Saving Energy with KNX Weather Stations 1

Easy Blind Control for Smart Homes

Bastian Elsner | 30.06.2025

» We are your speakers today

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- Managing Partner at Elsner Elektronik GmbH
- Responsibility: marketing, sales, development, production, purchasing, logistics, service

Martin Speer

- Product Manager at Elsner Elektronik GmbH
- Practical experience as a KNX system integrator and in sales

What do you notice about this façade?

- High heat input from the sun on the glass façade
- Without shading, high cooling capacity of air conditioning systems required
- No glare protection available

- Heat load in rooms ⟶ high cooling costs

Solution: Automated shading

Smart system with KNX weather station

In summer:

- Reduction of direct sunlight
- Reduced operation of air conditioning systems
- Saving of cooling energy
- Glare protection

In winter:

- Intelligent slats let in targeted sunlight
- Passive solar heat gains
- Thermal comfort through daylight control
- Less heating energy required
- Glare protection

Learning goals

After this webinar you will be able to:

- ✓ Use the Elsner weather stations and their functions in a targeted manner
- ✓ Set up a simple, effective façade control system in a minimum of time
- ✓ Save and use energy with intelligent solar shading
- ✓ Protect your drives from damage with safety functions

AGENDA

1. Model comparison and function overview
2. Correct installation of the weather station
3. Setting up a simple automatic shading system
4. Using the protective functions
5. Advanced functions with logic example

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01 | OVERVIEW OF WEATHER STATIONS

KNX weather stations

Overview

Windancer KNX

- Mechanical wind sensor
- GPS optional
- Conventional applications
- Power supply via KNX bus possible

Suntracer KNX(-GPS), basic, light

- Electronic wind measurement
- Different versions available

Suntracer KNX sl (light, basic)

- Broad spectrum
- Electronic wind measurement
- Design-oriented, "invisible"

Suntracer KNX pro

- High performance
- Ultrasonic technology
- Automates up to 12 facades
- Wind direction detection

Comparison of KNX weather stations

Name	BX8	P04-KNX-GPS	Suntracer KNX sl basic	Windancer KNX	Windancer KNX-GPS	Suntracer KNX-GPS light	Suntracer KNX sl light	Suntracer KNX-GPS	Suntracer KNX sl	Suntracer KNX pro
Item number	71240	71230	70156	71235	71236	3094/3090	70155	3093	70154	70900
Air humidity	–	–	–	–	–	–	–	–	–	✓
Wind direction	–	–	–	–	–	–	–	–	–	✓
Air pressure	–	–	–	–	–	–	–	–	✓	✓
Temperature	–	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wind measurement	–	electronic	electronic	mechanical	mechanical	electronic	electronic	electronic	electronic	electronic
Automation	8 × Façade	–	–	–	8 × Façade	5 × Façade	5 × Façade	6 × Façade	8 × Façade	12 × Façade
Slat/shadow edge tracking	✓	–	–	–	✓	–	–	✓	✓	✓
Timer	–	Nur Uhrzeit	–	–	✓	✓	✓	✓	✓	✓
Calculator modules	–	–	–	–	–	–	✓	–	✓	✓

