



Dynamic Liquid Crystal Windows

MERCK

EXPERIENCE LIGHTWELLNESS

Instant solar shading windows



eyrise.com



FEEL THE LIGHT

WELLNESS AT YOUR FINGERTIPS

Discover a new sense of well-being at the flip of a switch with **eyrise™ s350 instant solar shading windows**.

Enjoy **immediate** comfort with maximum natural light and ideal temperature throughout the day.





ADJUST THE LIGHT INSTANTLY TO YOUR NEEDS

COMFORT AT ALL TIMES

It only takes a **second** for eyrise™ solar glass to darken and provide immediate protection from solar glare and heat. As sunlight intensifies or diminishes over time, easily fine-tune your shade at will by **adjusting precisely** your window tint.

Feel lasting comfort thanks to the windows **neutral tint** combined with transparency. They let you enjoy a **natural day light** in your interior space without negative color rendering effects. Whether eyrise™ s350 glass is bright or dark, it always remains transparent whilst fully **preserving outside views**.



Thermal comfort evaluation

When you dim your eyrise™ s350 windows to protect yourself from solar glare, you also regulate instantly the temperature to bring you optimal comfort.

A quantitative assessment known as the Predicted Percentage Dissatisfied (PPD) is commonly accepted to calculate the level of thermal comfort in a given room at a target of less than 10%.

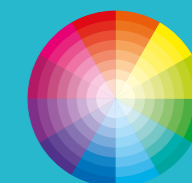
In a recent study on building facades performance*, eyrise™ technology shows a **significantly more favorable result** than the traditional double-glazed unit, with a PPD of 6% vs 21%.

* Source: Chasing Transparency - eyrise™ dynamic liquid crystal windows by Elementa Member of Integral group.

CREATIVE FREEDOM WITH SIMPLICITY

DESIGN YOUR VISION

No matter the light intensity, the weather, or the time of day, eyrise™ solar solutions preserve the **beauty of your creative architecture**. Make your vision a reality with a wide variety of shapes available in large size panel, up to **1600 x 3500 mm (5.25 x 11.50 ft)**. Your creative designs are our command, from aesthetic **neutral tones** to creating your **own color variations**.



Combine simplicity and performance by choosing eyrise™ **fully functional shading windows** in your buildings. With no mechanical parts, eyrise™ s350 integrates **seamlessly** into any traditional or modern architecture. The ideal combination of aesthetics and functionality, eyrise™ – fitted buildings are sure to provide complete physical, visual, and acoustic well-being to its occupants.



WELLNESS THAT RESPECTS THE ENVIRONMENT

SAVING ENERGY, SPACE AND TIME

ENERGY SAVING

At the touch of a button, eyrise™ s350 solution helps reduce the need for energy by limiting the use of air conditioning and electrical power. By **regulating light and temperature instantly**, particularly in changing weather conditions of bright sun and intermittent clouds, eyrise™ solar shading windows generates **tangible energy savings**.

SPACE SAVING

eyrise™ s350 glass fits into standard window framing so it **liberates usable space** that would otherwise be used for other solar shading devices, e.g. closed cavity or double skin facades.

The recent study on building facades performance* showed that **space gains** with eyrise™ s350 can add up to 160 m² (1,700 ft²) additional net lettable area in a typical London building.

MAINTENANCE TIME AND COST SAVING

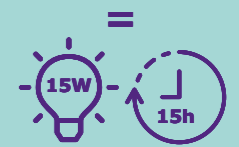
eyrise™ s350 solution **reduces the risk of breakdown** or technical support as it does not need any additional mechanical parts. eyrise™ windows only require usual glass cleaning and will not incur additional time nor cost for maintenance.

A SUSTAINABLE, ENVIRONMENT FRIENDLY SOLUTION

- Energy consumption reduction
- Energy cost savings
- Space saving
- No additional maintenance time or costs
- Optimal thermal comfort



224 wh



Net energy benefit for one representative day = 15h of light bulb power*.

 **160 m²**
(1,700 ft²)
per building

€ 144,000
rent per annum

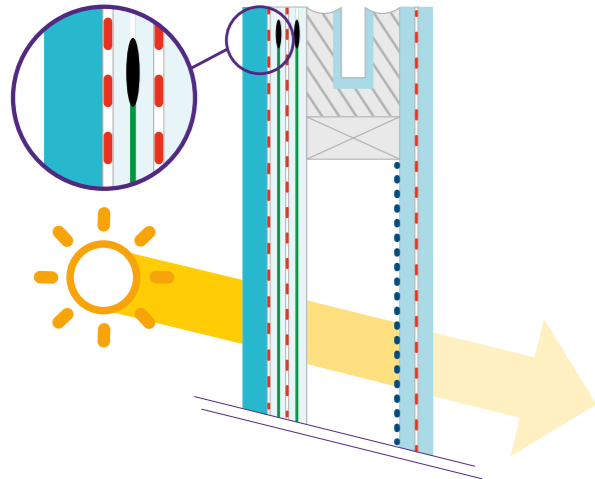
eyrise™ s350 space saving compared to closed cavity facade in a typical London building

* Source: Chasing Transparency - eyrise™ dynamic liquid crystal windows by Elementa Member of Integral group.

