

HEIDELBERG, JUNE 2018

Shading in Buildings

ABB i-bus[®] KNX

Jürgen Schilder Competence Center Europe – Building Automation

Agenda

Solutions for shading in building with KNX

Basic shutter control with safety functions (wind and rain alarm)

Automatic sun protection

- Standard
- Automatic sun protection with tracking of the sun's position and redirection of daylight
- Automatic and presence-dependent sun protection with integration in the room temperature control (heating/cooling automatic)

Optimum room air quality via automatic ventilation

Appendix (Shutter Control Unit JSB/S, Night cool down, SMI – Standard Motor Interface)

Agenda

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Optimum room air quality via automatic ventilation

Appendix (Shutter Control Unit JSB/S, Night cool down, SMI – Standard Motor Interface)

Shading in Buildings

Introduction

- Modern buildings require intelligent building engineering technology for safe and efficient operation
- Offices, hotels, hospitals, residential homes, assisted living accommodation, apartments and much more: ABB i-bus KNX opens up new possibilities for buildings in the residential, purpose-built and hotel sectors
- The KNX Blind/Roller Shutter Actuator is designed with exactly these types of spaces in mind
- It covers all the electrical installation requirements for this application and provides the following functions in a compact form:
 - Shading (via blind or shutter)
 - Lighting switching
 - Providing additional automation features with other KNX devices



Shading in Buildings

Introduction

Modern sun protection devices have a significant role, as they must fulfill many demands

- Anti-glare protection (e.g. PC workstations)
- Utilization of daylight by tracking the sun's position and directing available daylight
- Protecting furniture and carpets from fading
- Regulating the room temperature (overheating protection in summer; harvesting the available energy on cold days)
- Providing protection from people looking in from the outside
- Protection against intruders
- ...



Shading in Buildings

Blinds: Up/down and step/stop

Blind/Roller Shutter Actuators are ideal for the control of drives in the area of sun protection:

- Control with slat adjustment
 - Blinds
 - Exterior blinds
 - Slat blinds
 - Panel curtains
 - ...



Shading in Buildings

Shutter: Up/down (open/close) and stop

The Blind/Roller Shutter Actuators are ideal for the control of drives in the area of sun protection:

- Control without slat adjustment
 - Roller shutters
 - Roller blinds
 - Screens
 - Vertical blinds
 - Awnings
 - Pleated curtains
 - Skylights
 - Pool cover
 - ...



Shading in Buildings

Applications commercial buildings

- Shading system in general for an efficient and comfortable building
- Sun position depending control of blinds with lamellas for an efficient building regarding lighting and heating/cooling demand
- Redirection of the sun light into the building for less artificial light
- Heating automatic: Energy harvesting of solar energy for less heating
- Cooling automatic: Prevention of solar energy in the building for less cooling
- Night Cool down: Opening of windows in summer during the night to cool down the building
- Fresh air supply in combination with air quality sensor for a meeting room



Shading in Buildings

Applications residential buildings

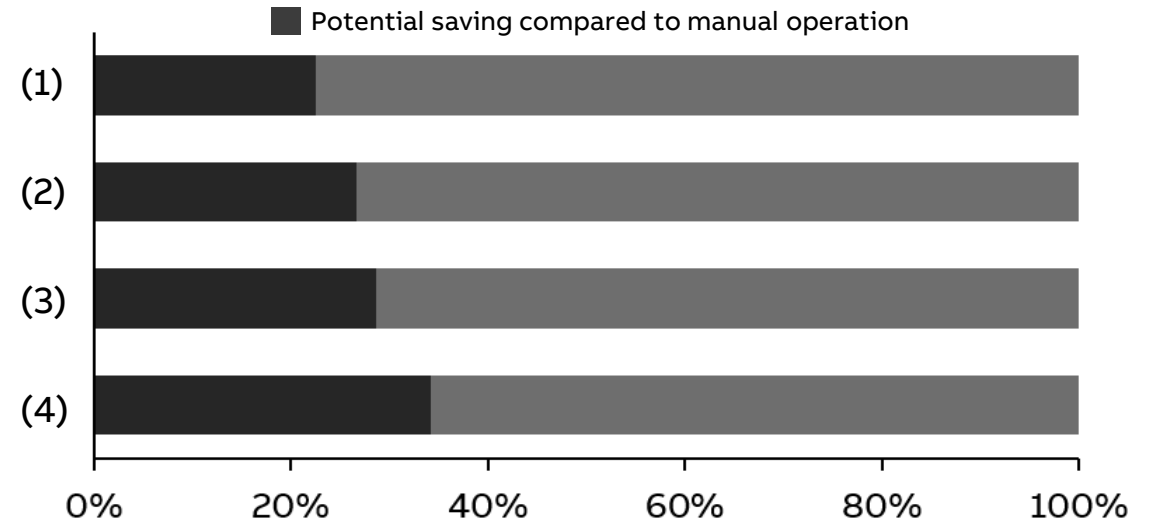
- Shutter/curtain control for privacy and sun protection
- Closing of roof windows after showering via time function
- Closing of roof windows in case of rain
- Opening of roof windows (outlet) and shutters (escape) in the event of fire alarm
- Go down of shutters during the night: Mechanical protection against intrusion, energy saving in winter
- Move down shutter at the terrace if alarm system is set, mechanical protection against intrusion
- Move up the shutters via time function in the morning
- Time- or temperature controlled opening of the windows in the winter garden (natural ventilation)
- Drive out of awning or shading of winter garden in case of sun
- Fresh air supply in combination with air quality sensor



Shading in Buildings

Introduction

- The role of protection against the sun in buildings is increasing in significance due to increasing energy costs and statutory regulations
- With intelligent and automated control via ABB i-bus® KNX, the Blind/Roller Shutter Actuators JRA/S play a significant role in the energy efficiency of all kinds of buildings
- The potential savings for cooling using automatic blind control were presented in a study by the Biberach University of Applied Sciences



- (1) Automatic twilight control, timer program
- (2) External brightness
- (3) Slat tracking adjustment dependent on position of sun
- (4) Slat tracking adjustment dependent on position of sun and presence controlled constant lighting control

Shading in Buildings

Overview - ABB offers various solutions for shading in building with KNX

Basic shutter control with safety functions



Automatic sun protection

- Standard
- Presence-dependent with integration in the room temperature control
- Tracking of the sun's position and redirection of daylight



Optimum room air quality via automatic ventilation



Shading in Buildings

Current situation



Shutter Actuator
230V with Binary
Inputs



Shutter Actuator
24V DC



Weather
Sensor



Outside
Light Sensor



Room
controller 8.2



Shutter
Actuator
Module 230V



Shutter Actuator
230V



Time Receiver
GPS



Radio Time
Switch



Room
Controller 4.2



Shutter actuator
Module 24V DC



FM Blind
Actuator



Shutter Actuator
SMI LoVo/230V



Shutter
Control Unit



Control
Element



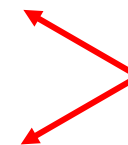
Presence
Detector



Room Master 3.1



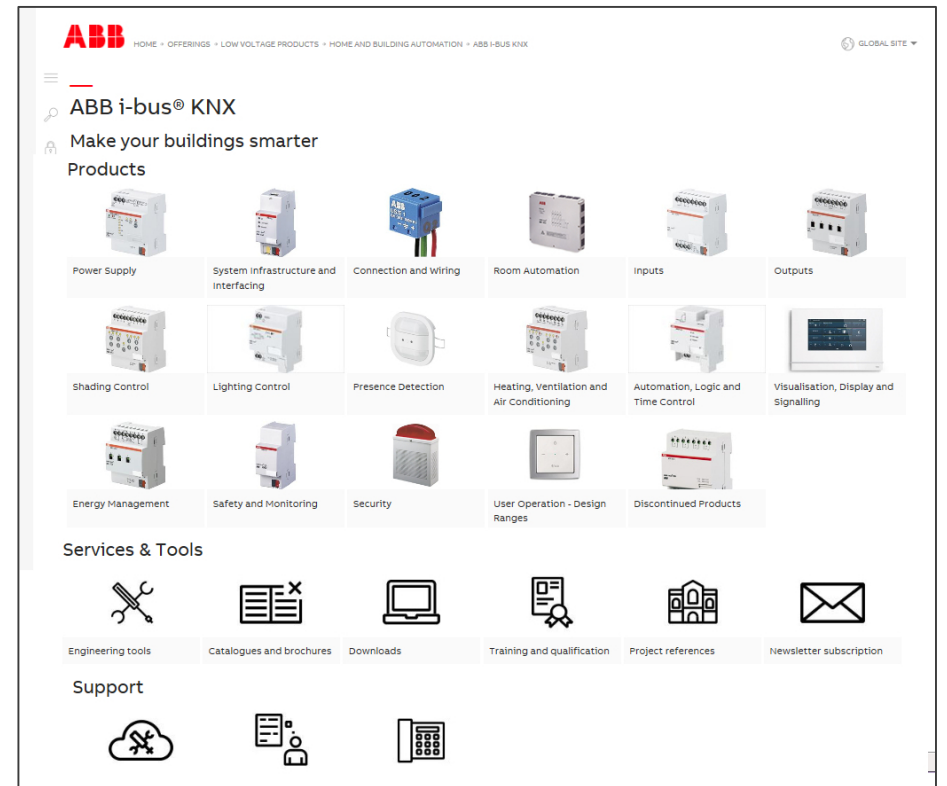
Room Master 2.1



Shading in Buildings

www.abb.com/KNX

- Products
 - Power supplies
 - Outputs
 - ...
- System Information
- Service & Tools
 - Downloads
 - ETS product data (KNXPROD)
 - Product manuals
 - Training and Qualification
- Support
- FAQ
- ...



Shading in Buildings

Training & Qualification Calendar

- In addition to the online modules and the traditional training programs offered by your local ABB sales team, we offer a variety of on-site trainings conducted by our specialists at different ABB training facilities
- In this Training & Qualification Calendar you can find the educational events that are taking place during 2018
- If you are interested in a training please click the “REGISTER HERE” button

- www.abb.com/knx or <https://go.abb/ba-training>


→ Services & Tools

→ Training and Qualification

→ Training Calendar



Training & Qualification Calendar



during 2018.

If you are interested in a training please [REGISTER HERE](#).

System	Date	Location
All	All	All
Door Entry Systems	January 2018	Webinar
free@home	February 2018	Heidelberg, Germany
Fire Alarm Systems	March 2018	Lüdenscheid, Germany
I-bus KNX	April 2018	S. Palomba (Rome), Italy

Content	Date	Location	Language
KNX for Commercial Building	05.04.2018 - 06.04.2018	Lüdenscheid, Germany	EN
Building Automation Light • Building 2018	10.04.2018	Webinar	EN
KNX In Hotels	19.04.2018 - 20.04.2018	Heidelberg, Germany	EN
HVAC Automation	23.04.2018 - 24.04.2018	Heidelberg, Germany	EN
Door Entry Systems	26.04.2018 - 27.04.2018	Lüdenscheid, Germany	EN
free@home - Solution for residential Buildings	03.05.2018 - 04.05.2018	Lüdenscheid, Germany	EN
Certified KNX Basic Course	07.05.2018 - 11.05.2018	Vittuone (Milan), Italy	IT
ABB I-bus® KNX: KlimaECO (Details coming soon)	16.05.2018	Webinar	EN
Certified KNX Basic Course	21.05.2018 - 25.05.2018	S. Palomba (Rome), Italy	IT
Energy Monitoring	24.05.2018 - 25.05.2018	Heidelberg, Germany	EN

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Shading in Buildings

Training & Qualification Database

- In this database you can find the complete online training portfolio for ABB Home and Building Automation
- The database includes the following types of training content:
 - E-Learnings
 - Presentations
 - Video tutorials
 - Webinar slides and videos
 - Application Manual
 - and more
- www.abb.com/knx or <https://go.abb/ba-training>
 - Services & Tools
 - Training and Qualification
 - Training Database



Training & Qualification Database



In this database you can find the complete online training portfolio for ABB Home and Building Automation.

System: All, Door Entry Systems, Fire Alarm Systems, Free@home, **i-bus KNX**

Application: Safety and Security, **Shading & Control**, Standard inputs, Standard Outputs, System infrastructure and interfacing

Training Type: All, Application Manual, E-Learning, Presentation, Video Tutorial

Language: All, Dutch, **English**, French, German

Content	System	Training Type	Language	Published
Webinar JRA/S 6.230.3.1, LGS/A 1.2, TR/A 1.1	i-bus KNX	Webinar Slides	English	2017-12-06
Webinar JRA/S 6.230.3.1, LGS/A 1.2, TR/A 1.1	i-bus KNX	Webinar Video	English	2017-12-06
Shutter Control	i-bus KNX	Application Manual	English	2017-08-10
Basics and Product Overview	i-bus KNX	Webinar Slides	English	2017-07-14
Tips from the KNX expert	i-bus KNX	Webinar Slides	English	2017-07-14
Special functions in KNX	i-bus KNX	Webinar Slides	English	2017-07-14
Shutter Control	i-bus KNX	Webinar Slides	English	2017-07-14
Blind/Roller Shutter Actuators JRA/S	i-bus KNX	E-Learning	English	2017-07-14
Basics and Product Overview	i-bus KNX	Webinar Video	English	2017-06-23
Tips from the KNX expert	i-bus KNX	Webinar Video	English	2017-06-23
Special functions in KNX	i-bus KNX	Webinar Video	English	2017-06-23
Shutter Control	i-bus KNX	Webinar Video	English	2017-06-23

Shading in Buildings

Training & Qualification Database

- E-Learning
 - Blind/Roller Shutter Actuators JRA/S → [Link](#)
- Application Manual
 - Shutter Control → [Link](#)
- Webinar “Shutter Control” (November 2014)
 - Slides → [Link](#)
 - Video recording → [Link](#)
- Webinar “Webinar JRA/S 6.230.3.1, ...” (October 2017)
 - Slides → [Link](#)
 - Video recording → [Link](#)



Blind_Roller_Shutter_Actuators_JRAS (03:26 / 17:41) | ATTACHMENTS | EXIT

Outline Thumbnails Notes Search

4. Blind control applications (2/2)

5. Blind/Roller Shutter Actuators JRA/S A new generation

6. Blind/Roller Shutter Actuators JRA/S Product range

7. Blind/Roller Shutter Actuators JRA/S Manual operation

8. Blind/Roller Shutter Actuators JRA/S Software innovations/characteristics

9. Blind/Roller Shutter Actuators JRA/S Software innovations/characteristics

10. Blind/Roller Shutter Actuators JRA/S Software innovations/characteristics

11. Blind/Roller Shutter Actuators JRA/S Software innovations/characteristics

12. Blind/Roller Shutter Actuators JRA/S Software innovations/characteristics

13. Blind/Roller Shutter Actuators JRA/S Software innovations/characteristics

14. Blind/Roller Shutter Actuators JRA/S Software innovations/characteristics

15. Blind/Roller Shutter Actuators JRA/S Software innovations/characteristics

16. I-bus® Tool


17. Blind/Roller Shutter Actuators JRA/S Application: Daylight utilisation

18. Blind/Roller Shutter Actuators JRA/S Application: Room climate control

19. Blind/Roller Shutter Actuators JRA/S Application: Energy Efficiency

20. Summary

Blind/Roller Shutter Actuators JRA/S Product range



JRA/S X.230.5.1	JRA/S X.230.2.1	JRA/S X.230.1.1
2-fold	2-fold	2-fold
4-fold	4-fold	4-fold
8-fold	8-fold	8-fold
JRA/S 4.24.5.1		
4-fold		

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SLIDE 6 OF 21 | PLAYING | 00:05 / 01:00

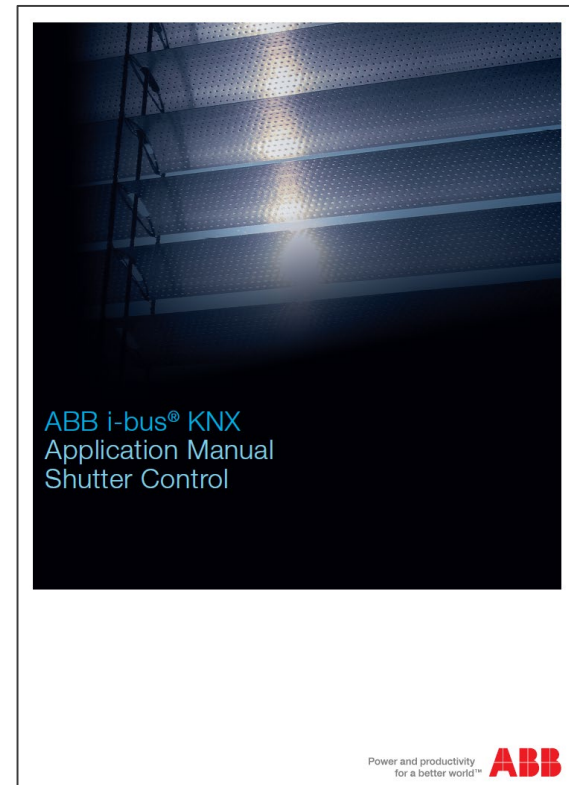
NOTES

E-Learning: Blind/Roller Shutter Actuators

Shading in Buildings

Training & Qualification Database

- E-Learning
 - Blind/Roller Shutter Actuators JRA/S → [Link](#)
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 - Slides → [Link](#)
 - Video recording → [Link](#)



Application Manual

Shading in Buildings

Training & Qualification Database

- E-Learning
 - Blind/Roller Shutter Actuators JRA/S → [Link](#)
- Application Manual
 - Shutter Control → [Link](#)
- Webinar “Shutter Control” (November 2014)
 - Slides → [Link](#)
 - Video recording → [Link](#)
- Webinar “Webinar JRA/S 6.230.3.1, ...” (October 2017)
 - Slides → [Link](#)
 - Video recording → [Link](#)



Shading in Buildings

Engineering Guide Database

– The Engineering Guide Database offers you a selection of detailed, technical information and documentation to support you during the design, installation and commissioning of ABB's Building Automation products and solutions

- i-bus KNX
- Door Entry Systems
- free@home


– www.abb.com/knx

→ Support

→ Engineering guide database



Engineering Guide Database



System: All, Door Entry Systems, Fire Alarm Systems, free@home, **i-bus KNX**

Application: Room Automation / Management, Safety and Security, **Shading Control**, Standard Inputs, Standard Outputs

Document Type: All, Application Guide, Function Description, Product Selection, Step-by-Step Guide

Language: All, Dutch, English, French, German

Content	System	Document Type	Language	Published
Applikationshandbuch Jalousiesteuerung	i-bus KNX	Function Description	German	2017-07-13
Application Manual Shutter Control	i-bus KNX	Function Description	English	2017-07-13
Sonnenschutzautomatik im JRA/S	i-bus KNX	Video Tutorial	German	2017-07-13
Sperrfunktion für Jalousie-/Rolladenaktoren	i-bus KNX	Video Tutorial	German	2017-07-13
Functions with the JA/S 4.SMI.1M	i-bus KNX	Step-by-Step Guide	English	2017-07-12
Ansteuerung von Vertikallamellen mit dem JSBS 1.1	i-bus KNX	Function Description	German	2017-07-12
Fassadensteuerung Beispiel mit dem JSBS 1.1	i-bus KNX	Application Guide	German	2017-07-12
Präsenzmelder	i-bus KNX	Product Selection	German	2017-07-12
Beschattungssteuerung KNX	i-bus KNX	Product Selection	German	2017-07-12
Movement and Presence Detectors	i-bus KNX	Product Selection	English	2017-07-12
Shading Control KNX	i-bus KNX	Product Selection	English	2017-07-12
Funktionen beim JA/S4.SMI.1M	i-bus KNX	Step-by-Step Guide	German	2017-07-11

Shading in Buildings

FAQ-Tool

- As a new support service, our new FAQ tool is online
- With this service, we are pleased to be able to offer you an additional support function for our building automation product range
 - i-bus KNX
 - Door Entry Systems
 - free@home
- www.abb.com/knx
 - Support
 - FAQ – Frequently asked questions



A screenshot of the ABB FAQ tool interface. The page is titled "FAQ Home" and includes a search bar, a navigation menu, and a list of categories. The categories are: Door Entry Systems, free@home (6 FAQs), i-bus KNX (1 FAQ), Power Supply (5 FAQs), System Infrastructure and Interfacing (2 FAQs), IP-Router and Interfaces (14 FAQs), Connection and Wiring (0 FAQs), Multifunction Room Automation (1 FAQ), Standard Inputs (4 FAQs), Analogue Inputs (2 FAQs), Metrological and Physical Sensors (1 FAQ), Standard Outputs (1 FAQ), Analogue Actuators (10 FAQs), Shading Control (7 FAQs), Blind Actuators SMI (4 FAQs), Lighting Control (6 FAQs), DALI (6 FAQs), Heating, Ventilation and Air Conditioning (2 FAQs), Automation, Logic and Time Control (15 FAQs), Visualisation, Display and Signalling (26 FAQs), User Operation - Busch-priOn (4 FAQs), User Operation - Busch-triton (0 FAQs), User Operation - Solo (0 FAQs), User Operation - Millennium (0 FAQs), User Operation - Zenit (0 FAQs), User Operation - Sidus (0 FAQs), User Operation - Mylos (0 FAQs), User Operation - Chiara (0 FAQs), User Operation - Ocean (0 FAQs), User Operation - Push Button Coupling Units (1 FAQ), User Operation - Refelex SI / Busch-Duro 2000SI for Push Button Coupling Units (0 FAQs), and User Operation - Busch-balance SI / basic 55 for Push Button Coupling Units (0 FAQs). The interface also includes a "Tags" section with various product and service tags.

