SageGlass
SAINT-GOBAIN

Symphony® Control System Overview

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Intelligent Glass
Intuitive Controls

The SageGlass Symphony® control system operates the dynamic glazing, providing intelligent tinting behavior to maximize occupant comfort, well-being, and energy savings. Every system includes both the SageGlass Insulation Glass Unit (IGU) and the Symphony Control System, which is tuned to meet the specific needs of that project. The result: a turn-key intelligent glass system.

Key system features include:

Smart and Predictive Algorithm

SageGlass Maestro®, or the system intelligence, is a model-based, sensor-activated predictive algorithm designed to ensure that automated tinting is customized for every customer.

Straightforward, off-the-shelf Controls Hardware

The Symphony homerun wiring system uses off-the-shelf components and cables that are familiar to every low-voltage electrician making installation simple and intuitive.

Versatile Framing Integration

With thinner cables than any other smart window system, Symphony can be easily integrated into almost any framing system for greater design flexibility.

Easy Serviceability

Service for the Symphony Control System can be performed at the control panels, typically located in IT or electrical rooms. Other dynamic glass systems have window controllers spread across a building and require many more access points for future servicing.

SageGlass Maestro: System Intelligence

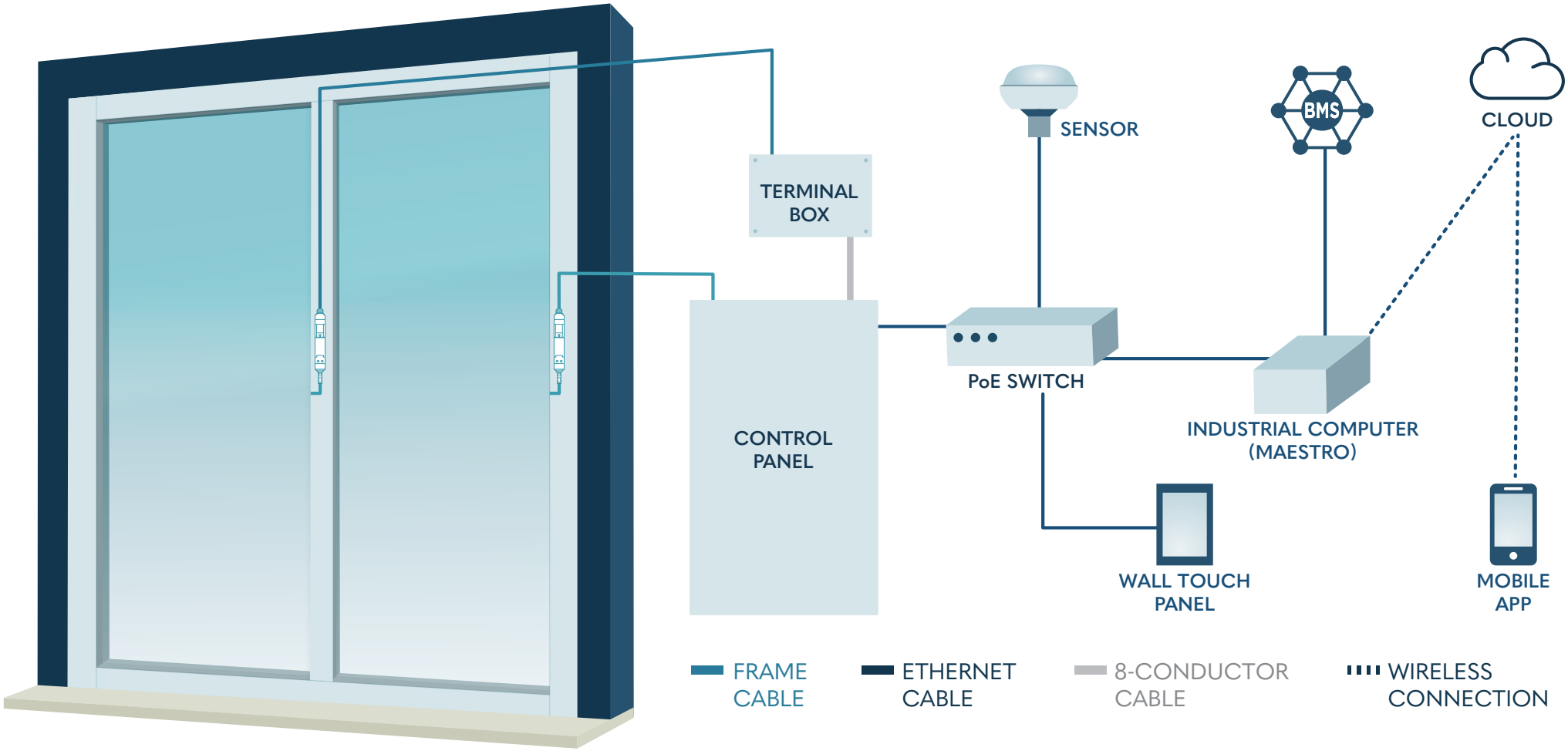
SageGlass Maestro serves as the brains behind the smart system. Maestro is a model-based, predictive algorithm that considers multiple project-specific inputs, along with real-time exterior sensor readings, for automated tinting that consistently delivers occupant comfort and energy savings year-round. Automated tinting can always be overridden by users, whether on-demand or through scheduling.