C1

Category 1:
Separate façade control and measuring sensor

C2

Category 2:
Façade automation can only be realized via logics

C3

Category 3:
Integrated façade control

KNX weather stations

| Overview

C1

P04-KNX-GPS

- Measuring transducer
- Without automatic and logic

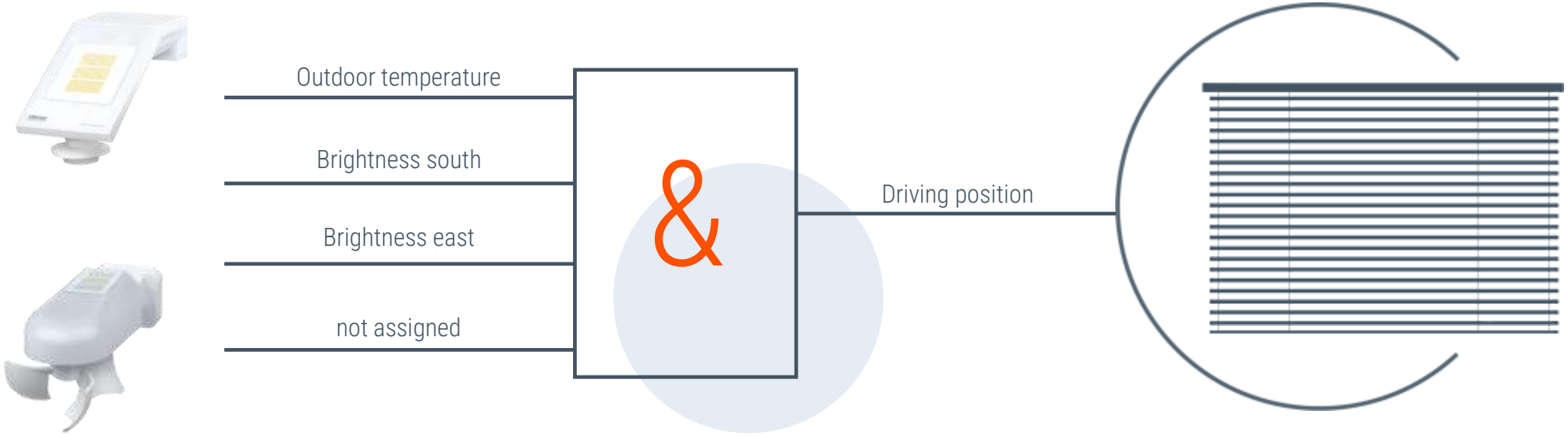
BX8

- Extension module for shading control
- 8 facades

KNX weather stations

Overview

C2



KNX weather stations

| Overview

C3

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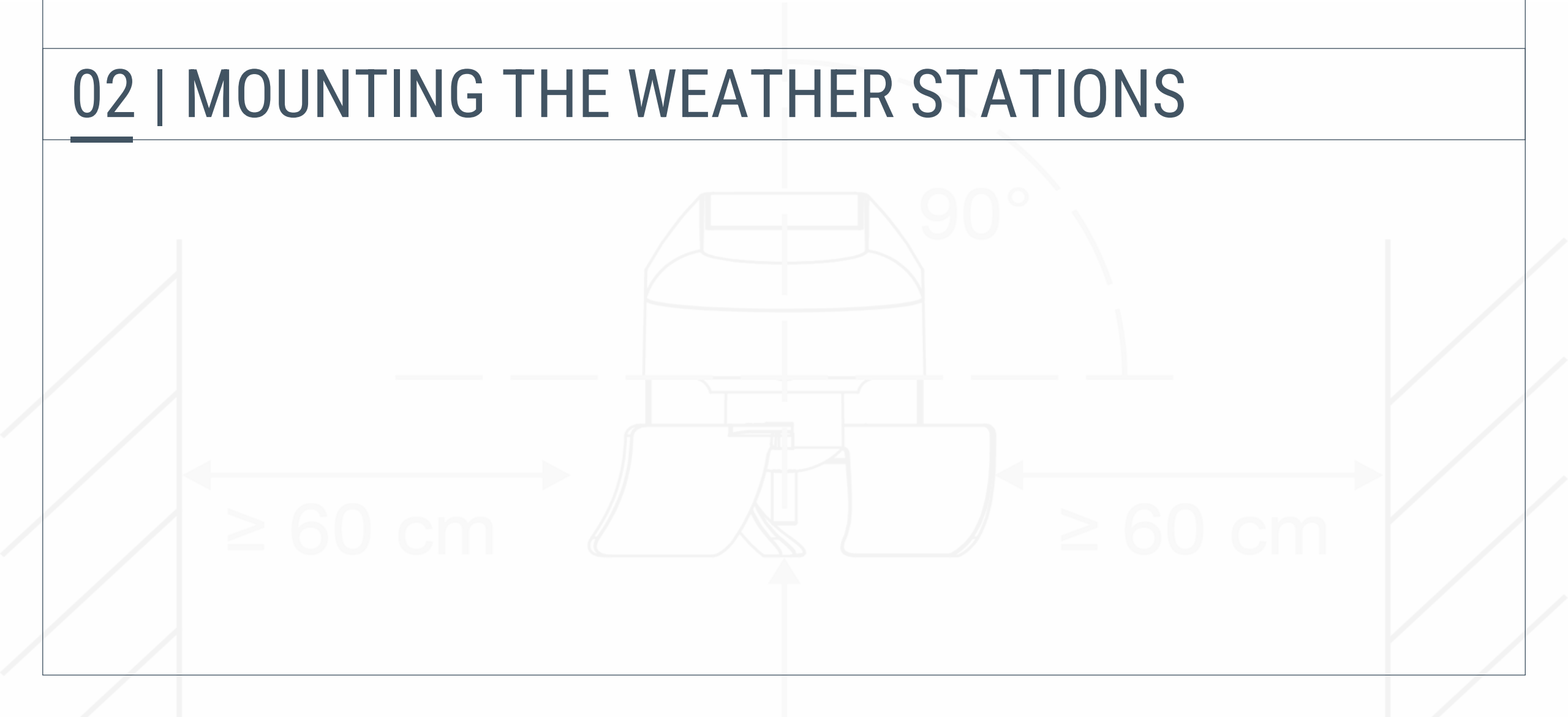
Extension with pyranometer

| Façade control depending on the solar energy

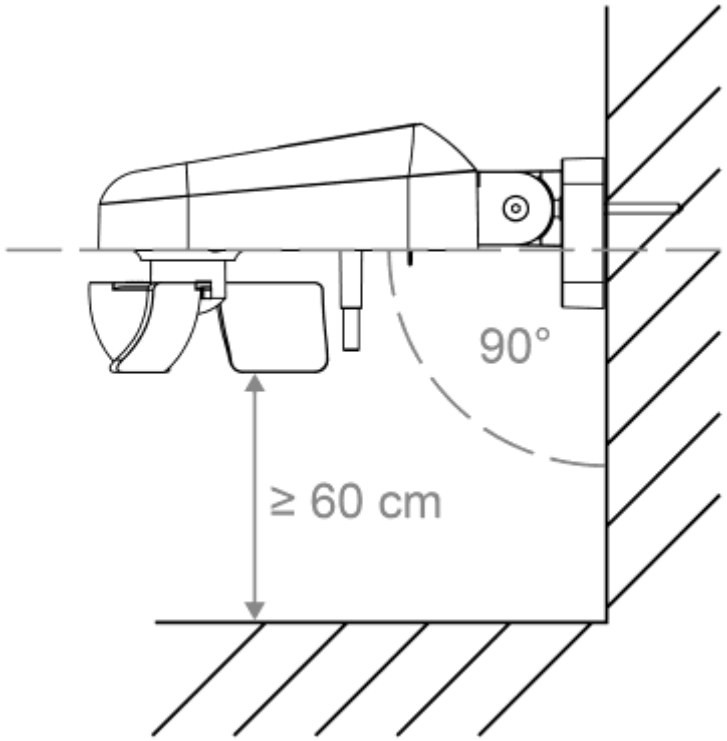
- Shading only occurs when a certain amount of energy/heat is applied to the façade
- Detection of global radiation: The current irradiance is measured (W/m²).
- The energy input on a surface over a certain period of time can also be output (kWh/m²)

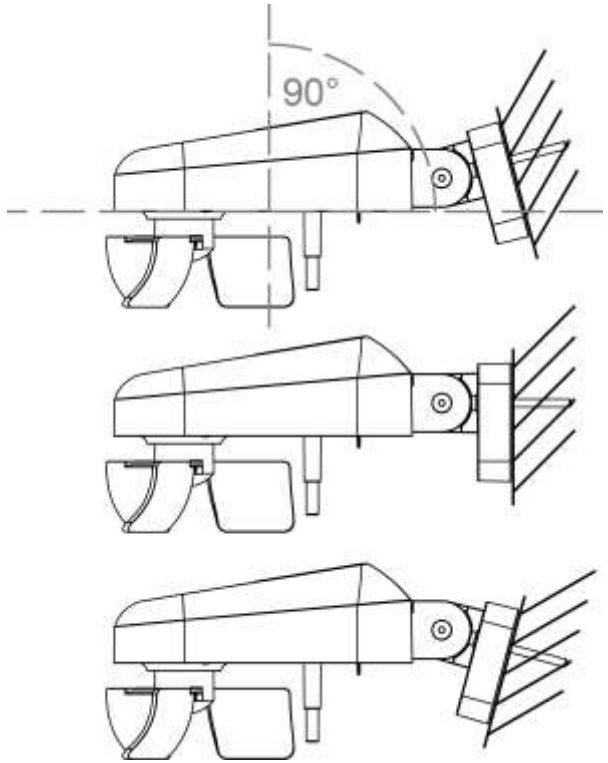
Do you have any questions about the individual models?