Shading in Buildings

Blind/Roller Shutter Actuator JRA/S

– Information & Tools

- www.abb.com/knx
→ Shading Control
- Application for ETS3, ETS4 and ETS5
- Software Information
- Product Manual
- Technical Data
- Specification Text
- Presentation Slides
- Installation and Operating Instructions
- ...

ABB HOME > OFFERINGS > LOW VOLTAGE PRODUCTS > HOME AND BUILDING AUTOMATION > ABB i-BUS KNX > SHADING CONTROL

Shading Control

Blinds and roller shutters

Sensor controlled roller shutters, windows and blinds with sun position controlled louvres not only provide pleasant shading, they also allow optimal lighting and room climate conditions and assist in responsible use of energy.

Main benefits

- Eases the work of the integrator thanks to the automatic travel detection and front-end control buttons
- More energy efficiency with the effective use of daylight and external temperature
- Quick, efficient and detailed device analysis without ETS software, even remotely, thanks to the ABB i-bus® tool

Main features

- Control of independent drives via ABB i-bus® KNX
- Electro-mechanically interlocked outputs prevent possible destruction of the drives
- Additional safety is possible when used in combination with weather station e.g. protection of shutters against frost, wind, precipitation

Products and Documentation

Quick View	Product	Information
Q	JAS4 SMI 1M 2CD011002R0011	JAS4 SMI 1M Shutter Act Man, 4T, SMI
Q	JRA/S2 230 1.1 2CD011012R0011	JRA/S2 230 1.1 Blind/RollerSMAct, 2f
Q	JRA/S2 230 2.1 2CD011012R0011	JRA/S2 230 2.1 Blind/RollerSMAct, M, 2f

ABB HOME > OFFERINGS > LOW VOLTAGE PRODUCTS > HOME AND BUILDING AUTOMATION > ABB i-BUS KNX > SHADING CONTROL

Shading Control

Blinds and roller shutters

Products and Documentation

Product browser Documentation

Downloads for Shading Control

You now see 249 files within All files (249) [Advanced search](#) [Documents in all languages](#)

Document Type	Document Name	Summary	Language	Size	Download
Environmental product declaration (41)	ETS Application (KNXPROD) [EN] 619660	Summary: No summary available	Software - German, English, Spanish, French	2018-04-23 - 0.26 MB	↓ KNXPROD
Manual (6)	Application Software ETS3 (VD3) SJR/S4 24 2.1	Summary: No summary available	Software - Danish, German, English, Spanish, Finnish, French, Italian, Dutch, Norwegian, Polish, Portuguese, Russian, Swedish, Chinese	2018-04-16 - 0.59 MB	↓ VD3
Movie (2)	Application Software ETS3 (VD5) JAS4 SMI 1M	Summary: No summary available	Software - Danish, German, English, Spanish, Finnish, French, Italian, Dutch, Norwegian, Polish, Portuguese, Russian, Swedish, Chinese	2018-04-16 - 0.59 MB	↓ VD5
Operating instruction (21)	Application Software ETS4/ETS5 (KNXPROD) JAS4 SMI 1M	Summary: No summary available	Software - Danish, German, English, Spanish, Finnish, French, Italian, Dutch, Norwegian, Polish, Portuguese, Russian, Swedish, Chinese	2018-04-16 - 0.59 MB	↓
Presentation (10)					
Release note (3)					
Software (22)					
Tender specification (42)					

You are logged in as juergen.schlider@de.abb.com. You see all documents you have access to.

Agenda

Solutions for shading in building with KNX

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Automatic sun protection

- Standard
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Optimum room air quality via automatic ventilation

Appendix (Shutter Control Unit JSB/S, Night cool down, SMI – Standard Motor Interface)

Basic shutter control with safety functions (wind and rain alarm)

Product and functional overview

Blind/Roller Shutter Actuator JRA/S

- The ABB i-bus® Blind/Roller Shutter Actuators are modular installation devices in Pro M design
- The devices are used for control of motors (230 V AC/ 24 V DC) with sun protection products, such as blinds, roller shutters, Venetian blinds, awnings, roller blinds, curtains, vertical blinds ...
- The control of binds/shutters via electrical drives saves the user not just manual raising and lowering of the blinds/shutters, but also enables fully automatic control
- This type of control takes into consideration the time of day, the strength of the sunlight, the temperature conditions, the wind force etc.
- The devices are also ideal for the control of ventilation flaps, skylights, doors, gates and other products that can be controlled via a drive



Basic shutter control with safety functions (wind and rain alarm)

Product and functional overview

Blind/Roller Shutter Actuator JRA/S

- The Blind/Roller Shutter Actuators are powered via the ABB i-bus® KNX and do not require an additional power supply
- The connection to the KNX is implemented using the bus connection terminal
- The device variants with manual operation JRA/S X.230.2.1 also feature push buttons on the device front
- The connected drive manually adjusts the blinds/shutters connected to the drive, e.g. move UP/DOWN, STOP and slat adjustment UP/DOWN in steps
- The front mounted LEDs indicate the current direction of movement or the current end position and status
- The device variants JRA/S X.230.5.1 and JRA/S 4.24.5.1 also feature “Automatic travel detection” via current detection



Basic shutter control with safety functions (wind and rain alarm)

Product and functional overview

Blind/Roller Shutter Actuator JRA/S

- The output contacts for the UP and DOWN directions of motion are electro-mechanically mutually interlocked on all 230V AC Blind/Roller Shutter Actuators
- Simultaneous application of voltage would lead to destruction of the drives
- The electro-mechanical interlocking feature ensures that both contacts can never have an applied voltage at the same time
- The reversing delay when the direction changes can be set using parameters
- The reaction on bus voltage failure and recovery as well as programming can be set individually

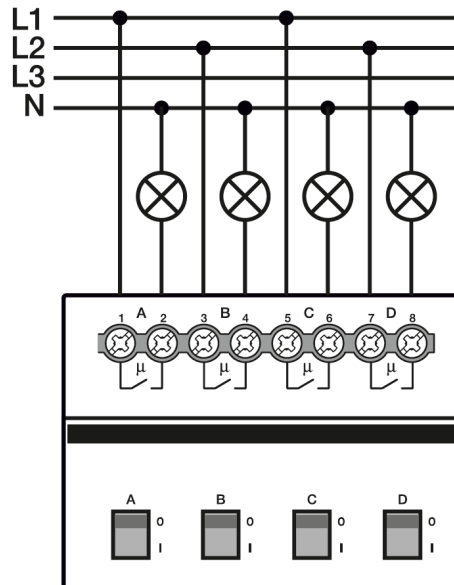


Basic shutter control with safety functions (wind and rain alarm)

Product and functional overview

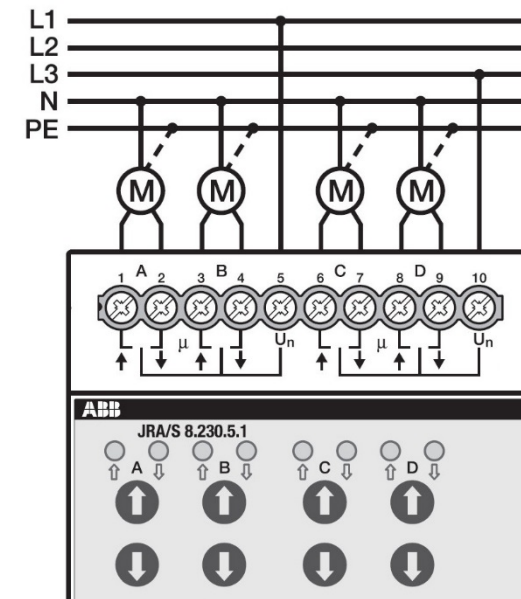
Switch Actuators SA/S

Switch Actuators SA/S are responsible for reliable switching of different electrical loads



The Blind/Roller Shutter Actuators JRA/S

The Blind/Roller Shutter Actuators JRA/S are for the control of drives (blinds, shutters, screens, awnings ...)

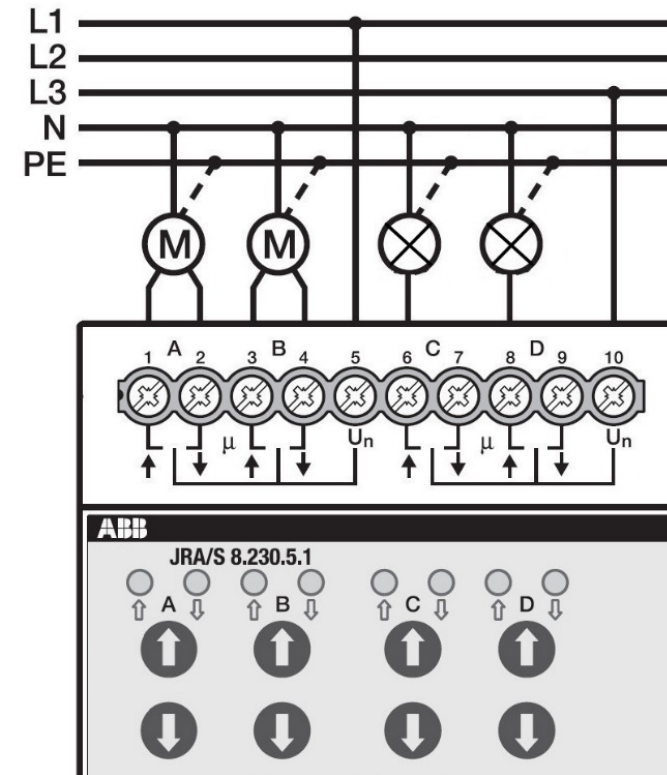


Basic shutter control with safety functions (wind and rain alarm)

Product and functional overview

Operation Mode of a Shutter Actuator

- Control with slat adjustment
 - Up/down and step/stop
 - Blinds, exterior blinds, slat blinds, venetian blinds, vertical louvre blinds
- Control without slat adjustment
 - Up/down or open/close and stop
 - Shutter, roller shutters, windows, screens, awnings, skylights
- Ventilation flaps/switch mode
 - A shutter output can be used as an switch output

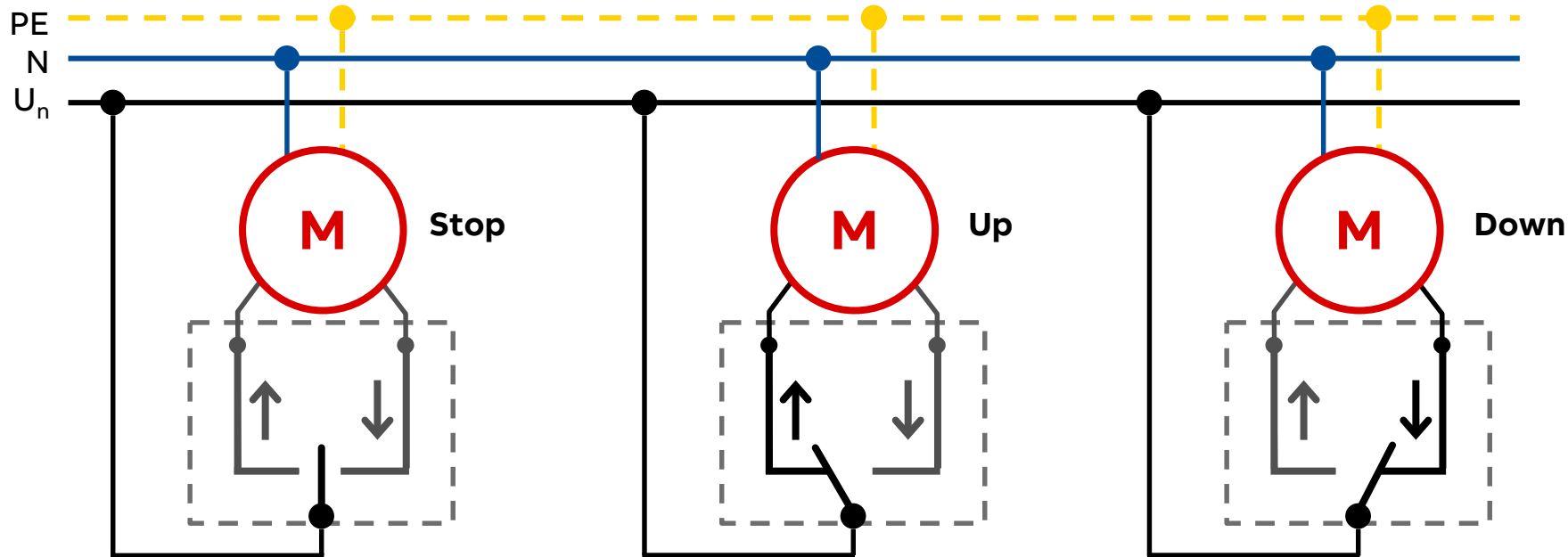


Basic shutter control with safety functions (wind and rain alarm)

Product and functional overview

Blind/Roller Shutter Actuator JRA/S – Safety

- Electro-mechanically interlocked outputs prevent possible destruction of the drives
- The parameterization acts directly on the relay and has the highest priority

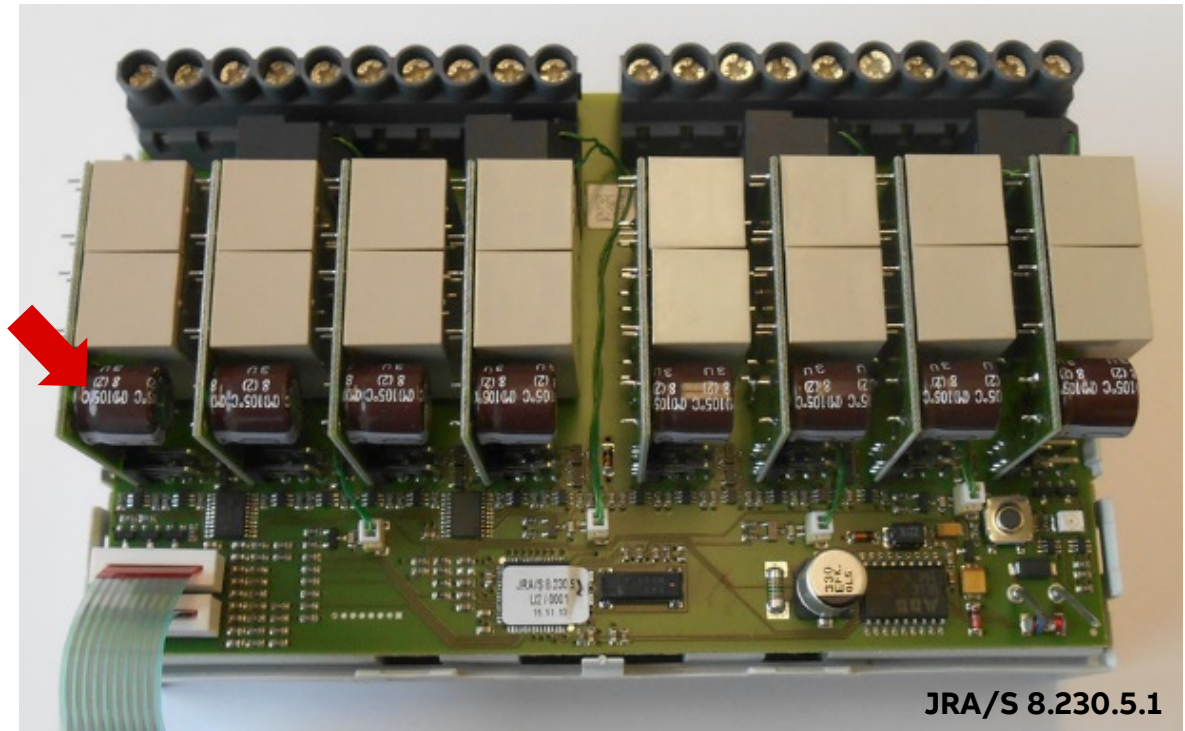


Basic shutter control with safety functions (wind and rain alarm)

Product and functional overview

Blind/Roller Shutter Actuator JRA/S – Safety

- On a bus voltage failure, the default position of the bistable relay will be set even without an additional supply voltage
- ABB Shutter Actuators need no auxiliary voltage – only KNX
- Switching energy of the relays is stored in additional capacitors



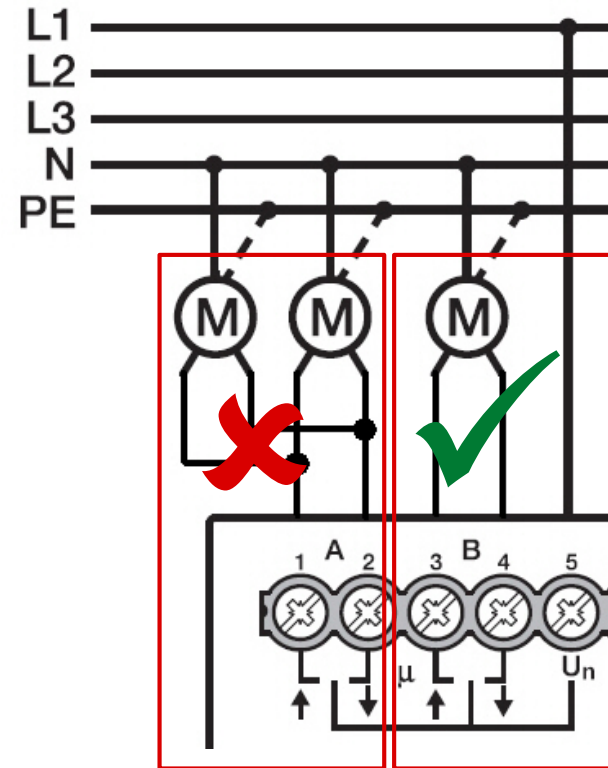
Basic shutter control with safety functions (wind and rain alarm)

Product and functional overview

Connection to the blind and roller shutter drives

Important!

