborne dust.
- 08 Immediate Bubble Removal:** Smooth continuously from center outward. Squeegee out all bubbles immediately — delayed removal causes permanent local delamination and adhesive failure.

■ SAFETY WARNING — POWER SUPPLY

- Never connect PDLC Smart Film directly to 110V/220V mains power
- Always use the CX SMART FILM dedicated transformer
- Incorrect wiring will permanently damage the liquid crystal layer
- Never reverse high-voltage input and low-voltage output terminals

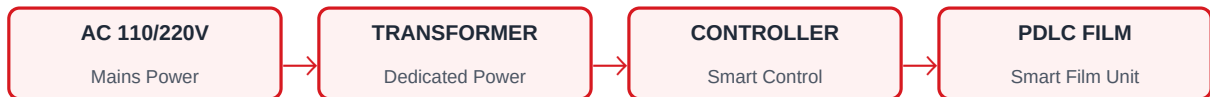
04 SECTION ELECTRICAL WIRING & SAFETY STANDARDS

- 09 Dedicated Transformer:** Use only the official CX SMART FILM power supply unit. Direct mains connection will destroy the product and void all warranty coverage.
- 10 Insulation Protection:** All wire joints must be tightly wrapped with multiple layers of electrical insulation tape to prevent moisture and dust penetration, eliminating all short-circuit risks.
- 11 Preserve Backup Wires:** Film includes two red/black wire sets. One for primary connection, the second is backup for future maintenance. Do NOT cut backup wires — wrap and store neatly inside the window frame.
- 12 Electrode Handling:** Handle copper foil electrodes and wire leads gently. Never pull forcefully. Avoid applying continuous tension at electrode connection points during wiring routing.

05 SECTION EDGE SEALING & SUBSTRATE RESTRICTIONS

- 13 Dedicated Sealing Glue Only:** After installation, seal the entire perimeter and all electrode areas for complete waterproofing. Use only premium neutral structural silicone meeting three criteria: (1) Zero shrinkage, (2) Neutral curing, (3) Zero organic solvents. **Acidic silicone is PROHIBITED** — it instantly corrodes the liquid crystal layer and turns film edges permanently black.
- 14 Substrate Material Restrictions:** Do not apply silicone glue directly to wooden frames (moisture deformation risk) or electroplated aluminum surfaces. For these materials, use rubber gaskets or glazing strips for physical fixation and sealing instead.

STANDARD WIRING DIAGRAM



06 SECTION COMPLIANCE & DOCUMENTATION

- 15 Follow Official Documentation:** The project foreman and all installation crew must read this manual thoroughly before starting work. Strictly follow the official CX SMART FILM Installation Video and Standard Wiring Diagrams. Deviation from standard procedures will void the product warranty.

Warranty & Technical Support

Technical Support

CX SMART FILM provides professional technical support for authorized distributors, certified installers, and project partners worldwide. Our technical team offers remote guidance, on-site training, and comprehensive troubleshooting services.

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Disclaimer

This document is the official installation standard of CX SMART FILM. All installation must be performed by trained professionals. The manufacturer is not liable for damage caused by improper installation, unauthorized modification, or use of non-approved materials and tools. Specifications are subject to change without notice.