AT THE HEART OF THE TECHNOLOGY

licrivision® liquid crystals & eyrise™ s350 glass specifications

TYPICAL INSULATED GLASS



- Cover sheet 4-10 mm heat strengthened glass
- PVB interlayer
- eyrise™ cell 17.52 mm
- Cavity gas or air filled
- Low-E coating
- Inner glass
- Toggle fixing (optional)
- Main seal
- Liquid crystal layer

EYRISE™ GLASS PERFORMANCE

The tables below illustrate the performance of a selection of eyrise™ IGUs (Insulated Glass Units) made with different liquid crystal mixtures. Values were calculated, according to EN-410 and EN-673, in both bright and dark states, using 2 different configurations.

Configuration: 23.04 mm / 16 mm argon / 6 mm with low-E coating

eyrise™ liquid crystal mixture	Light transmittance		Solar factor / g-value		General color rendering index	
	Bright (%)	Dark (%)	Bright	Dark	R _a Bright	R _a Dark
LC mixture A	60	29	0.41	0.31	96	97
LC mixture B	57	18	0.39	0.23	96	96
LC mixture C	52	11	0.37	0.20	96	95
LC mixture D	48	7	0.35	0.18	96	94
LC mixture E	39	2	0.32	0.15	95	74

Configuration: 23.04 mm / 16 mm argon / 6 mm with solar control coating

eyrise™ liquid crystal mixture	Light transmittance		Solar factor / g-value		General color rendering index	
	Bright (%)	Dark (%)	Bright	Dark	R _a Bright	R _a Dark
LC mixture A	55	26	0.33	0.21	93	95
LC mixture B	53	17	0.32	0.17	93	94
LC mixture C	49	11	0.30	0.14	92	93
LC mixture D	45	7	0.28	0.12	92	92
LC mixture E	37	2	0.25	0.09	92	76

TECHNICAL INFORMATION

- **eyrise™ glass sizes:**
min. 405 x 410 mm (16 x 16.5 in)
max. 1600 x 3505 mm (63 x 138 in)
- **Ug-value (according to EN 673):**
down to 0.5 W/m²K
- **U-value (calculated with Window LBNL 7.6):**
down to 0.12 BTU/h-ft²-°F
- **Switching speed:**
1 second
- **Glass shapes:**



- **Neutral tint and colors:**



ELECTRICAL SPECIFICATIONS

Electrical consumption	Approx. 1 W/m² (0.1 W/ft²) (depending on electronics settings)
Driver	Din rail window driver - 48 V DC power input. Up to 8 window connections per driver Building Management System (BMS) capable linear dimmable 1/10 V input
Communication module	KNX interface for window driver - powered by internal bus system
Glass connection	Max. 30 m (100 ft) cable length between glass and driver IP67 water resistant connection

CERTIFICATION & STANDARDS

CE certification	EN 14449:2005 Glass in building - Laminated glass and laminated safety glass EN 1279:2018 Glass in Building - Insulating glass units IEC 61000 Electromagnetic compatibility (EMC)
Glass visual quality	«Guidelines to assess the visible quality of glass in buildings» and «Guidelines for assessing the visual quality for systems in multiple-shett insulating glass» Issued by Bundesverband Flachglas e.V.

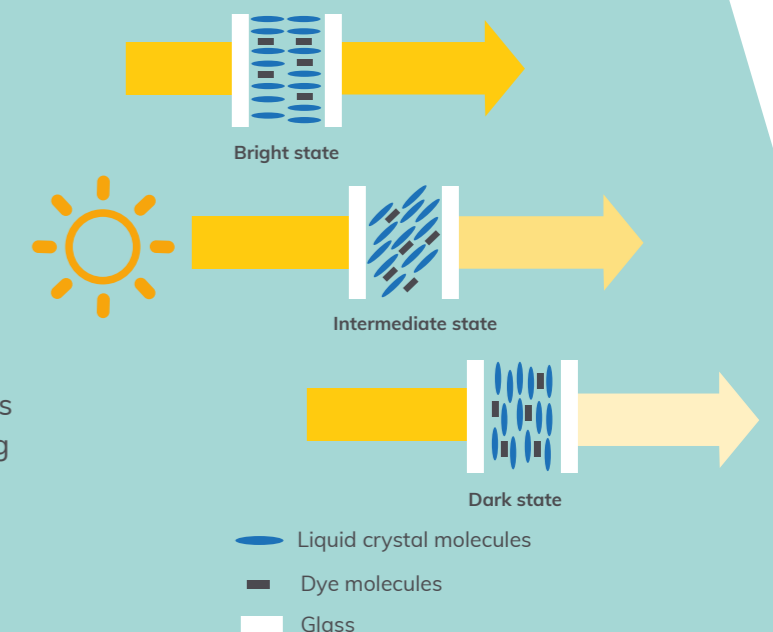
licrivision® technology, at the heart of eyrise™ liquid crystal cell

licrivision® is a transparent **liquid crystal mixture** added with specific dye molecules tailored to your color needs.

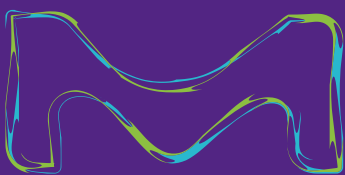
This **dye-doped** liquid crystal mixture is placed between two glass sheets coated with a transparent conductive film. Prompted by low voltage, the mixture molecules of this liquid crystal cell **change orientation** and thus regulate the amount of light and heat passing through.

With its 1 second transition capacity, licrivision® provides to eyrise™ dynamic windows continuous control for all intermediate tinted states, from bright to dark.

licrivision® technology in action



When a low voltage is applied, the dye-doped liquid crystals in the eyrise™ cell change orientation and thus regulate the amount of light and heat passing through.



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