- Only one drive can be connected per output!
- Parallel connection of several drives is not allowed
→ reverse voltages may occur

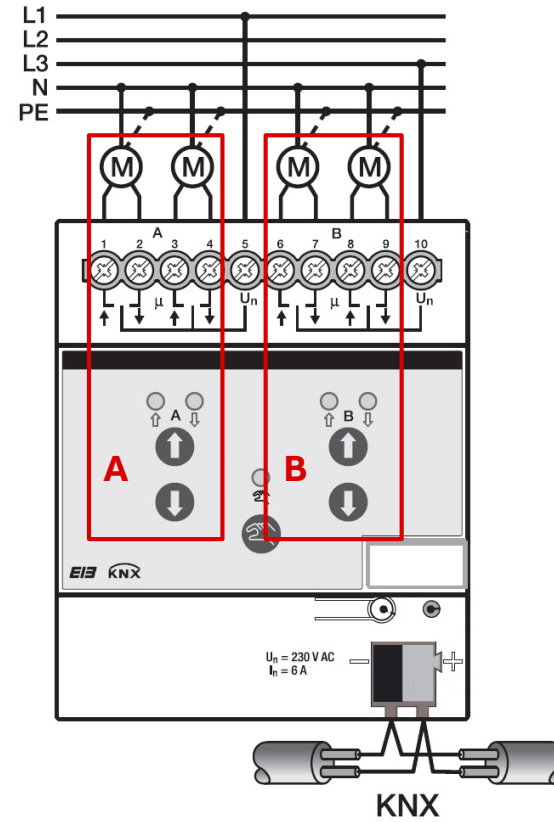


Basic shutter control with safety functions (wind and rain alarm)

Product and functional overview

Connection to the blind and roller shutter drives

- Blind/Roller Shutter Actuator 2-fold JRA/S 2.230.x.1
 - To control up to 2 independent blind and roller shutter drives (output A and B)
 - 2 x 2 parallel relay outputs



Basic shutter control with safety functions (wind and rain alarm)

Product range overview

JRA/S X.230.1.1

- 2-fold
- 4-fold
- 8-fold

JRA/S X.230.2.1

- 2-fold
- 4-fold
- 8-fold

JRA/S X.230.5.1

- 2-fold
- 4-fold
- 8-fold

JRA/S X.24.5.1

- 4-fold

“FM”

6152/11 U-500

- 1-fold
- 3 inputs

6173/11 U-500

- 1-fold
- 1 electr. output
- 3 inputs

JRA/S 6.230.3.1

- 6-fold
- 12 binary inputs

“SMI”

SJR/S 4.24.4.1

- 4x4f-fold LoVo

JA/S 4.SMI.1M

- 4x4-fold

- The right device for every application
- Universal range for many sun protection technology applications
- 2, 4, 8-fold Blind/Roller Shutter Actuators (230 V AC) with and without manual operation
- Device for 24 V DC now also with manual operation and automatic travel detection

Basic shutter control with safety functions (wind and rain alarm)

Product range overview

Blind/Roller Shutter Actuator JRA/S X.230.1.1

- 2-, 4-, 8-fold 230 V
- Without manual operation and status LEDs (standard)
- Same application program like JRA/S X.230.5.1-devices but without the functions of “Travel Detection”
- The devices do not require an auxiliary voltage (only KNX)
- Universal head screw terminals



2-fold



4-fold



8-fold

Basic shutter control with safety functions (wind and rain alarm)

Product range overview

Blind/Roller Shutter Actuator JRA/S X.230.2.1

- 2-, 4-, 8-fold 230 V
- With manual operation and status LEDs
- Same application program like JRA/S X.230.5.1 devices but without the functions of “Travel Detection”
- The devices do not require an auxiliary voltage (only KNX)
- Universal head screw terminals



2-fold

4-fold



8-fold

Basic shutter control with safety functions (wind and rain alarm)

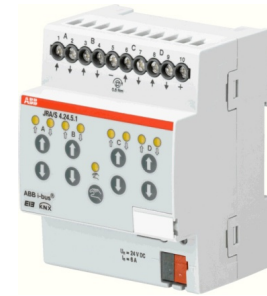
Product range overview

Blind/Roller Shutter Actuator JRA/S X.230.5.1 and 4.24.5.1

- 2-, 4-, 8-fold 230 V
- 4-fold 24 V DC
- With function “Travel Detection”
- With manual operation and status LEDs
- The devices do not require an auxiliary voltage (only KNX)
- Universal head screw terminals



2-fold



4-fold, 24 V DC



4-fold



8-fold

Basic shutter control with safety functions (wind and rain alarm)

Product range overview

Blind/Roller Shutter Act. with Binary Inputs JRA/S 6.230.3.1

- Extension of the existing range of ABB's shutter actuators
- 6 mechanically locked Blind/Roller Shutter outputs for 230 V AC motors
- Each output (6A) can be programmed also as relay output (light)
- 12 integrated binary inputs for potential free contacts
 - To operate the motor directly via internal connection between inputs and outputs without group addresses (like Room Master)
 - Inputs can also be used as standard binary inputs for other functions (KNX)
- Same application program like JRA/S X.230.5.1-devices but without the functions of "Travel Detection"
- Software based on Room Master RM/S (Scene, Security functionality, Automatic sun protection, ...)
- The device does not require an auxiliary voltage (only KNX)

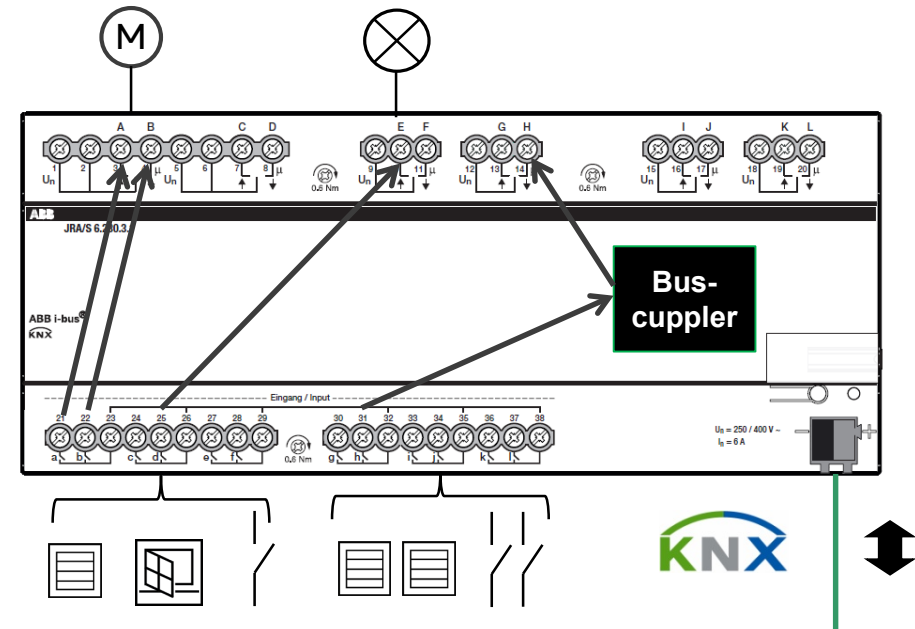


Basic shutter control with safety functions (wind and rain alarm)

Product range overview

Blind/Roller Shutter Act. with Binary Inputs JRA/S 6.230.3.1

- Integrated binary inputs
 - For connection of potential free contacts
 - Switches, pushbuttons or any contacts
 - to control directly the connected motors/loads or any other motor/load connected to another KNX device via telegram
 - Direct control of motors after installation via binary inputs (preprogrammed from factory)
 - Internal connection between in- and output for easy and fast linkage
 - Connection via group addresses (also additionally) always possible



Basic shutter control with safety functions (wind and rain alarm)

Product range overview

Blind/Roller Shutter Actuator “FM”

- Shutter Actuator, 1-gang, FM, 6152/11 U-500
 - For controlling a blind or awning motor
 - With three inputs for potential free contacts and a change-over output
 - Output allows the control of electrically-operated venetian blinds, roller shutters, awnings or similar blinds for 230 V AC
- Combi Actuator, FM, 6173/11 U-500
 - For controlling a blind or awning motor and connecting thermoelectric actuating drives
 - With three inputs for potential free contacts and 2 outputs
 - Output 1 allows the control of electrically-operated venetian blinds, roller shutters, awnings, or similar blinds for 230 V AC
 - Output 2 allows silent control of electro thermal valve drives for heating or cooling systems



6152/11 U-500



6173/11 U-500

Basic shutter control with safety functions (wind and rain alarm)

Product range overview

SMI Blind/Roller Shutter Actuator

- Shutter Actuator JA/S 4.SMI.1M controls
 - Four independent groups (Broadcast Mode)
 - Each group with up to 4 SMI shutter or roller blind drives (230V Motors)
 - Shutter Actuator SJR/S4.24.2.1 LoVo controls
 - Four independent groups (Broadcast Mode)
 - Each group with up to 4 SMI shutter or roller blind drives (24V Motors SMI LoVo)
 - No SMI commissioning necessary
 - Status signals (motor fault, direction of movement) can also be sent from the SMI drive on KNX
 - Manual operation and status LEDs
- More information about SMI technology and actuators in the appendix of this presentation



JA/S 4.SMI.1M



SJR/S4.24.2.1 LoVo

Basic shutter control with safety functions (wind and rain alarm)

Product range overview

Room Master and Room Controller

- The Room Master RM/S with its compact design covers all the basic requirements for lighting control, heating/air conditioning and shading control (shutters, blinds or curtains) in hotel rooms, hospital rooms as well as apartments in institutions for residential care or in student residential homes
- The Room Controller RC/A controls all the functions in the room as a central device. Due to its modular design, it can be adapted flexibly to the required functionality (lighting control, heating/air conditioning, shading, ...).
- Further information can be found in the presentations and documentation of the
 - “Room Master RM/S”
 - “Room Controller RC/A”



Basic shutter control with safety functions (wind and rain alarm)

Product range overview

Type designation JRA/S








- W: Number of outputs (2, 4, or 8)
- X: Rated voltage (24 V or 230 V)
- Y: Hardware properties
 - 1 = standard
 - 2 = with manual operation
 - 5 = with automatic travel detection and manual operation
- Z: Hardware version

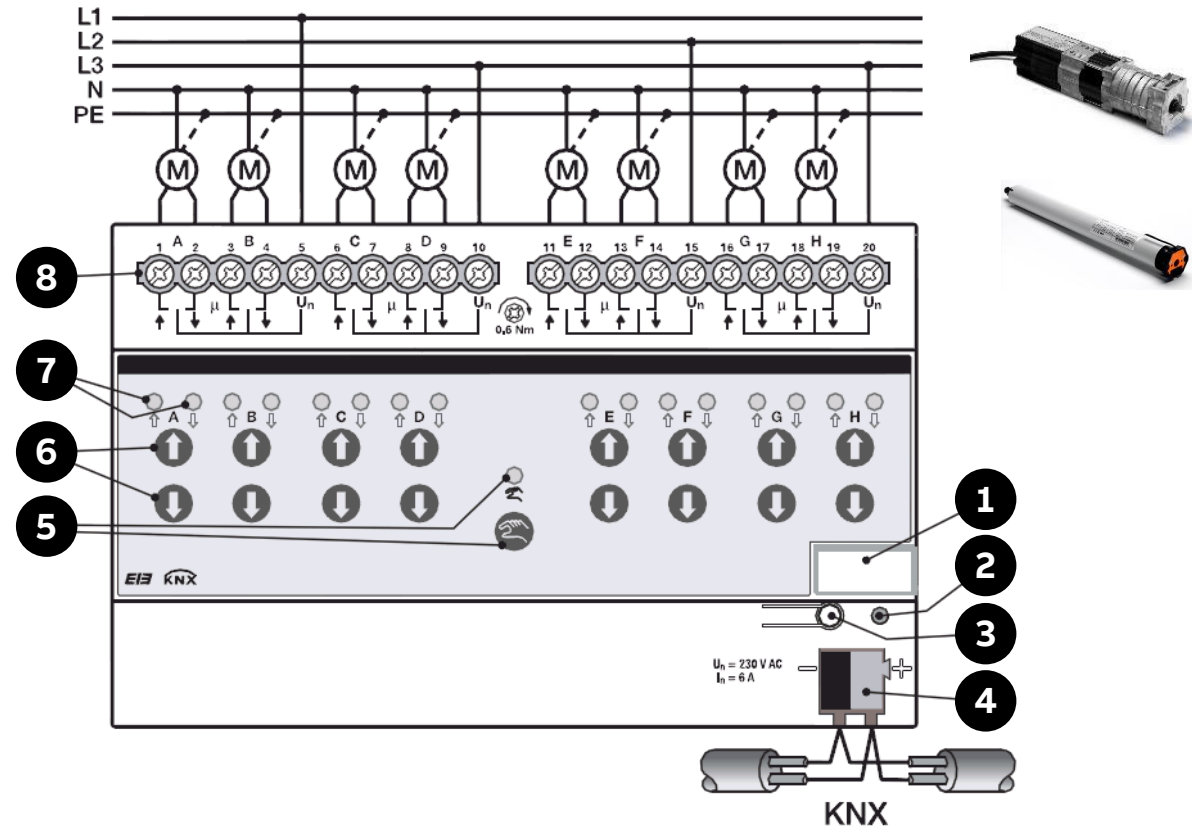
JRA/S	W	X	Y	Z
Number of outputs	4			
Nominal voltage		230		
Hardware-properties			5	
Version				1

Basic shutter control with safety functions (wind and rain alarm)

Product range overview

Connection to the blind and roller shutter drives








1. Label carrier
2. Programming LED, red ●
3. Programming Button 
4. Bus connection terminal ABB i-bus® KNX
5. Manual operating button  and LED, yellow 
6. Operating button   Up/Down/stop (2 per output)
7. Status LEDs   Up/Down (2 per output), yellow
8. Screw terminals (UP/DOWN, Phase L)

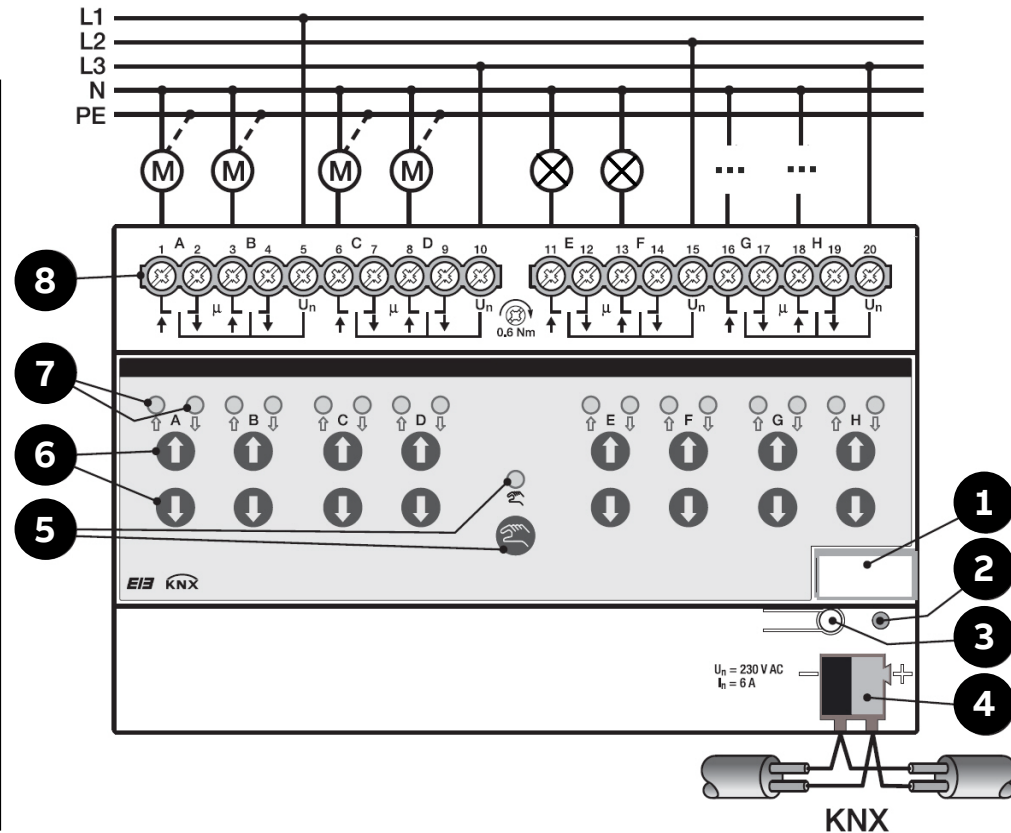


Basic shutter control with safety functions (wind and rain alarm)

Product range overview

Connection to ventilation flaps/dampers or switch mode








1. Label carrier
2. Programming LED, red ●
3. Programming Button 
4. Bus connection terminal ABB i-bus® KNX
5. Manual operating button  and LED, yellow 
6. Operating button   Up/Down/stop (2 per output)
7. Status LEDs   Up/Down (2 per output), yellow
8. Screw terminals (UP/DOWN, Phase L)