02 | MOUNTING THE WEATHER STATIONS



Mounting Windancer





Mounting Typ „sl“

| Suntracer KNX sl, Suntracer KNX sl light,
Suntracer KNX sl basic, P04-KNX-GPS

Mounting Suntracer KNX pro

02.1 | EXAMPLES OF INCORRECT MOUNTING

Not like that, please!

| Error case 1

- Problem 1: Air turbulence due to obstacles
- Problem 2: Splash water in the rain and snow in winter hinder the measurements
- Problem 3: Bird bite on the wind sensor

➢ **Solution:** Leave at least 60 cm free space around the weather station!

Not like that, please!

| Error case 2

– Problem: Air turbulence due to obstacles.

➢ **Solution:** Leave at least 60 cm free space around the weather station!

Not like that, please!

| Error case 3

– Problem: Exhaust air from the air conditioning system distorts temperature and wind measurement.

➢ **Solution:** Install out of reach of systems that cause air currents or waste heat!

Not like that, please!

| Error case 4

– Problem: Impairment of brightness measurement due to self-mounted bird protection.

➢ **Solution:** Neither objects nor other structures may cast a shadow on the appliance!

Mounting guidelines

| Correct installation of the weather station

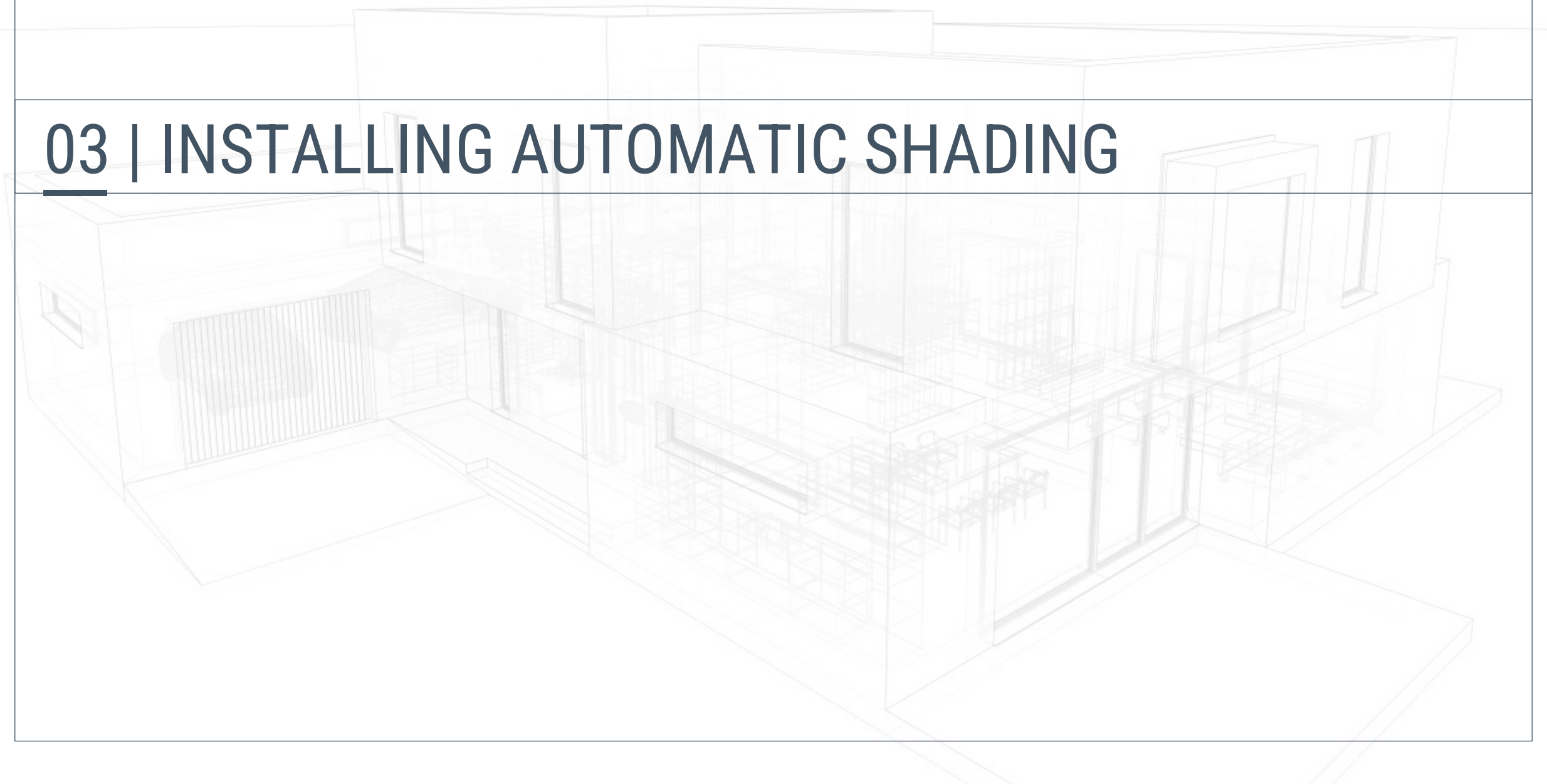
Leave a distance of at least 60 cm below, to the sides and front from other elements (building structure, construction parts, etc.).

Northern hemisphere: facing south. Southern hemisphere: facing north.

Attach to a vertical wall (or pole). Lay the supply cable in a loop before it enters the wall or connection box. Mount horizontally (level) in the transverse direction.