System Inputs

- RoofTop Sky Sensor
- Occupancy
- Window Size
- Time of Day
- Building Orientation
- Sun Angle
- Sky Conditions

System Overview

SageGlass Symphony utilizes a common system architecture, Power over Ethernet (PoE), that combines communication and power within a single cable. Highly configurable, the system can function independently or be integrated into a building management system (BMS) creating flexibility to meet the needs of your building. Optional hardware components create additional functionality.



Installation Information

The SageGlass system uses common electrical components and is easy to install. Your dedicated SageGlass Project Manager will provide end-to-end support by helping you navigate the order, installation, and start-up processes.

Installer Information

Rough-In Kit:

Frame Cables are delivered either prior to or during the construction of the framing system to facilitate the routing of cables.

Main Delivery:

The remaining balance of the system is delivered on-site for installation and connection at a later time in the construction phase.

Standard On-Site Division of Responsibility

Glazing Contractor

- Frame Cable Routing
- Frame Cable and IGU Circuit Testing (tester provided)
- Frame Cable Labeling (labels provided)
- IGU Installation
- Pigtail to Frame Cable Connection

Electrical Contractor

- Routing and testing Frame Cables
- Routing and labeling 8-Conductor Cables
- Routing and labeling Ethernet cables to system components
- Connecting controllers to 220 V
- Installation of Control Panels, Terminal Boxes, Wall Touch Panels, external sensors, PoE Switches, Firewall and Cell Modem

Control Panel Capacity

	Control Panel Type	
	Small	*Large*
Window Controllers Supported	1	4
Number of Terminations	32	128
Number of SageGlass IGUs	16	64
Total m^2 of SageGlass IGUs	89	357
Number of Harmony IGUs	8	32
Total m^2 of Harmony IGUs	45	178

Frame Cable Distances

Max Length Frame Cable	**Max Length 8-Conductor**	**Total Distance** (IGU to Control Panel)
38 m	N/A	38 m
23 m	60 m	83 m
15 m	90 m	105 m