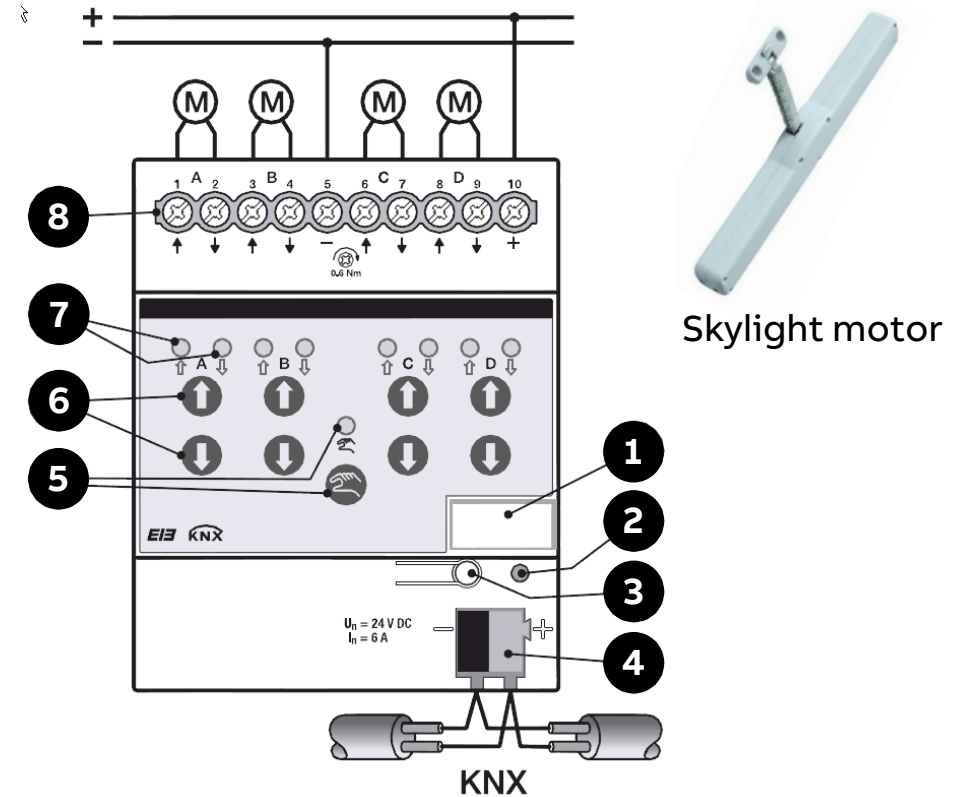


Basic shutter control with safety functions (wind and rain alarm)

Product range overview

Connection to 24 V DC drives

1. Label carrier
2. Programming LED, red ●
3. Programming Button 
4. Bus connection terminal ABB i-bus® KNX
5. Manual operating button  and LED, yellow 
6. Operating button   Up/Down/stop (2 per output)
7. Status LEDs   Up/Down (2 per output), yellow
8. Screw terminals (UP/DOWN, 24 V DC)



Basic shutter control with safety functions (wind and rain alarm)

Product range overview

Commissioning Power Supply NTI/Z 28.30.1

- The commissioning power supply generates a DC voltage (no KNX!) and is used for on site commissioning of KNX devices should KNX system voltage be unavailable
- Hence, the most important functions of a KNX device (e.g., Fan Coil Actuator/Controller or Shutter Actuator) can be tested with manual operation
- The output is permanently short-circuit proof and overload protected
- Supply voltage U_S 85...265 V AC
- Output voltage U_N 21...28 V DC SELV
- Rated current I_N 30 mA



Basic shutter control with safety functions (wind and rain alarm)

Product range overview

Manual operation JRA/S X.Y.5.1 and X.Y.2.1

- The outputs can be directly controlled using the push buttons in manual operation
- Accordingly, the wiring of the drives connected to the outputs can be verified during commissioning
- You can, for example, ensure that the connected blind drives moves up and down correctly
- If bus voltage is not yet available at the time of commissioning, the device can be supplied with power for manual operation using the Power Supply NTI/Z
- Safety telegrams such as weather alarms, blocking and forced operation have the highest priority and block manual operation
- This is carried out if manual operation is activated and a safety telegram is received






Basic shutter control with safety functions (wind and rain alarm)

Product range overview

Manual operation JRA/S X.Y.5.1 and X.Y.2.1

Push buttons are located on the front of the device for manual operation







- Button  “Manual operation”
 - Switch to “Manual operation” and “KNX mode”
- Button   “Output A...X UP/DOWN”
 - KNX mode: No reaction
 - Manual operation
 - Long operation: UP/DOWN or opening/closing of the contact
 - Short operation: Slat adjustment/STOP



Basic shutter control with safety functions (wind and rain alarm)

Product range overview

Manual operation JRA/S X.Y.5.1 and X.Y.2.1

- As standard button “manual operation” is enabled and switch on and off is possible using it
- Switch on of manual operation
 - Press  button until the yellow LED  lights continuously
- Switch off of manual operation
 - Press  button until the yellow LED  switches off
- The yellow LED  flashes during the switchover process
- After connection to the KNX, an ETS download or ETS reset the device is in KNX operation
- The LED  is off
- All LEDs indicate their current state










Basic shutter control with safety functions (wind and rain alarm)

Product range overview

Manual operation JRA/S X.Y.5.1 and X.Y.2.1

Indicator LEDs are located on the front of the device

- LED  „Manual operation“
 - Off: The device is in KNX mode
 - On: The device is in manual mode
- LED  A  „Output A...X UP/DOW “
 - On  Upper limit position
 - On  Lower limit position
 - Both LED On: Safety function active, e.g. wind alarm
 - Flashes  Blind/shutter moving upwards
 - Flashes  Blind/shutter moving downwards
 - Both LEDs flash alternately (only JRA/S X.Y.5.1):
Malfunction drive fault (no current flow or invalid travel times)
 - Off: Intermediate position

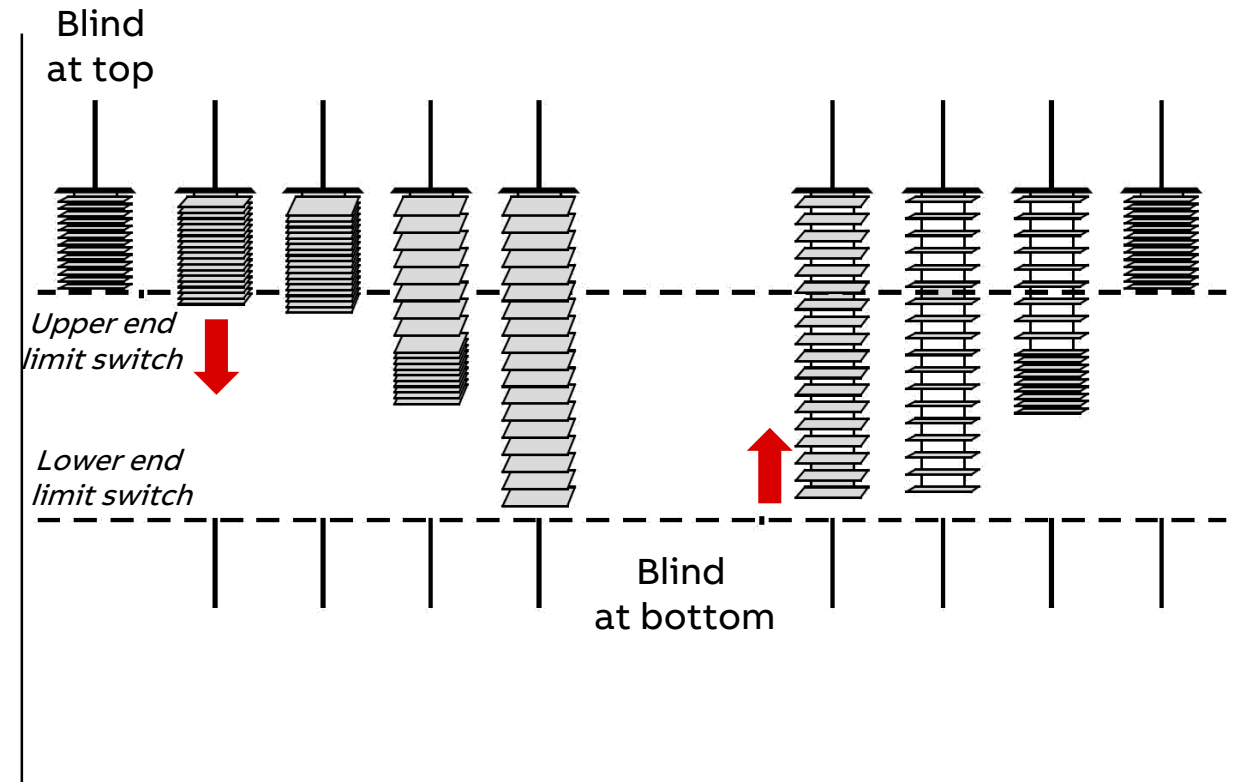


Basic shutter control with safety functions (wind and rain alarm)

Application

Control with slat adjustment (blinds, vertical blinds, ..)

- If the blind is moved downwards, the slats are initially closed (slat position vertical), and the blind moves downwards
- If the blind is now once again moved upwards, the slats will once again be opened (slat position horizontal) and will then be moved upwards
- After the UP movement of the blind, the slats are generally open (horizontal slat position)

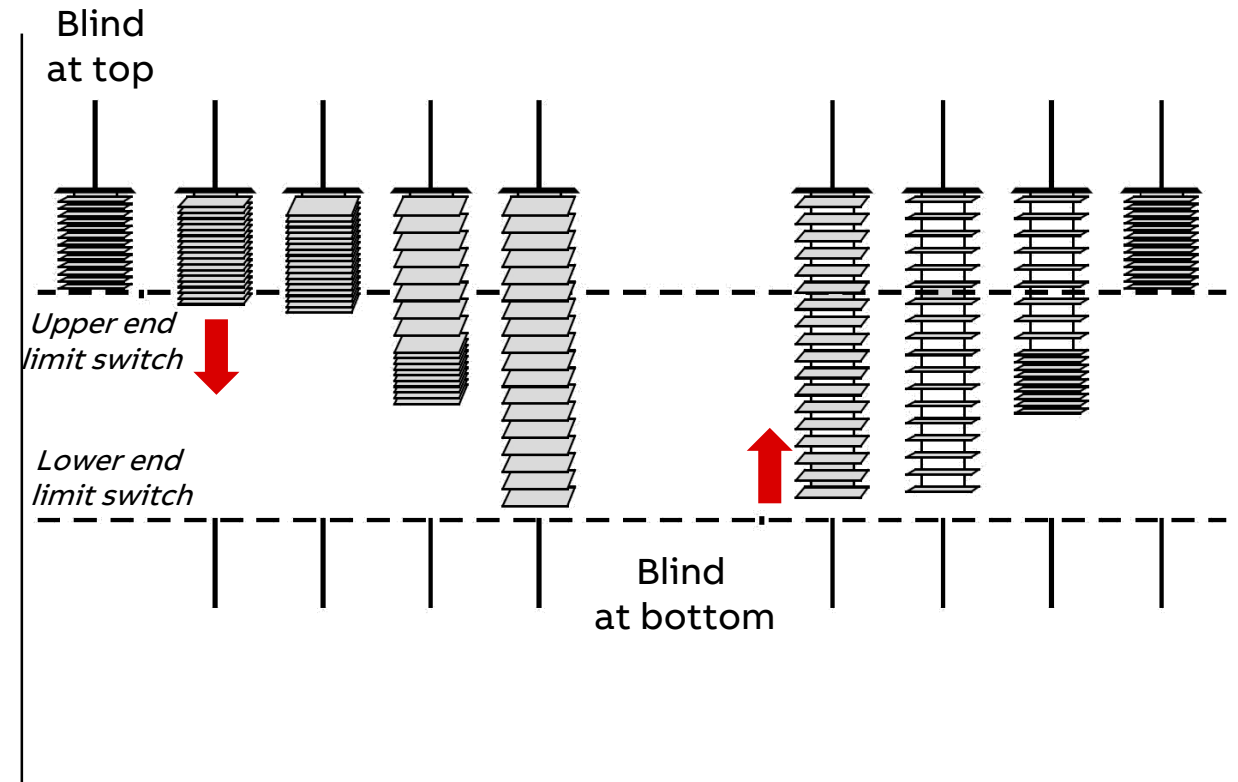


Basic shutter control with safety functions (wind and rain alarm)

Application

Control with slat adjustment (blinds, vertical blinds, ..)

- To adjust the slat angle in a targeted manner, short movements can be executed
- This means that, for a short parameterized time (the so-called duration of slat adjustment), the blind will be moved in a stepped manner in the required direction, thus adjusting the slats
- The smaller the duration of slat adjustment is, the more accurately the slat angle can be adjusted



Basic shutter control with safety functions (wind and rain alarm)

Application

Reaction on bus voltage failure

- The reaction of each individual output at bus voltage failure can be parameterized
 - No reaction: The output contacts remain in their current state
 - Up/down: The blind/shutter (s) move up or down
 - Stop: If the blind/shutter is performing a movement, this movement stops immediately. If the blind/shutter is at rest, it will remain unchanged in its position
- This parameterization acts directly on the output contacts and has the highest priority
- If a bus voltage failure occurs during the movement, the blind/shutter can also move in the opposite direction of motion
- After the contact positions are set with bus voltage recovery, the JRA/S remains non-functional, until the bus voltage recovers

1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: General

General	Operation mode	Control with slat adjustment ▼
Manual operation	To control venetian or vertical blinds and other shading systems with slats	<-- Note
Weather alarms	Reaction on bus voltage failure/recovery programming and reset	
A: General	Reaction on bus voltage failure	Stop ▼ No reaction Up Down Stop ✓
A: Safety/Weather	Reaction after bus voltage recovery	
A: Drive	Reaction after programming or after ETS reset	
A: Blinds/Shutter		

Basic shutter control with safety functions (wind and rain alarm)

Application

Reaction after bus voltage recovery/programming/reset

The reaction of each individual output at bus voltage programming or after ETS reset can be parameterized

- No reaction: The output contacts remain in their current state
- Up/Down: The blind/shutter(s) move up or down
- Stop: If the blind/shutter is performing a movement, this movement stops immediately
- Position 1...4: If one of these positions is selected, the blind/shutter (s) move to a preset position
- Individual position: Movement to one of the individual positions occurs (position height in % [0...100] and position slat in % [0...100])
- Enable automatic sun protection: The automatic is switched on

1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: General

General	Operation mode	Control with slat adjustment
Manual operation	To control venetian or vertical blinds and other shading systems with slats	<-- Note
Weather alarms	Reaction on bus voltage failure/recovery programming and reset	Stop
A: General	Reaction on bus voltage failure	Stop
A: Safety/Weather	Reaction after bus voltage recovery	No reaction
A: Drive	Reaction after programming or after ETS reset	Up
A: Blinds/Shutter		Down
A: Functions		Stop
A: Status messages		Position 1
B: General		Position 2
		Position 3
		Position 4
		Individual position
		Enable automatic sun protection

Basic shutter control with safety functions (wind and rain alarm)

Application

Enhanced status messages

- Height and slat (0...255, two separate group objects)
- Upper and lower end position (two separate group objects)
- Operability (to indicate to the user via an LED that the blinds/shutters can not be moved at the current time e.g., weather alarm)
- Automatic Sun Protection
- Information (16 bit)
 - Drive fault (no current flow with controlled drive, only available on devices of type JRA/S x.y.5.1)
 - Wind alarm
 - Drive in motion ...

1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Status messages

Weather alarms	Enable communication object "Status Height/Slat 0...255" 1 byte	<input checked="" type="radio"/> Yes <input type="radio"/> No
A: Functions	Send object value	No, update only
A: Status messages	Enable communication object "Status Upper/Lower end pos." 1 bit	No, update only ✓
B: General	Enable communication object "Status Operability" 1 bit	On change
B: Safety/Weather	Enable communication object "Status information" 16 bit	On request
B: Drive		After a change or request

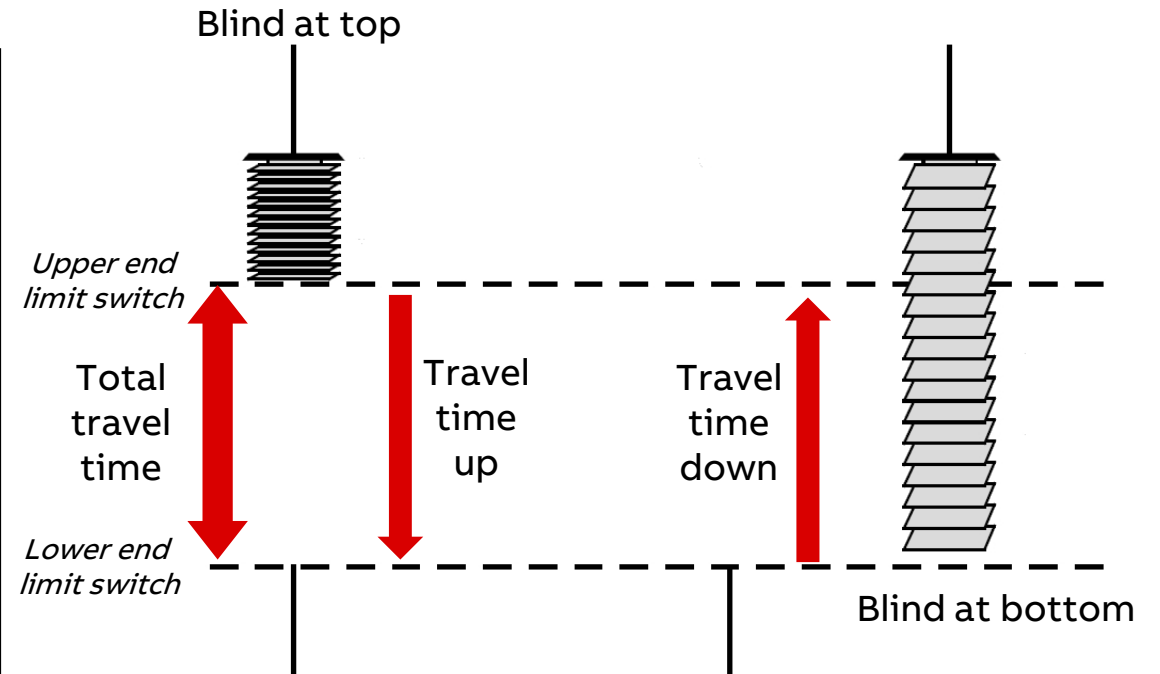
Yes No

Basic shutter control with safety functions (wind and rain alarm)

Application

Travel times (blinds, roller shutters, etc.)

- The travel time is the time that the blind/shutter requires for a movement from
 - Fully upwards to fully downwards
 - Fully downwards to fully upwards
- The movement times UP or DOWN can be separately determined and entered
- If the JRA/S receives a movement telegram (e.g. 80%) for upwards or downwards movement, the corresponding output is switched, and the blind/shutter is moved in the required direction
- For position movements, automatic control or status messages in particular, precise travel times are the basis for an exact calculation and positioning of the blind/shutter



Basic shutter control with safety functions (wind and rain alarm)

Application

Travel times: Automatic detection (only JRA/S x.y.5.1)

- The movement times of the drives are determined via the automatic travel detection
- The duration of the current flow that the drive uses for the movement from the lower to the upper end position and vice versa is measured via current detection
- This has the advantage that the ageing process and temperature related influences on the blind/shutter, e.g., expansion of the belts and cords on the blinds, are compensated
- It facilitates exact positioning of the blind/shutter
- Furthermore, the travel detection simplifies and accelerates commissioning and sends an error message, if the current flow is interrupted on the connected drive
- Travel detection occurs automatically in ongoing operation or optionally via a group object
- The determined travel times serve as the basis for the calculation and control of positions or for the position feedbacks

The screenshot shows the configuration interface for '1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Drive'. The 'A: Drive' tab is selected. The 'Detect travel times (Up/Down)' and 'Enable travel detection' options are highlighted with red boxes. The 'Detect travel times (Up/Down)' option is set to 'Yes - via detection of end positions'. The 'Enable travel detection' option is set to 'Automatically'. A red arrow points to the 'Automatically' option in the dropdown menu. The 'Standard' radio button is selected. The 'Diff. between start-up and coasting delay: time in ms/4 [-128...127]' is set to 0. The 'Minimum run time for drive in ms [10...255]' is set to 50.