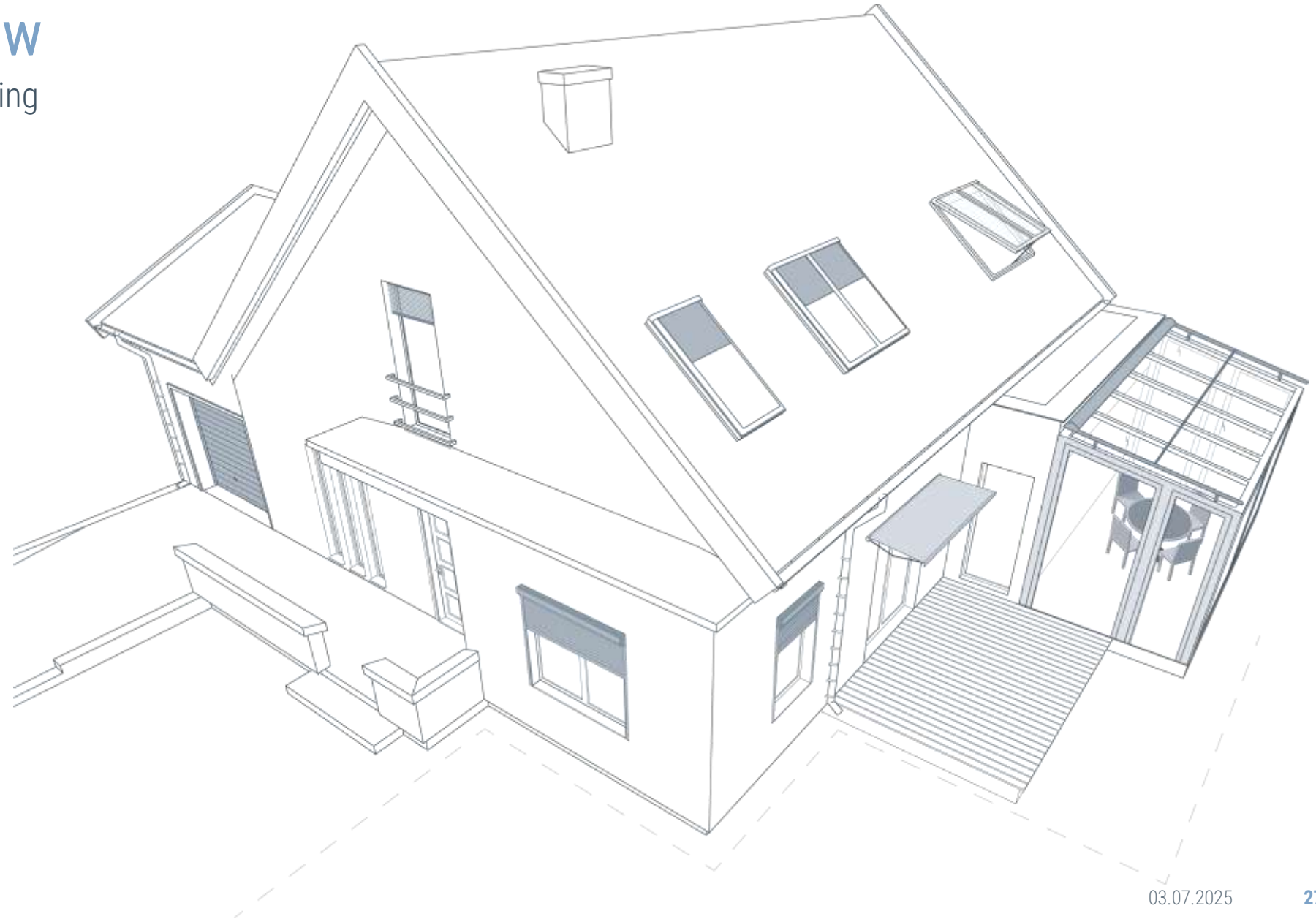
Do you have any questions about sensor technology or mounting?