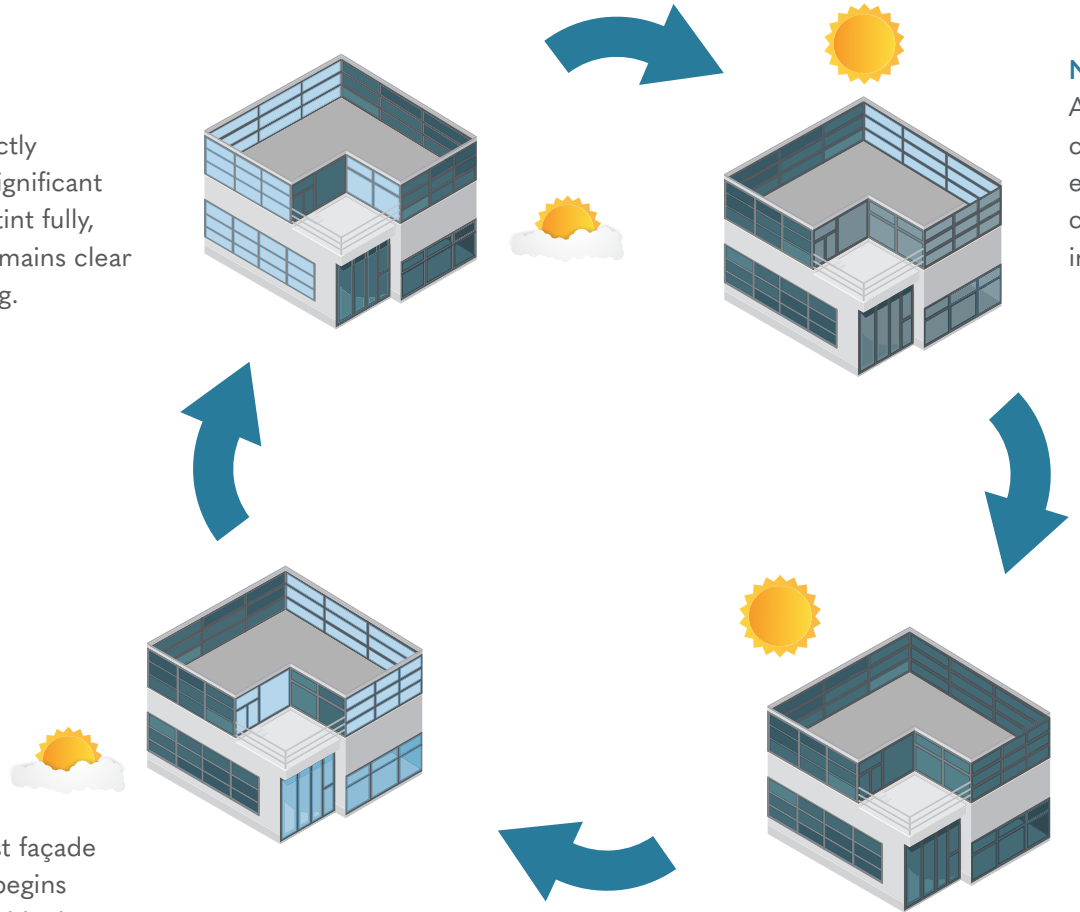
Experience a Day of SageGlass

The SageGlass Controls System, or communications hub, operates the dynamic glass, providing intelligent tinting behavior in response to the sun to maximize occupant comfort, well-being and energy savings. The system is highly customizable to suit specific user preferences. With four (SageGlass Classic) or eight (SageGlass Harmony) tint modes, the SageGlass system offers control when and where you want it and automation when you don't.

Below is a generalized representation of how the SageGlass Controls System will behave over the course of a typical day.

SUNRISE

The sun's low position on the horizon means light shines directly on the east elevation, causing significant glare. The east façade is set to tint fully, while the rest of the building remains clear for maximum daylight harvesting.



NOON

As the sun passes overhead, the windows tint to compensate. Glass on the east and south elevations tint based on zoning strategies. The control system calls for intermediate tint states in certain zones to achieve specific light levels.

LATE AFTERNOON

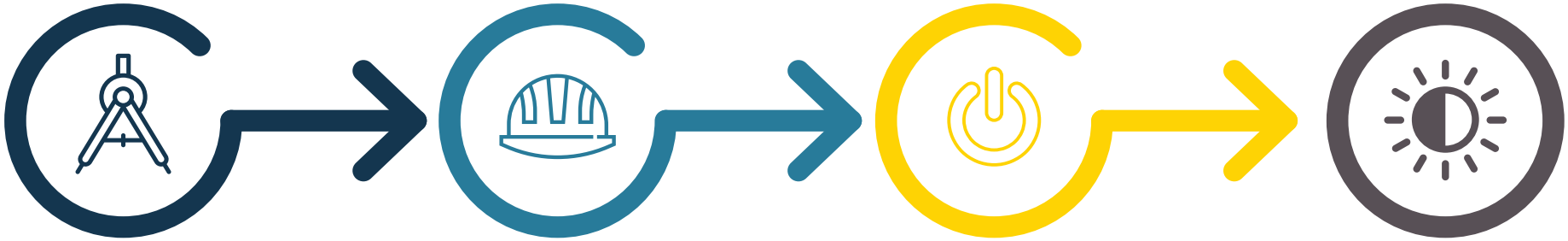
Intense afternoon heat, combined with direct sun, create a need for thermal comfort control and energy savings. Here, the system tints the glass to maximize occupant comfort and energy savings.