Basic shutter control with safety functions (wind and rain alarm)

Application

Travel times: Set travel times

- Alternatively to automatic travel detection it is possible to use the manual travel detection method via the application
- The travel times have to be measured from the lower to the upper end position and vice-versa, e.g. using a stopwatch
- The measured values are then entered in the appropriate ETS parameter
- This method must be used on devices without travel detection (JRA/S x.230.2.1 and JRA/S x.230.1.1)
- For position movements, automatic control or status messages in particular, precise travel times are the basis for an exact calculation and positioning of the blind/shutter
- For this reason, the travel times should be measured as precisely as possible and parameterized

1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Drive

Weather alarms	<input type="checkbox"/> Detect travel times (Up/Down)	<input type="radio"/> Yes - via detection of end positions
A: General		<input checked="" type="radio"/> No - set travel times
A: Safety/Weather	UP time in s [0...6,000]	60
	DOWN time in s [0...6,000]	60
A: Drive	Disconnect output from power after	Total travel time + 10% Overflow
A: Blinds/Shutter	Enable communication object "Trigger reference movement" 1 bit	<input type="radio"/> Yes <input checked="" type="radio"/> No

Basic shutter control with safety functions (wind and rain alarm)

Application

Travel times plus overflow

- The blind/shutter is moved in this direction until the output receives a STOP telegram or the upper or lower limit positions are reached and the drive is switched off by the end limit switch
- If the drive is switched off via the limit switch, the corresponding output contact remains closed, until the set total travel time has elapsed
- Furthermore, the travel time can be extended by a parameterized overflow time
- Only then there is no longer voltage on the output

1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Drive

Weather alarms	Detect travel times (Up/Down)	<input type="radio"/> Yes - via detection of end positions <input checked="" type="radio"/> No - set travel times
A: General	UP time in s [0...6,000]	60
A: Safety/Weather	DOWN time in s [0...6,000]	60
A: Drive	Disconnect output from power after	Total travel time + 10% Overflow End position, no overflow End position + 2% overflow End position + 5% overflow End position + 10% overflow End position + 20% overflow Total travel time + 10% Overflow ✓ 0
A: Blinds/Shutter	Enable communication object "Trigger reference movement" 1 bit	
A: Functions	Pause on change in direct. in ms (see technical data of drive!) 50...10,000	
A: Status messages	Delay times for drive	
B: General	Diff. between start-up and coasting delay: time in ms/4 [-128...127]	

Basic shutter control with safety functions (wind and rain alarm)

Application

Travel times plus overflow and end limit switching

- If the drive reaches the end position at the top or bottom, closed at windows or opened, the drive must be stopped
- A limit switch is mandatory
- For this purpose, the motors/drives in the housing have an end stop and are switched off via a end limit switch (mechanically or electronic)
- After expiry of the travel time, the changeover contact is de-energized
- Switching off the relays in the Blind/Roller Shutter Actuators is only an additional safety!

1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Drive

Weather alarms	Detect travel times (Up/Down)	<input type="radio"/> Yes - via detection of end positions <input checked="" type="radio"/> No - set travel times
A: General	UP time in s [0...6,000]	60
A: Safety/Weather	DOWN time in s [0...6,000]	60
A: Drive	Disconnect output from power after	Total travel time + 10% Overflow End position, no overflow End position + 2% overflow End position + 5% overflow End position + 10% overflow End position + 20% overflow Total travel time + 10% Overflow ✓ 0
A: Blinds/Shutter	Enable communication object "Trigger reference movement" 1 bit	
A: Functions	Pause on change in direct. in ms (see technical data of drive!) 50...10,000	
A: Status messages	Delay times for drive	
B: General	Diff. between start-up and coasting delay: time in ms/4 [-128...127]	

Basic shutter control with safety functions (wind and rain alarm)

Application

Control with slat adjustment

Two methods are available for control of the slats and calculation of the slat turning times:

1. Slat turning time via duration of slat adjustment (step)

- With this method, the number and duration of slat adjustments that are required to turn the slats from fully closed to fully opened are set
- Using the maximum number of slat adjustments, the current position of the slats is determined during ongoing operation
- The max. number of slat adjustments must be counted by the operator and entered as a parameter

1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Blinds/Shutter

Weather alarms	Determine times for slat	<input checked="" type="radio"/> Via duration of slat adjustment (step) <input type="radio"/> Via total duration for slat turning
A: General	Duration of slat adjustment (step) in ms [50...1,000]	200
A: Safety/Weather	Number of slat adjustments (from 0% = open to 100% = closed)	7
A: Drive	Limit step commands to number of slat adjustments	<input checked="" type="radio"/> Yes <input type="radio"/> No
A: Blinds/Shutter	Total turning of slats after move DOWN	<input type="radio"/> Yes <input checked="" type="radio"/> No
A: Functions	Position of slat after arriving on lower end position (100% = disabled)	100

Basic shutter control with safety functions (wind and rain alarm)

Application

Control with slat adjustment

Two methods are available for control of the slats and calculation of the slat turning times:

2. Slat turning time via total duration for slat turning

- With this method, the time required by the slat to toggle from fully closed to fully opened is initially determined
- Thereafter, the required number of slat adjustments (steps) that the slats will require from fully closed to fully opened is entered
- The JRA/S then calculates the time required for a slat adjustment

1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Blinds/Shutter

Weather alarms	Determine times for slat	<input type="radio"/> Via duration of slat adjustment (step)
A: General		<input checked="" type="radio"/> Via total duration for slat turning
A: Safety/Weather	Duration to turn slat from 0% - 100% in ms [50...60,000]	1500
A: Drive	Number of slat adjustments (from 0% = open to 100% = closed)	7
A: Blinds/Shutter	Quotient of slat adjustment time and number of slat adj.: >= 50 ms!	<-- Note
A: Functions	Limit step commands to number of slat adjustments	<input checked="" type="radio"/> Yes <input type="radio"/> No
A: Status messages	Total turning of slats after move DOWN	<input type="radio"/> Yes <input checked="" type="radio"/> No

Basic shutter control with safety functions (wind and rain alarm)

Application

Time-delayed switching of drives

- In large KNX systems, a large starting current peak is generated if all drives start simultaneously due to central telegrams
- The current peak can be limited by time delayed switching of the outputs
- The time delay applies for all outputs or connected drives of the actuator
- The central travel telegrams are executed with a delay
 - Move to height for sun 0..255, adjust slat for sun 0..255
 - Block, Forced operation
 - Wind alarm, Rain alarm, Frost alarm ...

1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > General

General	Time-delayed switching of drives	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
Manual operation	Time delay in s [1...15]	1
Weather alarms	Sending and switching delay after bus voltage recovery in s [2...255]	2
A: General	During sending and switching delay outputs remain unchanged.	<-- Note
A: Safety/Weather	Send object "In operation"	<input type="radio"/> Yes <input checked="" type="radio"/> No
A: Drive	Limit number of telegrams	<input type="radio"/> Yes <input checked="" type="radio"/> No
A: Blinds/Shutter	Enable communication object "Request status values" 1 bit	<input type="radio"/> Yes <input checked="" type="radio"/> No

Basic shutter control with safety functions (wind and rain alarm)

Application

Starting delay, coasting delay and minimum run time

- Some drives do not deliver full power immediately
- It is delivered after a starting delay of a few milliseconds
- Other drives continue to run for a few milliseconds after switch off (stopping delay) or have a minimum run time
- These parameters must only be entered should you require even more exact positioning of the blinds/shutters

Important

- Generally, the standard settings for these parameters are adequate to ensure correct operation
- If changes are to be made in the user-defined settings on these parameters, the technical data of the respective drive manufacturer should be observed!

1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Drive

A: Safety/Weather	Disconnect output from power after	Total travel time + 10% Overflow
A: Drive	Enable communication object "Trigger reference movement" 1 bit	<input type="radio"/> Yes <input checked="" type="radio"/> No
A: Blinds/Shutter	Pause on change in direct. in ms (see technical data of drive!) 50...10,000	500
A: Functions	Delay times for drive	<input checked="" type="radio"/> Standard <input type="radio"/> User defined
A: Status messages	Diff. between start-up and coasting delay: time in ms/4 [-128...127]	0
B: General	Minimum run time for drive in ms [10...255]	50

Basic shutter control with safety functions (wind and rain alarm)

Application

Limitation of the travel range

- For certain applications, the travelling range of the blinds/shutters can be limited for the user
 - via object “Blinds/shutters up-down limited” or
 - via object “Enable limitation”
- Example
 - Opening and closing of the windows, doors or skylights can be limited to a certain group of users to a range of 0 to 20% opening, whereas the building caretaker may operate the complete range of movement
- In addition to limitation of the travelling range, you can determine whether the upper and lower limit should be used for direct telegrams and/or for automatic telegrams

1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Blinds/Shutter

A: General		Via object "Enable limitation"
A: Safety/Weather		No
A: Drive	Limit travelling range	Via object "Blinds/shutter up-down limit"
A: Blinds/Shutter	Upper limit in % [0...100] (0% = top; 100% = bottom)	Via object "Enable limitation"
A: Functions	Upper limit valid for automatic commands	0
A: Status messages	Upper limit valid for direct commands	<input type="radio"/> Yes <input checked="" type="radio"/> No
B: General	Lower limit in % [0...100] (0% = top; 100% = bottom)	<input type="radio"/> Yes <input checked="" type="radio"/> No
B: Safety/Weather	Lower limit valid for automatic commands	100
B: Drive	Lower limit valid for direct commands	<input type="radio"/> Yes <input checked="" type="radio"/> No
B: Blinds/Shutter	Set dead times	<input checked="" type="radio"/> Standard <input type="radio"/> User defined

Basic shutter control with safety functions (wind and rain alarm)

Application

Dead times

- In a few rare cases (e.g. ageing of the blind/shutter), a compensation for the mechanically present dead times of the blinds/shutters or slats is required
- Parameters are available to compensate for the dead times and enable exact positioning

Important

- Generally, the standard settings for these parameters are adequate to ensure correct operation
- If changes are to be made in the user-defined settings on these parameters, the technical data of the respective blind/shutter manufacturer should be observed!

1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Blinds/Shutter

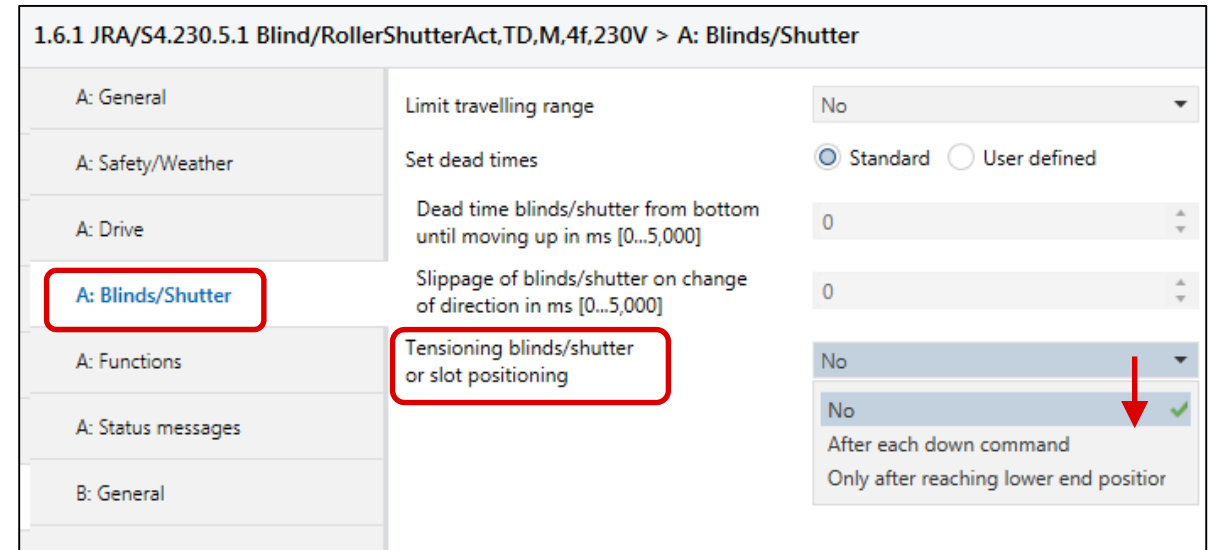
A: General	Limit step commands to number of slat adjustments	<input checked="" type="radio"/> Yes <input type="radio"/> No
A: Safety/Weather	Total turning of slats after move DOWN	<input type="radio"/> Yes <input checked="" type="radio"/> No
A: Drive	Position of slat after arriving on lower end position (100% = disabled)	100
A: Blinds/Shutter	Limit travelling range	No
A: Functions	Set dead times	<input type="radio"/> Standard <input checked="" type="radio"/> User defined
A: Status messages	Dead time blinds/shutter from bottom until moving up in ms [0...5,000]	0
B: General	Dead time of slat from 100% closed until slat turn in ms [0...5,000]	0
B: Safety/Weather	Slippage of slat on change of direction in ms [0...5,000]	0

Basic shutter control with safety functions (wind and rain alarm)

Application

Tensioning of the awning/slot positioning

- These parameters for slat adjustment are available exclusively in operation mode control without slat adjustment
- This function is used for
 - Tensioning or tightening textile blinds/shutters (e.g. the cloth of an awning with articulated arms)
 - Setting slot positioning (e.g. light or ventilation slots) on roller shutters
- In this way, the blind/shutter is stopped at the end of a DOWN motion and moved in the opposite direction for a parameterizable time
 - After each down command
 - Only after reaching lower end position



Basic shutter control with safety functions (wind and rain alarm)

Application

Priority for safety functions

- The safety functions
 - Forced operation
 - Block
 - Wind alarm
 - Rain alarm
 - Frost alarm
- If one of these functions has been activated for an output, the operation of the output is disabled for other movements
- A priority can also be defined for the safety functions among one another in order to precisely control the blinds/shutters, if more than one safety function is activated simultaneously

1.1.203 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Safety/Weather		
General	Parameter settings	<input type="radio"/> Standard <input checked="" type="radio"/> User defined
Manual operation	Output reacts on communication object for wind alarm no.	1+2+3
Weather alarms	Position on wind alarm	Activated - up
A: General	Position on rain alarm	Activated - down
	Position for frost alarm	Activated - up
A: Safety/Weather		
A: Drive	Block	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
A: Blinds/Shutter	Position during blocking	No reaction
A: Functions	Forced operation (1 bit/2 bit)	Activated (1 bit)
A: Status messages	Position Height in % [0..100] (0% = top; 100% = bottom)	0
B: General	Position Slat in % [0..100] (0% = open; 100% = closed)	0
B: Safety/Weather	Position on reset of weather alarm, blocking and forced operation	According to object value
B: Drive	Position will only be carried out with inactive autom. sun protection	<-- Note
B: Blinds/Shutter	Disable automatic sun protection on reset of safety function	<input type="radio"/> Yes <input checked="" type="radio"/> No
	Order of priority for safety alarm functions	1.Weather alarm - 2.Block - 3.Forced operation

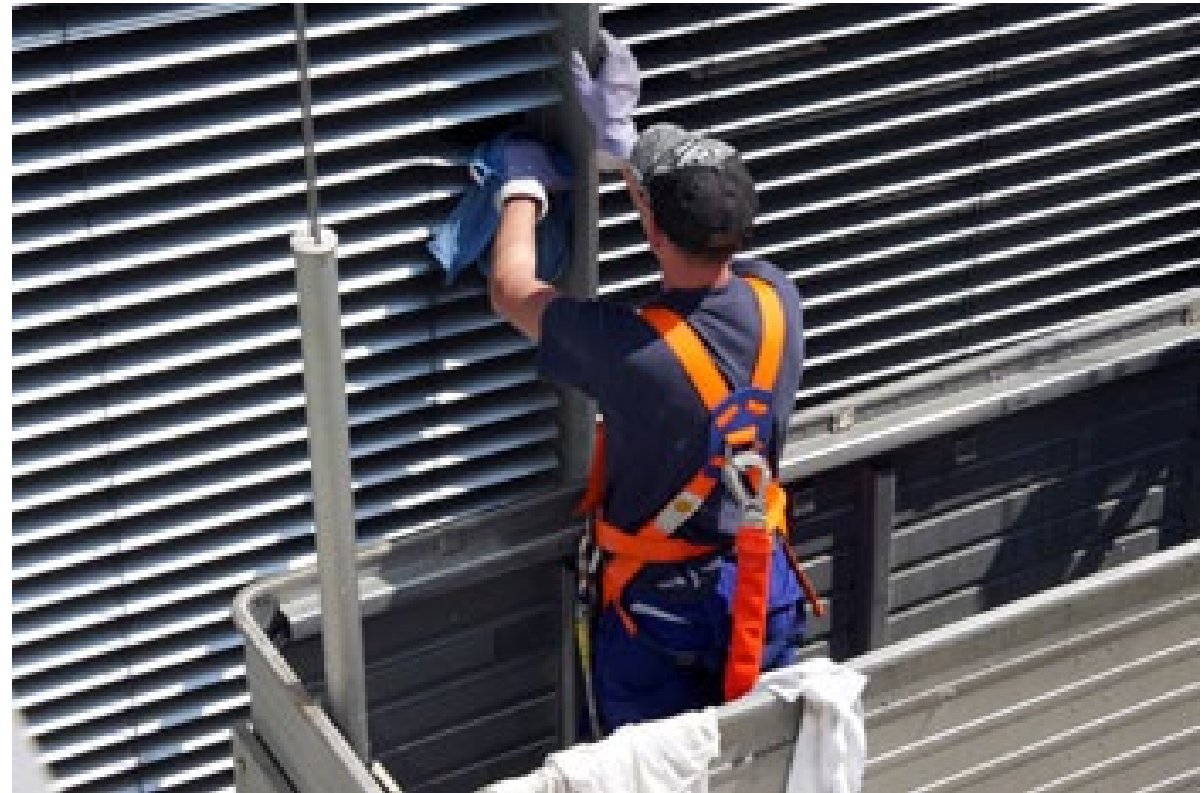
Basic shutter control with safety functions (wind and rain alarm)

Application

Priority for safety functions

Example

- A parameter is used to determine that the forced operation has priority when cleaning a window over a wind alarm, so that the cleaning personnel are not hindered by an upward movement due to a wind alarm when cleaning the slats