03 | INSTALLING AUTOMATIC SHADING



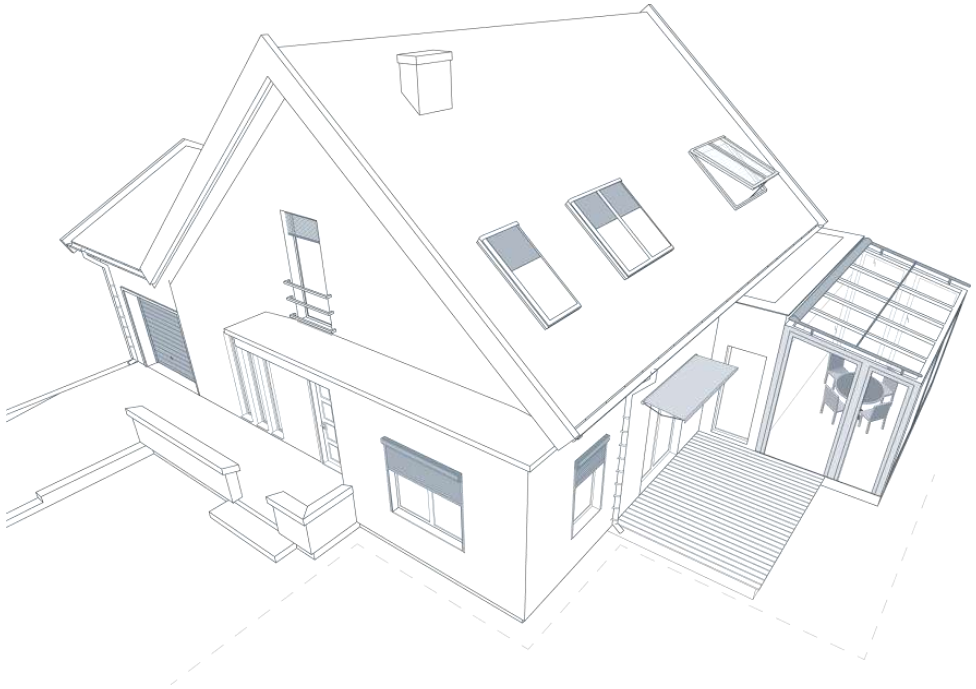
Building overview

| with different types of shading



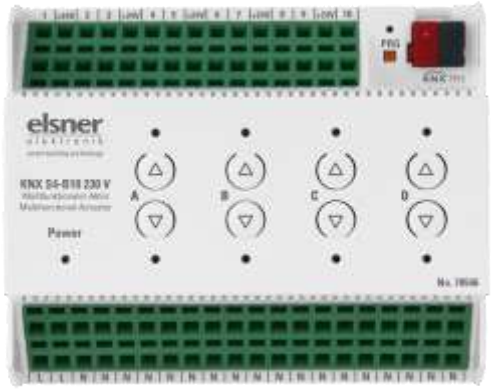
Building overview

| Weather station and KNX actuator

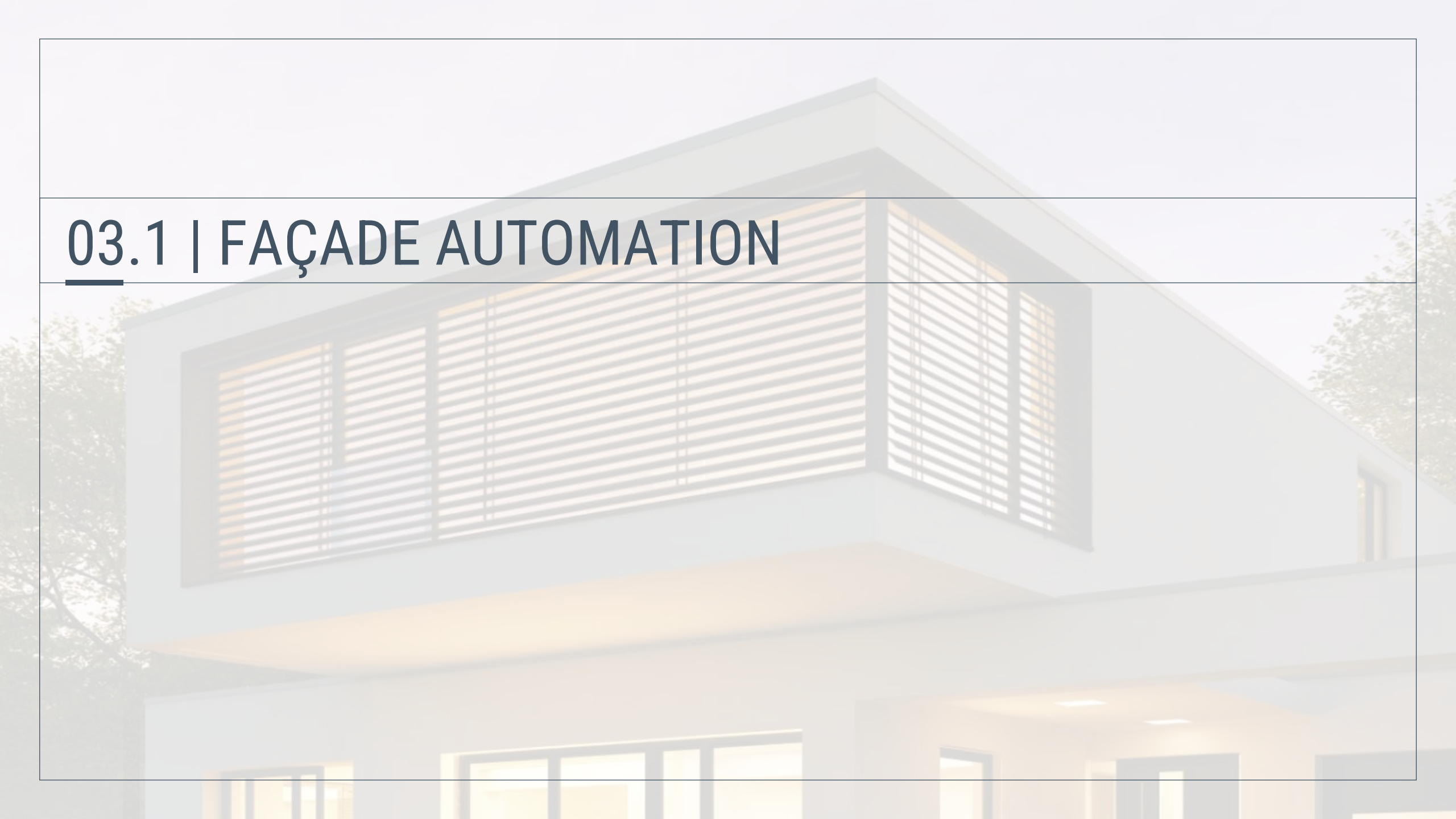


Windancer KNX GPS

KNX S4-B10 230 V



03.1 | FAÇADE AUTOMATION



Façade control functions

| Windancer KNX-GPS

- Brightness threshold value
- Position of the sun
- Shading setting (without tracking/ slat tracking/shadow edge tracking)
- Movement position
- Retraction and extension delay

Protective functions separately outside the façade setting :