SUNSET

Occupants seated near the west façade are subject to glare as the sun begins to set. The windows tint fully to block that direct angle glare.

SageGlass Support

Incorporating smart windows into your next building project is made easier with our dedicated Field Operations team. They provide numerous support services to ensure everything runs smoothly, from specification all the way through occupancy.



Design

Field Operations works with the project team to develop a wiring and controls plan, tailored to specific customer needs. This provides all the details on the location of every system component.

Installation

Your dedicated Field Operations Project Manager will work with construction managers, glaziers and electricians to ensure everyone is on the same page about requirements, engaging in pre-construction meetings to align expectations.

Start-up

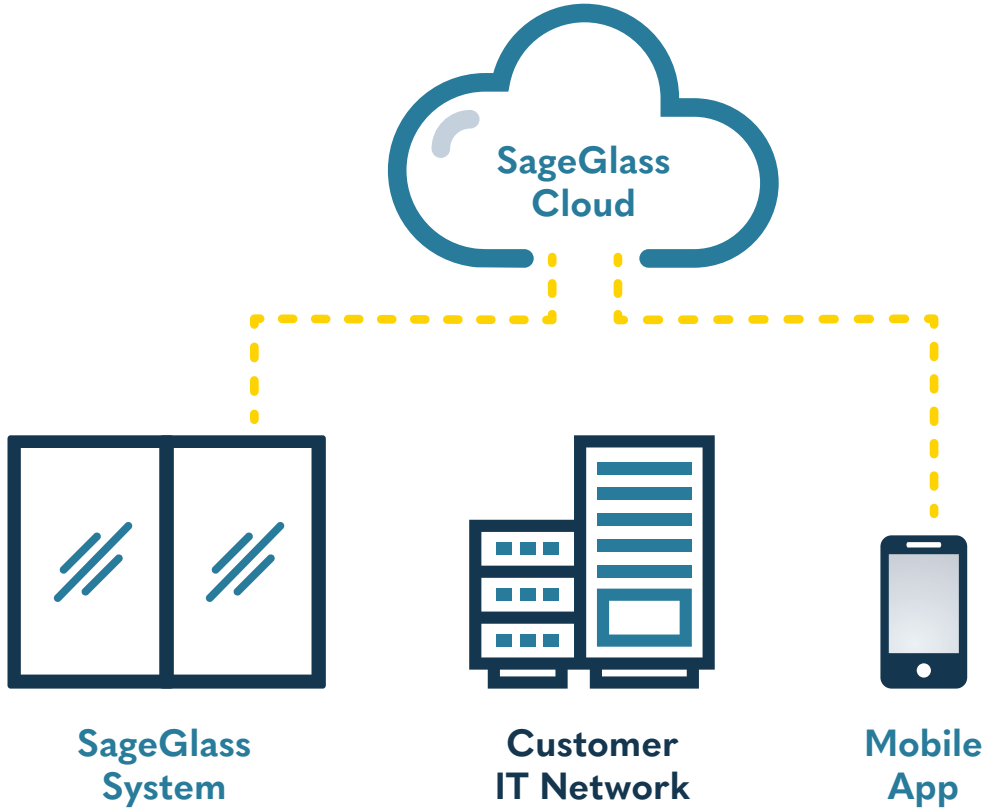
After the glass is installed and wired into the building, Field Operations will test every pane of glass, sensor, and SageGlass component. The goal is to ensure that every part of the SageGlass system functions properly, ensuring a smooth transition to building occupancy.

Tuning

Prior to occupancy, the Field Operations team provides tutorials to key parties to explain system operations. This training is tailored to specific customer needs. SageGlass continues to support customers post-occupancy to make system adjustments to suit occupant preferences.

CyberSecurity and SageGlass

In today's connected world, security is top of mind. SageGlass can operate without any network connection – creating an ecosystem secure from external threats. Additionally, should you need the flexibility to interact with your system from anywhere in the world, you can leverage an integrated connection to your existing network or an isolated connection using a cellular data plan.



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Learn more at SageGlass.com

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