Basic shutter control with safety functions (wind and rain alarm)

Application

Forced operation

- Each blind/shutter can also be moved individually into a forced position via a telegram (1 bit or 2 bit), and operation is disabled
- On activation of the function forced operation function, the output is simultaneously informed about the position to which the blind/shutter should be moved
- Operation of the blind/shutter is disabled
- After a reset of forced operation, the blind/shutter is moved to the parameterized position on reset of weather alarm, blocking and forced operation and operation is enabled
- The function forced operation is ideal, for example, to move shutters and blinds up and down, when windows have to be cleaned
- At the same time, the operation of the blind/shutter is blocked to ensure that the cleaning personnel are not endangered by an unexpected movement

1.1.203 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Safety/Weather

General	Parameter settings	<input type="radio"/> Standard <input checked="" type="radio"/> User defined
Manual operation	Output reacts on communication object for wind alarm no.	1+2+3
Weather alarms	Position on wind alarm	Activated - up
A: General	Position on rain alarm	Activated - down
A: Safety/Weather	Position for frost alarm	Activated - up
A: Drive	Block	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
A: Blinds/Shutter	Position during blocking	No reaction
A: Functions	Forced operation (1 bit/2 bit)	Activated (1 bit)
A: Status messages	Position Height in % [0...100] (0% = top; 100% = bottom)	0
B: General	Position Slat in % [0...100] (0% = open; 100% = closed)	0
B: Safety/Weather	Position on reset of weather alarm, blocking and forced operation	According to object value
B: Drive	Position will only be carried out with inactive autom. sun protection	<-- Note
B: Blinds/Shutter	Disable automatic sun protection on reset of safety function	<input type="radio"/> Yes <input checked="" type="radio"/> No
	Order of priority for safety alarm functions	1.Weather alarm - 2.Block - 3.Forced operation

Basic shutter control with safety functions (wind and rain alarm)

Application

Forced operation

With the function Forced operation, the blind/shutter can move via a 1 bit telegram to a determined position or it can move up or down via 2 bit telegrams and operation can be blocked

- Activated (1 bit)
 - Position height in % [0...100]
 - Position slat in % [0...100]
- Activated (2 bit)
 - The group object “Forced operation - 2 bit” is enabled

1.1.203 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Safety/Weather

General	Parameter settings	<input type="radio"/> Standard <input checked="" type="radio"/> User defined
Manual operation	Output reacts on communication object for wind alarm no.	1+2+3
Weather alarms	Position on wind alarm	Activated - up
A: General	Position on rain alarm	Activated - down
A: Safety/Weather	Position for frost alarm	Activated - up
A: Drive	Block	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
A: Blinds/Shutter	Position during blocking	No reaction
A: Functions	Forced operation (1 bit/2 bit)	Activated (1 bit)
A: Status messages	Position Height in % [0...100] (0% = top; 100% = bottom)	0
B: General	Position Slat in % [0...100] (0% = open; 100% = closed)	0
B: Safety/Weather	Position on reset of weather alarm, blocking and forced operation	According to object value
B: Drive	Position will only be carried out with inactive autom. sun protection	<-- Note
B: Blinds/Shutter	Disable automatic sun protection on reset of safety function	<input type="radio"/> Yes <input checked="" type="radio"/> No
	Order of priority for safety alarm functions	1.Weather alarm - 2.Block - 3.Forced operation

Basic shutter control with safety functions (wind and rain alarm)

Application

Block

- With the help of the function Block, an output of the JRA/S can be moved into a parameterized position via a 1 bit telegram, and the operation is disabled
- When the function Block is recalled, the blind/shutter is moved to the set position during blocking, and operation is blocked
- After a reset, the blind/shutter is moved to the parameterized Position on reset of weather alarm, blocking and forced operation, and operation is enabled
- Example
 - If the window is opened (e.g. magnetic reed contact connected to Security Terminal MT/x), the operation of an interior shutter or blind is disabled

1.1.203 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Safety/Weather

General	Parameter settings	<input type="radio"/> Standard <input checked="" type="radio"/> User defined
Manual operation	Output reacts on communication object for wind alarm no.	1+2+3
Weather alarms	Position on wind alarm	Activated - up
A: General	Position on rain alarm	Activated - down
A: Safety/Weather	Position for frost alarm	Activated - up
A: Drive	Block	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
A: Blinds/Shutter	Position during blocking	No reaction
A: Functions	Forced operation (1 bit/2 bit)	Activated (1 bit)
A: Status messages	Position Height in % [0..100] (0% = top; 100% = bottom)	0
B: General	Position Slat in % [0..100] (0% = open; 100% = closed)	0
B: Safety/Weather	Position on reset of weather alarm, blocking and forced operation	According to object value
B: Drive	Position will only be carried out with inactive autom. sun protection	<-- Note
B: Blinds/Shutter	Disable automatic sun protection on reset of safety function	<input type="radio"/> Yes <input checked="" type="radio"/> No
	Order of priority for safety alarm functions	1.Weather alarm - 2.Block - 3.Forced operation

No reaction

No reaction

Up

Down

Stop

Position 1

Position 2

Position 3

Position 4

Individual position

Basic shutter control with safety functions (wind and rain alarm)

Application

Weather-dependent sensors



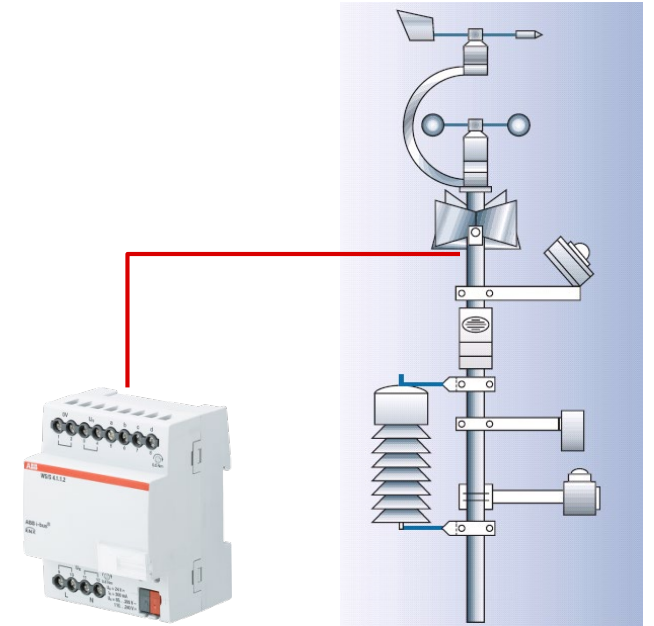
Weather Sensor, WES/A 3.1 and Weather Unit WZ/S 1.3.1.2



Time Receiver GPS TR/A 1.1



Outside Light Sensor LFO/A 1.1 and
Interface for Outside Light Sensor HS/S 4.2.1



Weather Station WS/S 4.1.1.2
All common weather sensors can be connected
to the device (0-10V, 4-20mA, etc.)

Basic shutter control with safety functions (wind and rain alarm)

Application

Wind alarm

- The JRA/S can receive wind alarm telegrams (1 bit) to protect the blind/shutter in the event of wind and storms
- If a wind alarm occurs, the blind/shutter is moved to the set position on wind alarm and can no longer be moved, until the wind alarm has been deactivated again
- The JRA/S can be controlled by up to 3 anemometers
- It can be freely selected for each output, which of the three anemometers it should react to and whether the function wind alarm should or should not be activated for this output
- The position on wind alarm can also be set separately for each output
- The anemometers, which are assigned to an output, are linked by an “OR” function, i.e. if an alarm has been triggered by at least one of the associated anemometers, the blind/shutter is moved to the alarm position

1.1.203 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > Weather alarms

General	Parameter settings	<input type="radio"/> Standard <input checked="" type="radio"/> User defined
Manual operation	Order of priority for weather alarm functions	1.Wind alarm - 2.Rain alarm - 3.Frost alarm
Weather alarms	Communication object no. 1 for wind alarm	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
A: General	Communication object no. 2 for wind alarm	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
A: Safety/Weather	Communication object no. 3 for wind alarm	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
A: Drive	Monitoring period wind alarm in s [0...1,000] (0 = monitoring deact.)	0
A: Blinds/Shutter	Communication object for rain alarm	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
A: Functions	Monitoring period rain alarm in s [0...1,000] (0 = monitoring deact.)	0
A: Status messages	Communication object for frost alarm	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
B: General	Monitoring period frost alarm in s [0...1,000] (0 = monitoring deact.)	0
B: Safety/Weather	Wind, rain, and frost alarm are active only if a position is set	<-- Note
B: Drive	on page "X: Safety/Weather"	
B: Blinds/Shutter	Read activated weather alarm objects after bus voltage recovery	<input type="radio"/> Yes <input checked="" type="radio"/> No

Basic shutter control with safety functions (wind and rain alarm)

Application

Rain alarm and frost alarm

- For protection against rain and freezing from frost, e.g. for awnings, the JRA/S can receive 1 bit rain alarm and frost alarm telegrams
- In the event of an alarm, the blind/shutter is moved into the parameterized position and cannot be moved again, until the alarm is reset
- The position on rain alarm and position for frost alarm can be set separately for each output

1.1.203 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > Weather alarms

General	Parameter settings	<input type="radio"/> Standard <input checked="" type="radio"/> User defined
Manual operation	Order of priority for weather alarm functions	1.Wind alarm - 2.Rain alarm - 3.Frost alarm
Weather alarms	Communication object no. 1 for wind alarm	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
A: General	Communication object no. 2 for wind alarm	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
A: Safety/Weather	Communication object no. 3 for wind alarm	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
A: Drive	Monitoring period wind alarm in s [0...1,000] (0 = monitoring deact.)	0
A: Blinds/Shutter	Communication object for rain alarm	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
A: Functions	Monitoring period rain alarm in s [0...1,000] (0 = monitoring deact.)	0
A: Status messages	Communication object for frost alarm	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
B: General	Monitoring period frost alarm in s [0...1,000] (0 = monitoring deact.)	0
B: Safety/Weather	Wind, rain, and frost alarm are active only if a position is set	<-- Note
B: Drive	on page "X: Safety/Weather"	
B: Blinds/Shutter	Read activated weather alarm objects after bus voltage recovery	<input type="radio"/> Yes <input checked="" type="radio"/> No

Basic shutter control with safety functions (wind and rain alarm)

Application

Position on wind-, rain- and frost alarm per output

- Activated
 - No reaction: It will remain unchanged in its position
 - Up: The blind/shutter moves UP after a weather alarm is received
 - Down: The blind/shutter moves DOWN after a weather alarm is received
 - Stop: If the blind/shutter is performing a movement, this movement stops immediately. If the blind/shutter is at rest, it will remain unchanged
 - Position 1...4: If one of these positions is selected, the blind/shutter (s) move to a preset position
 - Individual position: Movement to one of the individual positions is possible (position height in % [0...100] and position slat in % [0...100])
- Deactivated: No reaction occurs in the event of a weather alarm

1.1.203 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Safety/Weather

General	Parameter settings	<input type="radio"/> Standard <input checked="" type="radio"/> User defined
Manual operation	Output reacts on communication object for wind alarm no.	1+2+3
Weather alarms	Position on wind alarm	Activated - up
A: General	Position on rain alarm	Activated - down
A: Safety/Weather	Position for frost alarm	Activated - up
A: Drive	Block	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
A: Blinds/Shutter	Position during blocking	No reaction
A: Functions	Forced operation (1 bit/2 bit)	Activated (1 bit)
A: Status messages	Position Height in % [0...100] (0% = top; 100% = bottom)	0
B: General	Position Slat in % [0...100] (0% = open; 100% = closed)	0
B: Safety/Weather	Position on reset of weather alarm, blocking and forced operation	According to object value
B: Drive	Position will only be carried out with inactive autom. sun protection	<input type="radio"/> Yes <input checked="" type="radio"/> No
B: Blinds/Shutter	Order of priority for safety alarm functions	1.Weather alarm - 2.Block - 3.Forced operation

A red box highlights the 'A: Safety/Weather' section. A red arrow points to the 'Activated - up' option in the dropdown menu for 'Position during blocking'.

Basic shutter control with safety functions (wind and rain alarm)

Application

Note for wind, rain alarm and frost alarm

- The anemometer as well as rain sensor and the frost sensor are monitored cyclically by the JRA/S, i.e. the sensors send the status (e.g. no wind) cyclically and the JRA/S expects this signal
- If the signal is not received, the JRA/S assumes that the sensor is defective or the bus line has been interrupted
- All blinds/shutters that are influenced by the sensor are moved to the set alarm position, and operation is blocked
- The monitoring period of the JRA/S should be twice as long as the cyclical sending time of the anemometer or rain/frost sensor, so that the blind/shutter does not move immediately to the rain or frost alarm position when a signal is not received, e.g. due to a high bus load
- When the wind, rain or frost alarm is reset, the blind/shutter is moved to the set position on reset of weather alarm, blocking and forced operation, and operation is enabled

1.1.203 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > Weather alarms

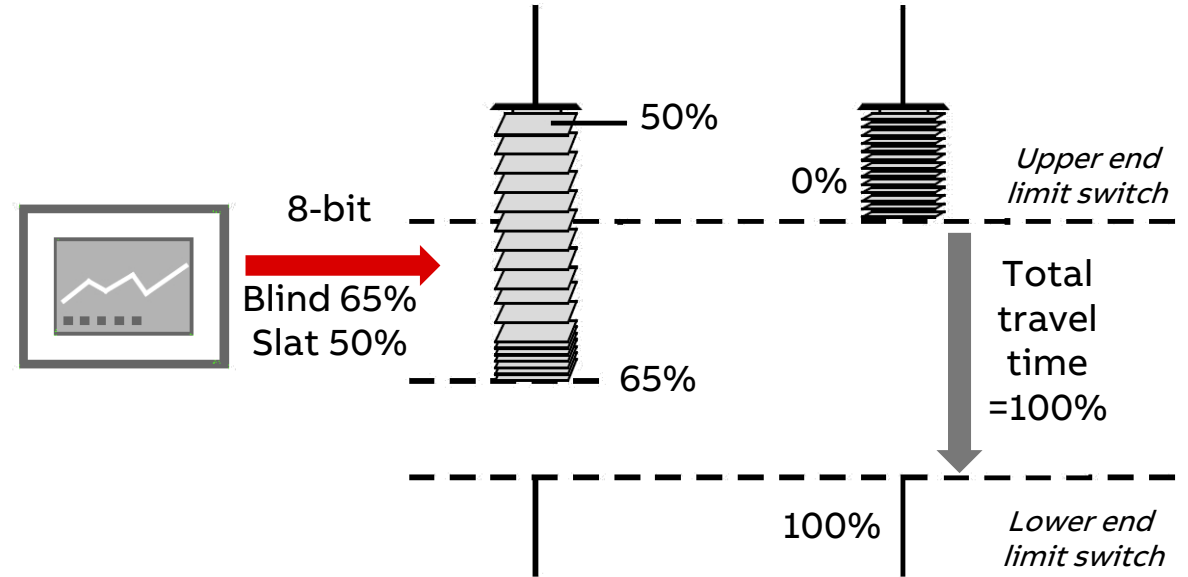
General	Parameter settings	<input type="radio"/> Standard <input checked="" type="radio"/> User defined
Manual operation	Order of priority for weather alarm functions	1.Wind alarm - 2.Rain alarm - 3.Frost alarm
Weather alarms	Communication object no. 1 for wind alarm	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
A: General	Communication object no. 2 for wind alarm	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
A: Safety/Weather	Communication object no. 3 for wind alarm	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
A: Drive	Monitoring period wind alarm in s [0...1,000] (0 = monitoring deact.)	0
A: Blinds/Shutter	Communication object for rain alarm	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
A: Functions	Monitoring period rain alarm in s [0...1,000] (0 = monitoring deact.)	0
A: Status messages	Communication object for frost alarm	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
B: General	Monitoring period frost alarm in s [0...1,000] (0 = monitoring deact.)	0
B: Safety/Weather	Wind, rain, and frost alarm are active only if a position is set	<-- Note
B: Drive	on page "X: Safety/Weather"	
B: Blinds/Shutter	Read activated weather alarm objects after bus voltage recovery	<input type="radio"/> Yes <input checked="" type="radio"/> No

Basic shutter control with safety functions (wind and rain alarm)

Application

Positions – move to position 0% ... 100%

- The blinds/shutters can be moved into any position via an 8-bit value
- In the control with slat adjustment operation mode, the slats can also be positioned into any angle via an 8-bit value
- In this way, it can be decided for each movement telegram which position the blind/shutter should move to, and it is possible to set the position from a display or a visualisation terminal



Basic shutter control with safety functions (wind and rain alarm)

Application

Positions – reference movement

- Every output permanently determines the current position of the blind/shutter as well as the position of the slat angle based on the duration of the individual movement actions
- Slight inaccuracies can occur over extended periods in the determination of the position due to temperature fluctuations and ageing
- For this reason, the JRA/S uses the upper and lower end positions for unique determination of the current position of the blinds/shutters
- Every time when the blind/shutter is in the upper end position, the position is updated in the memory of the device
- If the end positions are not reached in normal operation, a reference movement, which is fully upwards or fully downwards, can be performed via a telegram (group object “trigger reference movement”)

1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Drive

A: General	Detect travel times (Up/Down)	<input type="radio"/> Yes - via detection of end positions <input checked="" type="radio"/> No - set travel times
A: Safety/Weather	UP time in s [0...6,000]	60
A: Drive	DOWN time in s [0...6,000]	60
A: Blinds/Shutter	Disconnect output from power after	Total travel time + 10% Overflow
A: Functions	Enable communication object "Trigger reference movement" 1 bit	<input checked="" type="radio"/> Yes <input type="radio"/> No
A: Positions/Presets	Position after reference movement	<input checked="" type="radio"/> No reaction, remain in reference position <input type="radio"/> Move to position before reference movement
A: Status messages	Pause on change in direct. in ms (see technical data of drive!) 50...10,000	500
B: General	Delay times for drive	<input checked="" type="radio"/> Standard <input type="radio"/> User defined

Basic shutter control with safety functions (wind and rain alarm)

Application

Positions – move to preset position

- For each output, it is possible to parameterize up to 4 preset positions individually, which are then recalled via a 1-bit telegram
 - Group address “X” value “0”: Move to pos. 1
 - Group address “X” value “1”: Move to pos. 2
 - Group address “Y” value “0”: Move to pos. 3
 - Group address “Y” value “1”: Move to pos. 4
- When moving into one of these preset positions, the target position must first be set, either via the parameters during programming or via the function “Set preset position”
- This preset target position can then, for example, be recalled as often as required by pressing a push button