- Wind speed
- Precipitation detection

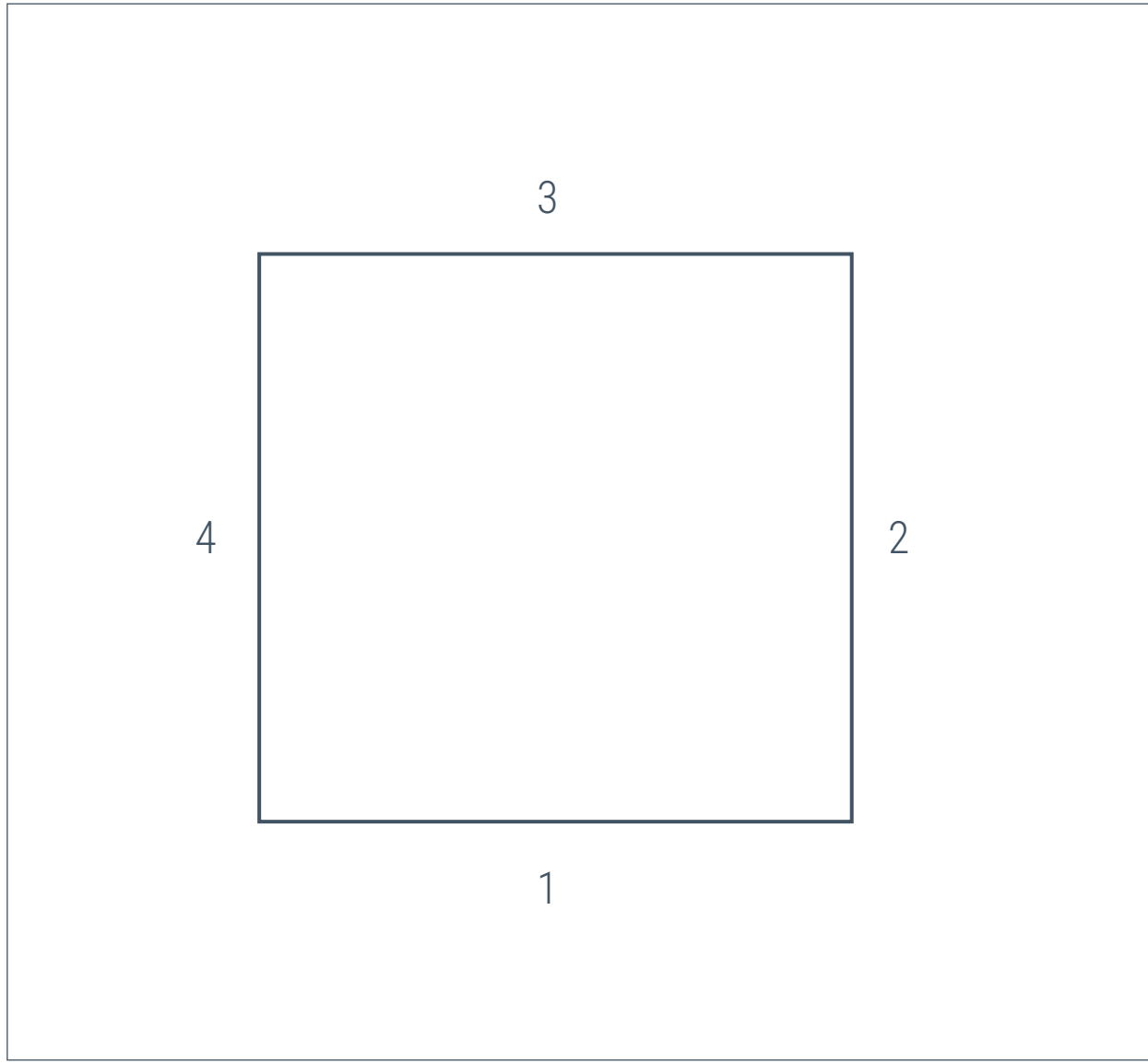
Building overview

| Parameter example south facade

Settings of the façades

| Example south façade

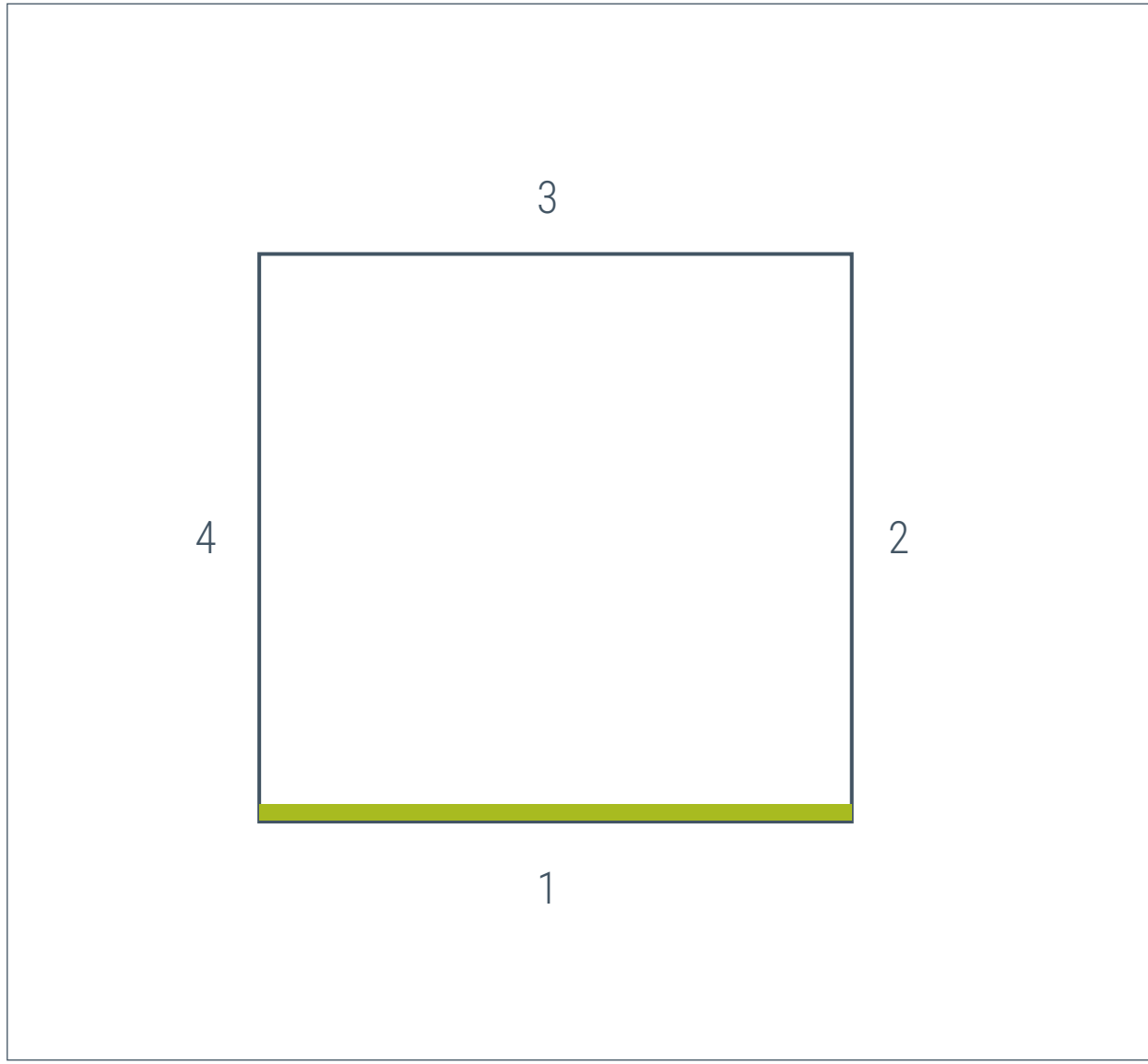
- Most buildings have 4 facades.
- The solar shading of each façade should be controlled separately.



Classification of the facades

| Example south façade

– In the following, we will discuss the parameterization of the south façade shown.



Façade automation

| Setup in the ETS

Watch video
"Set up façade automation" ▶
on our YouTube channel!

Façade automation

| Overview and repetition

- Brightness threshold value
- Position of the sun
- Shading setting (without tracking/slat tracking/shadow edge tracking)
- Driving position
- Retraction and extension delay

Energy-saving tip: Only activate the shading that is directly hit by the sun.

Do you still have questions about façade automation?