1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Positions/Presets

A: Drive	Enable communication objects "Move to pos. height/Move slat 0..255"	<input checked="" type="radio"/> Yes <input type="radio"/> No
A: Blinds/Shutter	Enable communication objects "Move to/set position 1-4" 1 bit	<input checked="" type="radio"/> Yes <input type="radio"/> No
A: Functions	Overwrite position values (presets) during download	<input checked="" type="radio"/> Yes <input type="radio"/> No
A: Positions/Presets	Position 1: Height in % [0...100] (0% = top; 100% = bottom)	20
A: Status messages	Position 1: Slat in % [0...100] (0% = open; 100% = closed)	20
B: General	Position 2: Height in % [0...100] (0% = top; 100% = bottom)	40
B: Safety/Weather	Position 2: Slat in % [0...100] (0% = open; 100% = closed)	40
B: Drive	Position 3: Height in % [0...100] (0% = top; 100% = bottom)	60
B: Blinds/Shutter		

Basic shutter control with safety functions (wind and rain alarm)

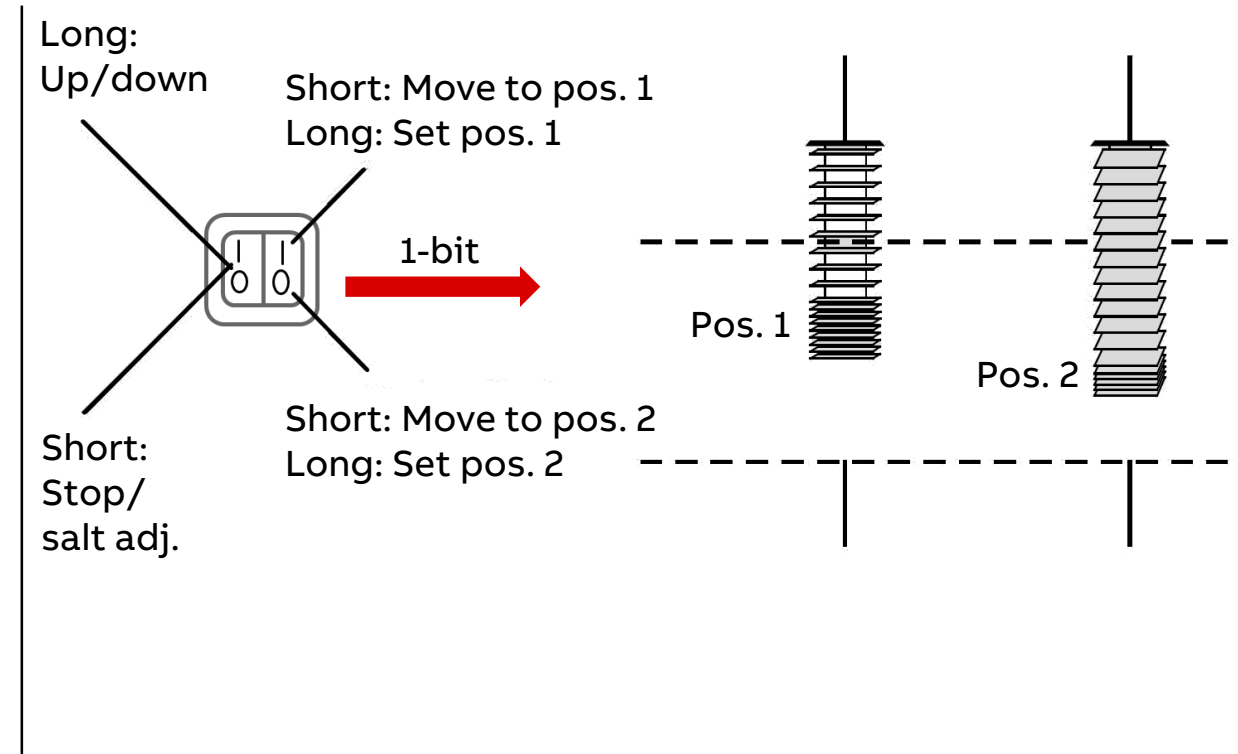
Application

Positions – set preset position

- The preset position can be changed very easily via a 1-bit telegram
- To do so, the blinds are moved into the required new preset position via UP/DOWN telegrams as well as STOP/slat adjustment UP/DOWN telegrams
- The new position is adopted via a 1-bit telegram as a new preset position into the memory of the device
- The saved preset values are retained with a bus voltage failure
- With the programming it is possible to set via a parameter if the saved values should be overwritten by the parameterized values

Example

- The shutters are moved into a preset position after a short push button action, and the current position is adopted as the new preset position after a long push button action



Basic shutter control with safety functions (wind and rain alarm)

Application

8-bit scene control

- With the 8-bit scene, up to 64 scenes are managed via a single group address
- An 8-bit scene telegram contains the following information
 - Number of the scene (1...64) as well as
 - Store/recall scene
- The JRS/A receives the telegram
- All the outputs, which are assigned to the received scene number via a parameter, move to the recalled scene position or store their current position as a new default value for this scene number
- Each individual output of the device can be integrated into up to eighteen 8 bit scenes

1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Scene

A: Blinds/Shutter	Overwrite scenes on download	<input type="radio"/> Yes <input checked="" type="radio"/> No
A: Functions	Use 1st assignment	<input checked="" type="radio"/> Yes <input type="radio"/> No
A: Scene	Assignment to scene number 1...64	Scene No. 5
A: Status messages	Position Height in % [0...100] (0% = top; 100% = bottom)	20
B: General	Position Slat in % [0...100] (0% = open; 100% = closed)	50
B: Safety/Weather	Use 2nd assignment	<input type="radio"/> Yes <input checked="" type="radio"/> No
B: Drive	Use 3rd assignment	<input type="radio"/> Yes <input checked="" type="radio"/> No
B: Blinds/Shutter	Use 4th assignment	<input type="radio"/> Yes <input checked="" type="radio"/> No

Basic shutter control with safety functions (wind and rain alarm)

Product range overview

8-bit scene control

Example: The first three outputs of the device are assigned to the following scenes

Output	Scene No.	Specified position	Specified slat
A	5	20%	50%
A	9	47%	30%
A	45	70%	80%
B	5	20%	50%
B	37	82%	65%
B	45	75%	31%
C	58	65%	77%

- If scene no. 5 is now recalled, the blinds/shutters on outputs A and B will move to the saved preset positions and align the slats in accordance with the saved preset value
- The blind/shutter on output C is not assigned to scene No. 5 and will therefore not move

Basic shutter control with safety functions (wind and rain alarm)

ETS group objects

Blind/Roller Shutter Actuator JRA/S

Nur	Name	Object Function	Length	C	R	W	T	U
0	General	In operation	1 bit	C	R	-	T	-
1	General	Request status values	1 bit	C	-	W	-	-
3	General	Status Manual operation	1 bit	C	R	-	T	-
4	Output A-X	Wind alarm no. 1	1 bit	C	-	W	T	U
5	Output A-X	Wind alarm no. 2	1 bit	C	-	W	T	U
6	Output A-X	Wind alarm no. 3	1 bit	C	-	W	T	U
7	Output A-X	Rain alarm	1 bit	C	-	W	T	U
8	Output A-X	Frost alarm	1 bit	C	-	W	T	U

10	Output A	Move blinds/shutter up-down	1 bit	C	-	W	-	-
11	Output A	Slat adjustm./stop up-down	1 bit	C	-	W	-	-
13	Output A	Move to position height 0..255	1 byte	C	-	W	-	-
14	Output A	Move slats 0..255	1 byte	C	-	W	-	-
15	Output A	Move to position 1, 2	1 bit	C	-	W	-	-
16	Output A	Move to position 3, 4	1 bit	C	-	W	-	-
17	Output A	Set position 1, 2	1 bit	C	-	W	-	-
18	Output A	Set position 3, 4	1 bit	C	-	W	-	-
19	Output A	Trigger reference movement	1 bit	C	-	W	-	-
20	Output A	8-bit scene	1 byte	C	-	W	-	-
31	Output A	Block	1 bit	C	-	W	T	U
32	Output A	Forced operation 1 bit	1 bit	C	-	W	T	U
33	Output A	Status Height 0...255	1 byte	C	R	-	T	-
34	Output A	Status Slat 0...255	1 byte	C	R	-	T	-
35	Output A	Status Upper end position	1 bit	C	R	-	T	-
36	Output A	Status Lower end position	1 bit	C	R	-	T	-
37	Output A	Status Operability	1 bit	C	R	-	T	-
39	Output A	Status information	2 bytes	C	R	-	T	-
40	Output B	Move blinds/shutter up-down	1 bit	C	-	W	-	-
41	Output B	Slat adjustm./stop up-down	1 bit	C	-	W	-	-

Basic shutter control with safety functions (wind and rain alarm)

ABB i-bus Tool

A professional Service Tool for KNX System Integrators

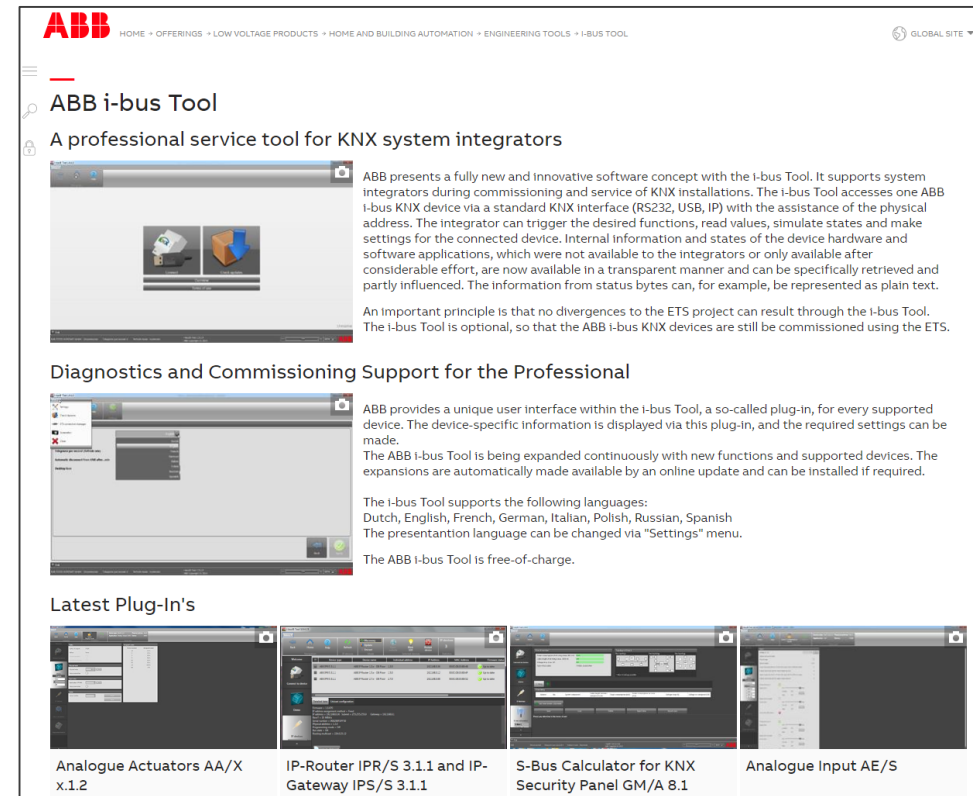
www.abb.com/knx

→ Services & Tools

→ Engineering Tools

→ ABB i-bus Tool

- Benefits at a glance
- Download
- Link to webinar recording and presentation
- ...

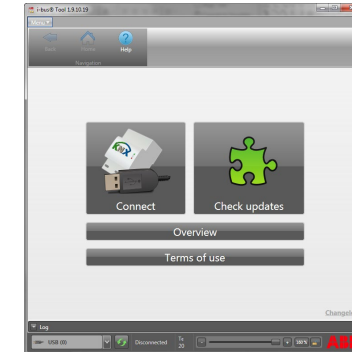
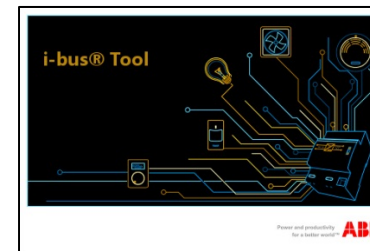


The screenshot shows the ABB i-bus Tool website page. At the top, there is the ABB logo and navigation links: HOME, OFFERINGS, LOW VOLTAGE PRODUCTS, HOME AND BUILDING AUTOMATION, ENGINEERING TOOLS, and I-BUS TOOL. A 'GLOBAL SITE' dropdown menu is also visible. The main heading is 'ABB i-bus Tool' with a sub-heading 'A professional service tool for KNX system integrators'. Below this, there are three sections: 1. A descriptive paragraph about the tool's capabilities, including commissioning and service of KNX installations, and a note that it is optional. 2. A section titled 'Diagnostics and Commissioning Support for the Professional' which describes a unique user interface and plug-in for supported devices, and lists supported languages (Dutch, English, French, German, Italian, Polish, Russian, Spanish). 3. A 'Latest Plug-In's' section featuring four thumbnails of software interfaces with their respective titles: 'Analogue Actuators AA/X x.1.2', 'IP-Router IPR/S 3.1.1 and IP-Gateway IPS/S 3.1.1', 'S-Bus Calculator for KNX Security Panel GM/A 8.1', and 'Analogue Input AE/S'.

Basic shutter control with safety functions (wind and rain alarm)

ABB i-bus Tool

- The i-bus® Tool accesses an ABB i-bus® KNX device via a standard KNX interface (USB, IP) with the assistance of the individual address
- When the i-bus Tool is connected to a KNX device, the device-specific plug-in displays the functions that are possible for this device type
- The system integrator can trigger the desired functions, read values, simulate states, make settings for the connected device (e.g. scenes) and update the IP firmware
- Functions are only available if they have been enabled in the ETS
- Disabled functions are greyed out or not visible
- Help function



Basic shutter control with safety functions (wind and rain alarm)

ABB i-bus Tool

- KNX devices provide numerous options of parameter settings
- After ETS parametrization and downloading, the behavior of the devices have to be checked and tested
 - Send group telegrams with the group monitor (cumbersome)
 - Use the i-bus Tool !!!
- For example Blind/Shutter Actuator JRA/S
 - Wind: Shutter UP
 - Rain: Shutter DOWN
 - Frost: Shutter height 20%
 - Forced Operation: Shutter height 50%
 - ? Order of priority
 - Wind, rain, frost and forced operation at the same time

The screenshot displays the ABB i-bus Tool interface for configuring a shutter actuator. The interface is divided into several sections:

- Status of output:** Includes radio buttons for Operating mode (Control with slat adjustment (Blinds)), Weather/safety alarm, Status manual operation, Automatic sun protection, Heating/cooling automatic, Motor in motion, and Motor error.
- Weather / safety alarms:** Features icons and buttons for Wind alarm No.1, No.2, and No.3, Rain alarm, Frost alarm, Forced operation, and Block, each with an 'Activate' button.
- Positions 1.4 / Scene:** Shows Position 1 through Position 4, each with 'Move to' and 'Set' buttons. A 'Scene no.' dropdown is set to 4, with 'Recall' and 'Store' buttons.
- Position / Control blinds / roller shutter:** Displays 'Current position 100 % (255)' and 'Position valid' (green indicator). It includes a central 'STOP' button and 'Move to position' buttons for both position and slat control. A 'Trigger reference movement' button is also present.
- Automatic Control:** Contains 'Activate automatic control' (with 'Activate' button), 'Direct control blocked', 'Automatic control disabled', and 'Sun' (with 'Activate' button). It also has input fields for 'Object value height for sun' and 'Object value slat for sun', both set to 0% (0), with 'Write' buttons.
- Heating / Cooling:** Includes 'Heating' and 'Cooling' buttons, and an 'Object value room temperature' field set to 0°C.
- General weather alarms for all channels:** A row of buttons for Wind alarm No.1, No.2, and No.3, Rain alarm, and Frost alarm, each with 'Activate' and 'Deactivate' options.

Basic shutter control with safety functions (wind and rain alarm)

Exercise 1 – Direct operation

Blind/Roller Shutter Actuator JRA/S

- R1: Up/down and open/close slats
- R2: -
- R3: -
- R4: -

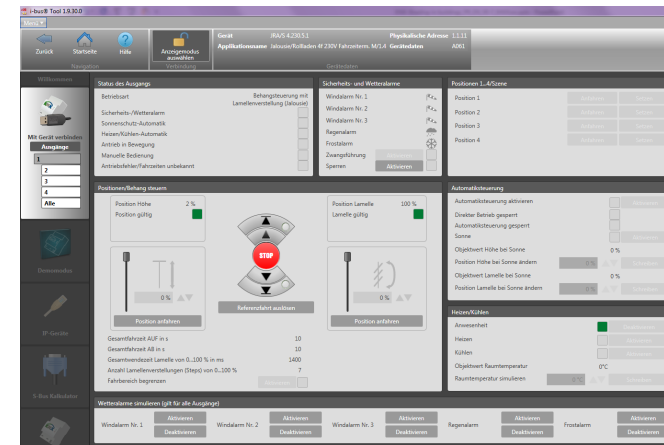


Control Element
6127/01



Shutter
Actuator JRA/S

Status to KNX:
- Height/Slat
- Upper/Lower end position
- Operability



i-busTool



Basic shutter control with safety functions (wind and rain alarm)

Exercise 1 – Direct operation

Control Element

Rocker 1.1 long: Move shutter/blinds

Rocker 1.1 short: Adjust lamella/slat – stop

Led 1.1 status

Led 1.2 status

Rocker 2.1 long: Move shutter/blinds (1 byte)

Rocker 2.1 short: Adjust lamella/slat (1 byte)

Rocker 3.1: Number of light scene

Rocker 3.2: Number of light scene

Rocker 4.1: Switching

Led 4.1 status

Led 4.2 status

JRA/S Blind/RollerShutter Actuator

Output A Move blinds/shutter up-down

Output A Slat adjustm./stop up-down

Output A Move to pos. height [0...255]

Output A Move slats [0...255]

Output A 8-bit scene

Output A Disable (block)

← Output A Status Height [0...255]

← Output A Status Slat [0...255]

← Output A Status Upper end position

← Output A Status Lower end position

← Output A Status Operability

Output A-X Wind alarm no. 1

Output A-X Rain alarm

Basic shutter control with safety functions (wind and rain alarm)

Exercise 2 – Move to position and scene control

Blind/Roller Shutter Actuator JRA/S

- R1: Up/down and open/close slats
- R2: Left height 80% and slat 30%
- Right height 50% and slat 70%
- R3: Left scene 2 and right scene 14
- R4: -



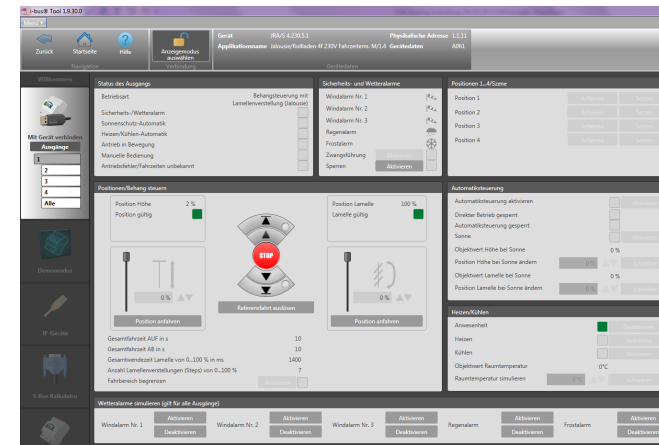
Control Element
6127/01



Shutter
Actuator JRA/S



- Status to KNX:
- Height/Slat
 - Upper/Lower end position
 - Operability



i-busTool



Basic shutter control with safety functions (wind and rain alarm)

Exercise 2 – Move to position and scene control

Control Element

Rocker 1.1 long: Move shutter/blinds

Rocker 1.1 short: Adjust lamella/slat – stop

Led 1.1 status

Led 1.2 status

Rocker 2.1 long: Move shutter/blinds (1 byte)

Rocker 2.1 short: Adjust lamella/slat (1 byte)

Rocker 3.1: Number of light scene

Rocker 3.2: Number of light scene

Rocker 4.1: Switching

Led 4.1 status

Led 4.2 status

JRA/S Blind/RollerShutter Actuator

Output A Move blinds/shutter up-down

Output A Slat adjustm./stop up-down

Output A Move to pos. height [0...255]

Output A Move slats [0...255]

Output A 8-bit scene

Output A Disable (block)

Output A Status Height [0...255]

Output A Status Slat [0...255]

Output A Status Upper end position

Output A Status Lower end position

Output A Status Operability

Output A-X Wind alarm no. 1

Output A-X Rain alarm

Basic shutter control with safety functions (wind and rain alarm)

Exercise 3 – Safety functions (wind, rain, block, ...)