04 | PROTECTIVE FUNCTIONS

Protective functions

Basics for setting the wind threshold value

- Details of the shade manufacturer
- Positioning/installation height of the shade
- Mounting position of the weather station

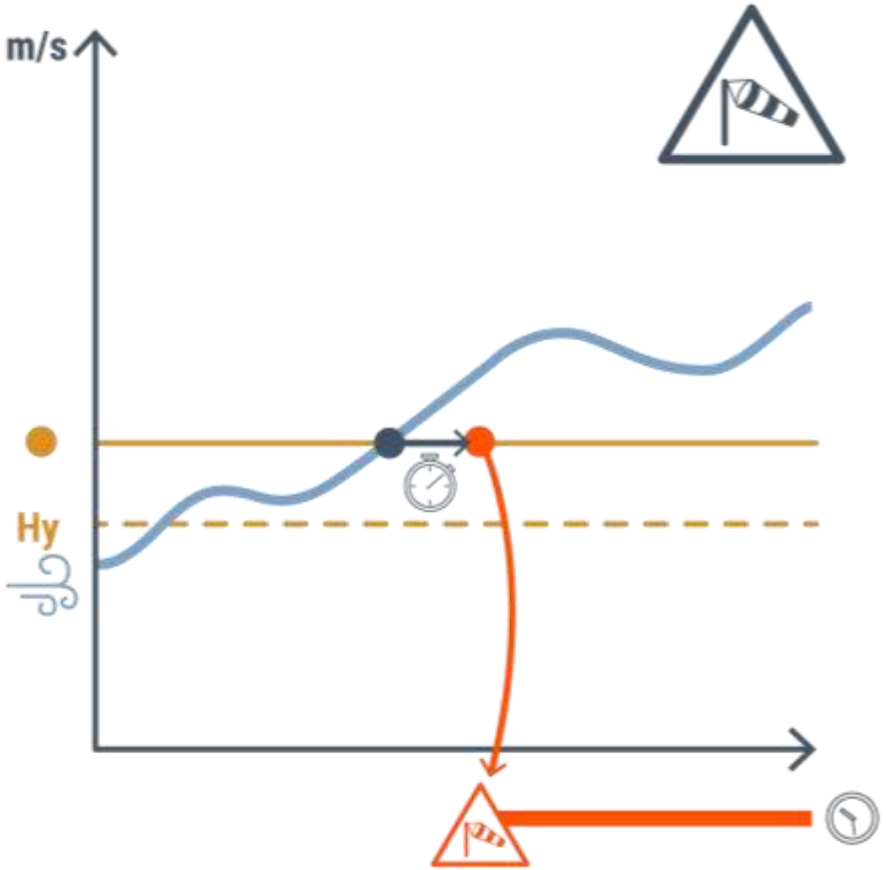
Protective functions

Overview of wind speeds

Description	km/h	m/s	Beaufort	Nodes
Calm	<1	< 0,3	0	<1
Light air	1-5	0,3-1,5	1	1-3
Light breeze	6-11	1,6-3,3	2	4-6
Gentle breeze	12-19	3,4-5,4	3	7-10
Moderate breeze	20-28	5,5-7,9	4	11-16
Fresh breeze	29-38	8,0-10,7	5	17-21
Strong breeze	39-49	10,8-13,8	6	22-27
Moderate gale	50-61	13,9-17,1	7	28-33
Fresh gale	62-74	17,2-20,7	8	34-40

Protective functions

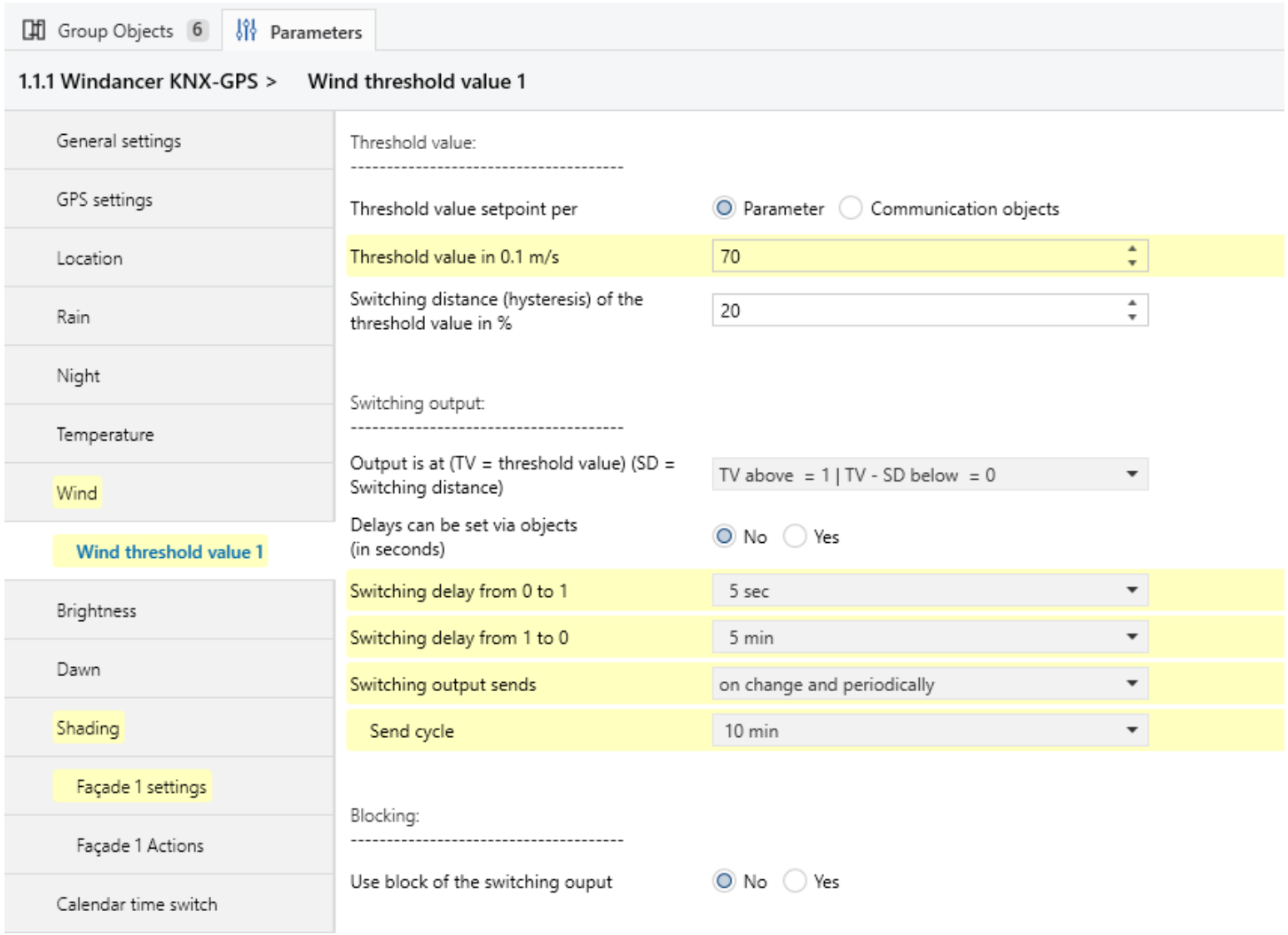
How the wind threshold value works



- Blue line: Current wind speed
- Orange line: Set wind threshold value
- Orange dashed line: Hysteresis to avoid incorrect switching
- **Note:** The graphic illustrates the switching on and off of the alarm based on exceeding and falling below the threshold value - taking into account a delay time.

Protective functions

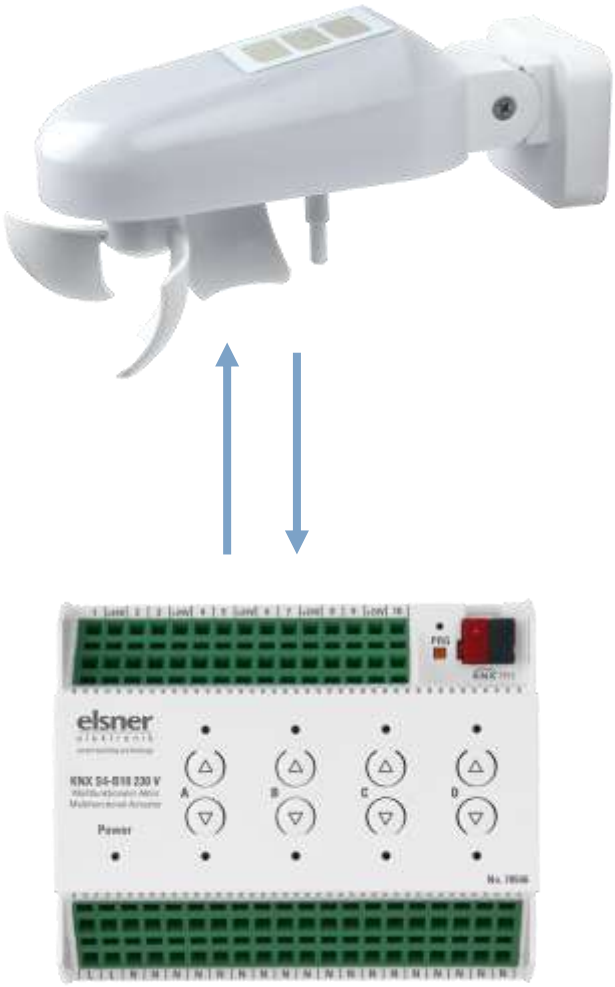
| Setting the wind threshold value



Protective functions

| Live telegram monitoring

- Live telegram monitoring checks whether the KNX weather station regularly sends data (live telegrams) to the blind actuator.
- If these signals are missing, the actuator detects a failure and can, for example, raise the blinds automatically for safety reasons.



Live telegram monitoring

| Configuration

Watch video
"Live telegram monitoring" ▶
on our YouTube channel!

Protective functions

Rain alarm

- The rain alarm is set up in the same way as the wind alarm
- It is set up via a blocking object

05 | ADDITIONAL FUNCTIONS WINDANCER

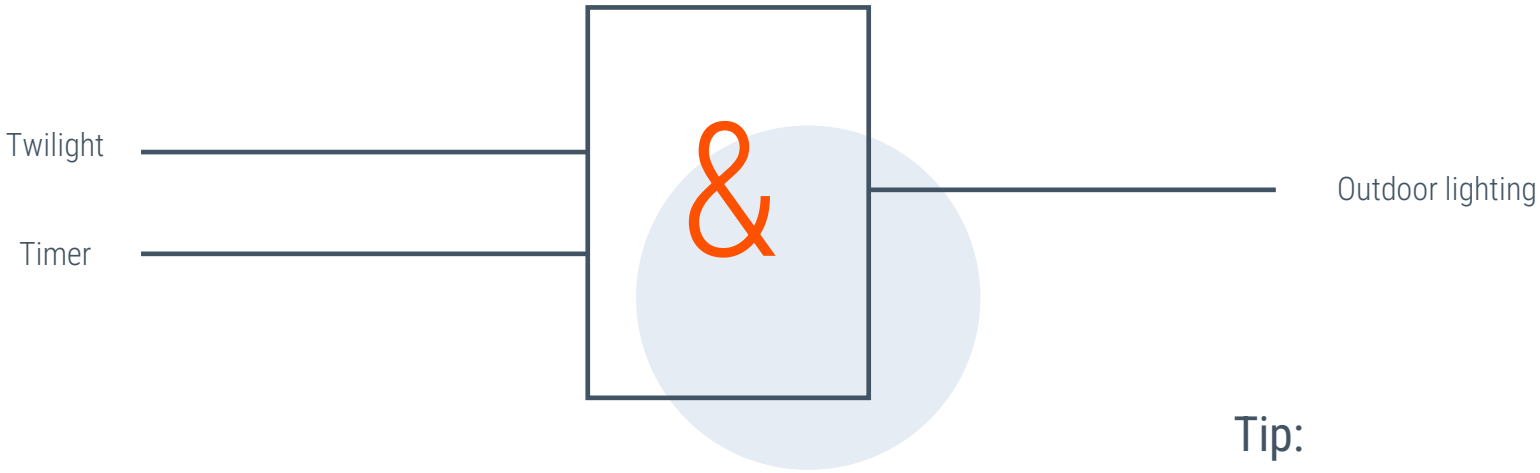
Windancer KNX-GPS

| Additional functions

- GPS settings (send date + time)
- Night detection
- Calendar and weekly timers
- AND and OR logic functions

Other functions in the Windancer

| Logic function example with exterior lighting



Tip:

Only switch on lights when it's dark and at the right time - this saves energy.

WISHES, SUGGESTIONS & FEEDBACK

Further webinars and
recordings can be found here

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