Blind/Roller Shutter Actuator JRA/S

- R1: Up/down and open/close slats
- R2: Left height 80% and slat 30%
Right height 50% and slat 70%
- R3: Left scene 2 and right scene 14
- R4: Block



Control Element
6127/01

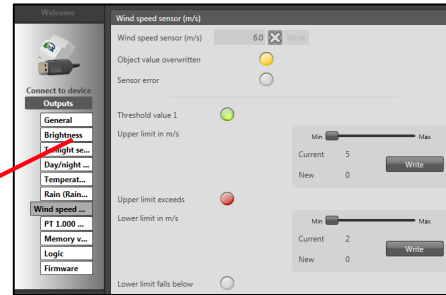


Shutter
Actuator JRA/S

Status to KNX:
- Height/Slat
- Upper/Lower end position
- Operability



Weather Sensor WES/A
Weather Unit WZ/S



Simulate wind speed and rain

or



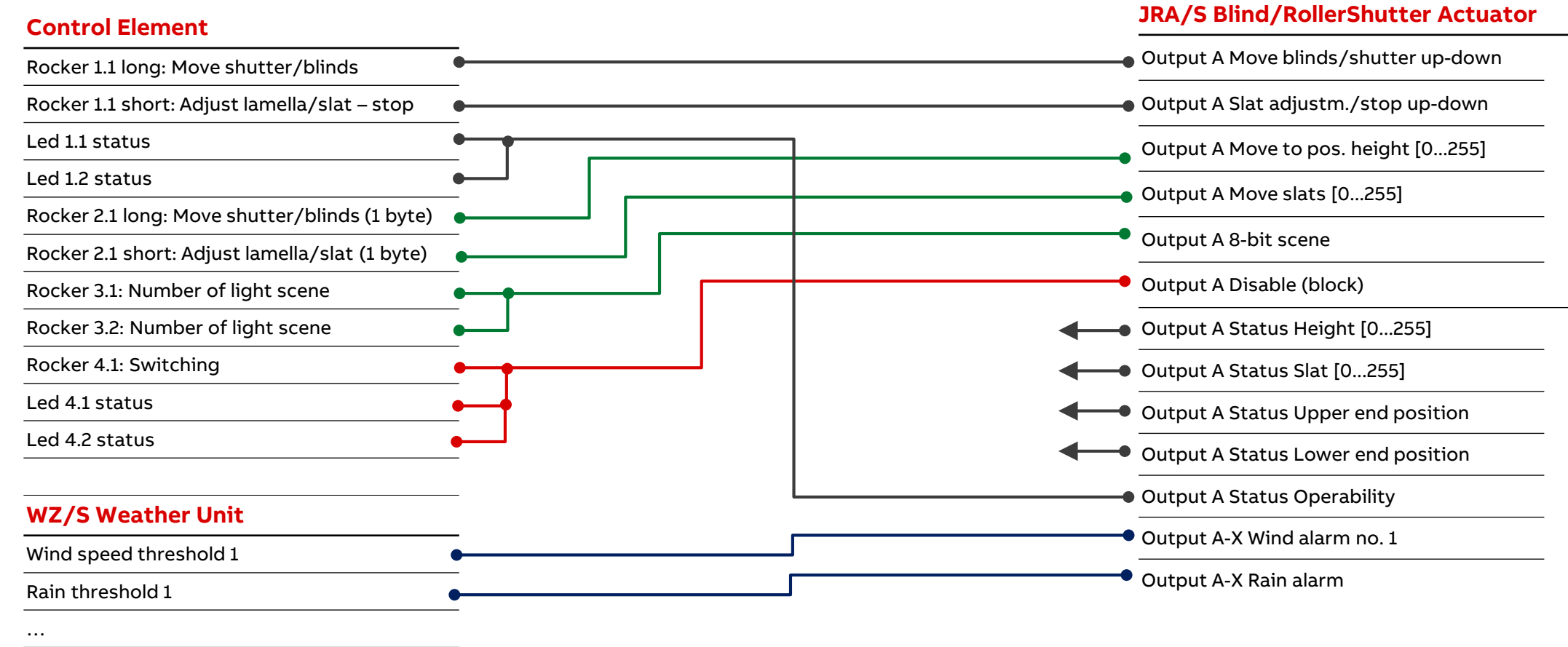
Universal Interface
US/U

Channel A: Wind alarm no. 1
Channel B: Rain alarm



Basic shutter control with safety functions (wind and rain alarm)

Exercise 3 – Safety functions (wind, rain, block, ...)



Agenda

Solutions for shading in building with KNX

Basic shutter control with safety functions (wind and rain alarm)

Automatic sun protection

- Standard
- Automatic sun protection with tracking of the sun's position and redirection of daylight
- Automatic and presence-dependent sun protection with integration in the room temperature control (heating/cooling automatic)

Optimum room air quality via automatic ventilation

Appendix (Shutter Control Unit JSB/S, Night cool down, SMI – Standard Motor Interface)

Automatic sun protection

Automatic control

Controlling of shading solutions with shutter, blinds, awnings or curtains in fixed positions depending on brightness limits, e.g. close the blinds when the sun is shining or drive down the shutters at night

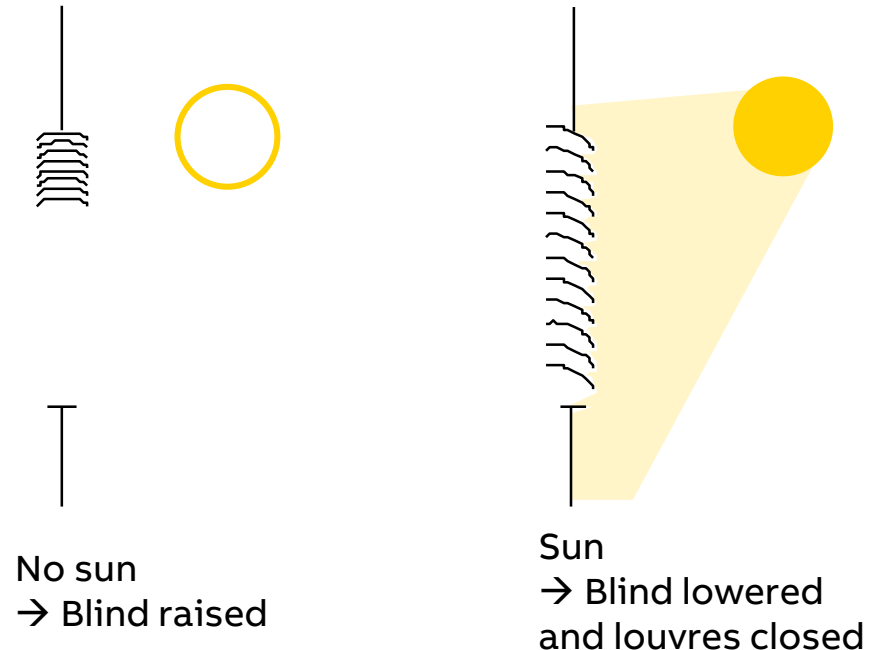
- Sun protection (anti-glare protection)
 - Standard
 - Sun protection with tracking of the sun's position
- Heating/cooling automatic
- Redirection of daylight
- Night cool down



Automatic sun protection (standard)

Automatic control

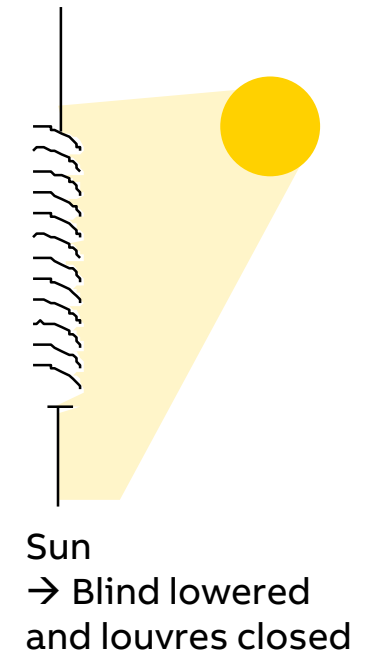
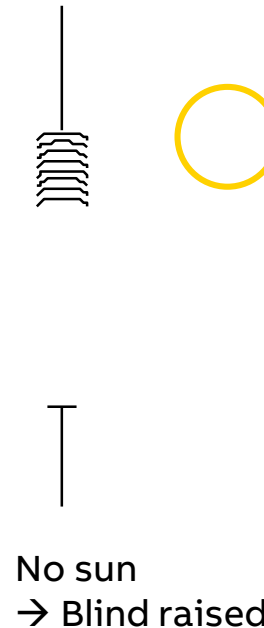
- Two further components are required in addition to the Blind/Roller Shutter Actuator in order to set up a simple automatic sun protection system:
 - An activation option (e.g. superior system, time switch or visualization)
 - A brightness sensor (e.g. weather sensor and weather unit)
- With the help of a second control element, the user of the room can specify whether he wishes to use the automatic sun protection or whether he would rather control the shutters/blinds manually
- If the automatic sun protection is activated, the shutter/blind moves automatically until either the automatic sun protection is deactivated via the same control element or the user issues a direct movement command (e.g. UP/DOWN or move into position) and the automatic function is thus also deactivated



Automatic sun protection (standard)

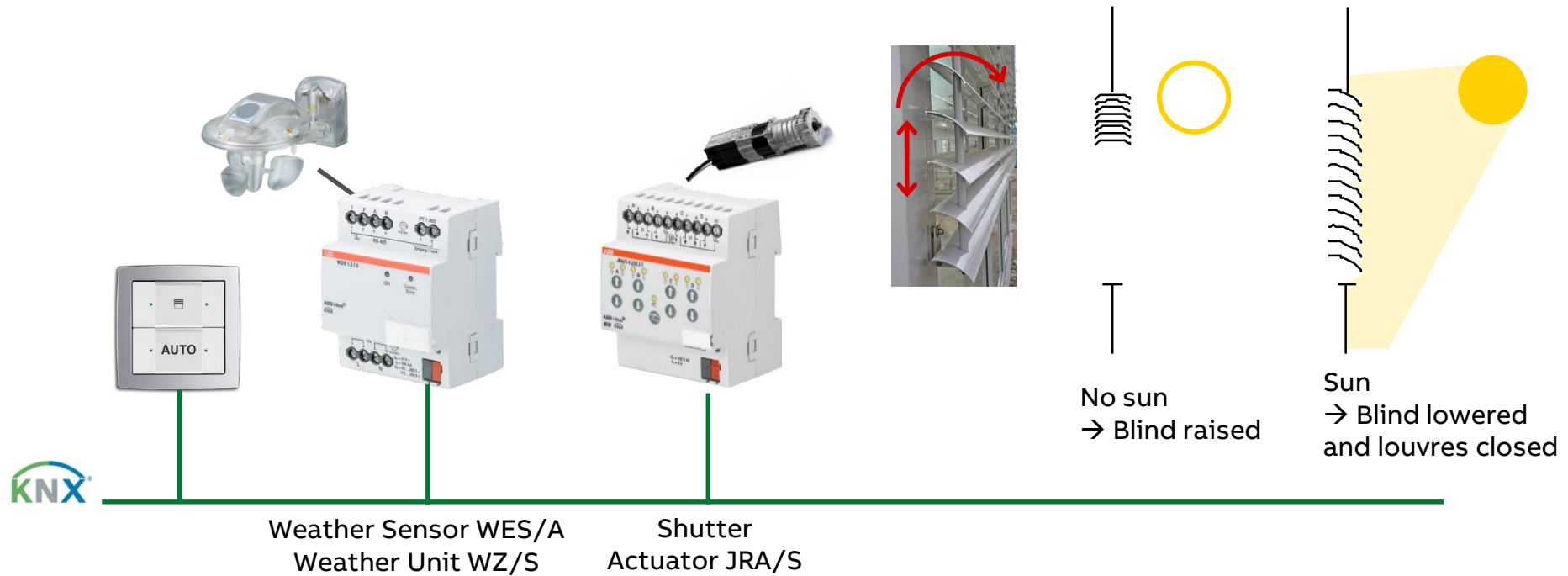
Automatic control

- Automatic control is active
 - The Blind/Roller Shutter Actuator receives the information via a weather sensor if there is direct sunlight on the window or the facade
 - Once the adjustable delay period has elapsed, the Blind/Roller Shutter Actuator positions the shutter/blind according to the set position for sun = "1" (sun) or Position for sun = "0" (no sun)
- If there is blazing sun on the window however, the blind is lowered and the louvres are closed to the extent that direct sunlight cannot penetrate the room
- The residual opening in the blinds lets in a sufficient level of diffuse light into the room



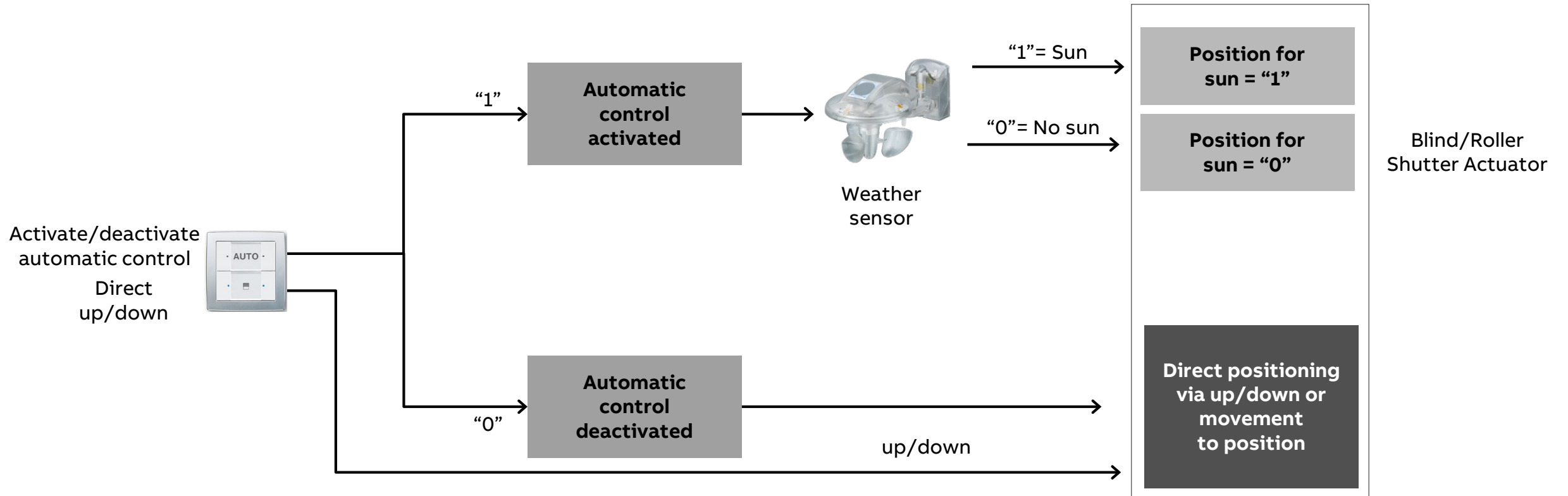
Automatic sun protection (standard)

Automatic control



Automatic sun protection (standard)

Automatic control



Automatic sun protection (standard)

Automatic control

21	Output A	Activation of autom. control	1 bit	C	-	W	T	U
22	Output A	Sun	1 bit	C	-	W	T	U

1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Automatic Sun Protection

A: Drive	Deactivation of automatic control	<input type="radio"/> Via object "Act. of automatic control"
A: Blinds/Shutter	Automatic reactivation of automatic control	<input checked="" type="radio"/> Via object "Activation" and move command
A: Functions	Toggleing to automatic control	<input checked="" type="radio"/> Deactivated <input type="radio"/> Activated
A: Positions/Presets	Toggleing to direct control	<input checked="" type="radio"/> Enabled <input type="radio"/> Disable/enable via object
A: Automatic Sun Protection	Position for sun = 1 (sun)	<input checked="" type="radio"/> Enabled <input type="radio"/> Disable/enable via object
A: Scene	Position for sun = 0 (no sun)	
A: Status messages	Delay for sun = 1 in s [0...6,000]	
B: General	Delay for sun = 0 in s [0...6,000]	
B: Safety/Weather	Read activated automatic objects after bus voltage recovery	
B: Drive	Enable automatic heating/cooling	
B: Blinds/Shutter		

Down

- No reaction
- Up
- Down
- Stop
- Position 1
- Position 2
- Position 3
- Position 4
- Individual position
- Receive position and slat via object
- Receive only slat via object

Automatic sun protection (standard)

Exercise 4 – Automatic sun protection: Standard

Blind/Roller Shutter Actuator JRA/S

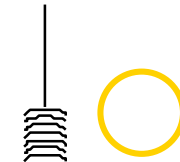
- R1: Up/down and open/close slats
- R2: Left height 80% and slat 30%
Right height 50% and slat 70%
- R3: Left scene 2 and right scene 14
- R4: Activate/deactivate auto. control



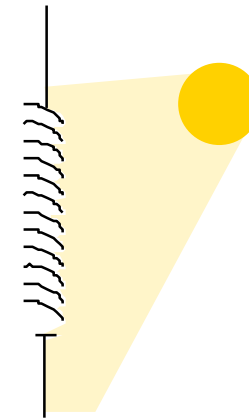
Control Element
6127/01



Shutter
Actuator JRA/S



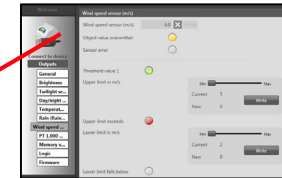
No sun
→ Blind raised



Sun
→ Blind lowered
and louvres closed



Weather Sensor WES/A
Weather Unit WZ/S



Simulate sun

- Channel A: Wind alarm no. 1
- Channel B: Rain alarm
- Channel C: Sun

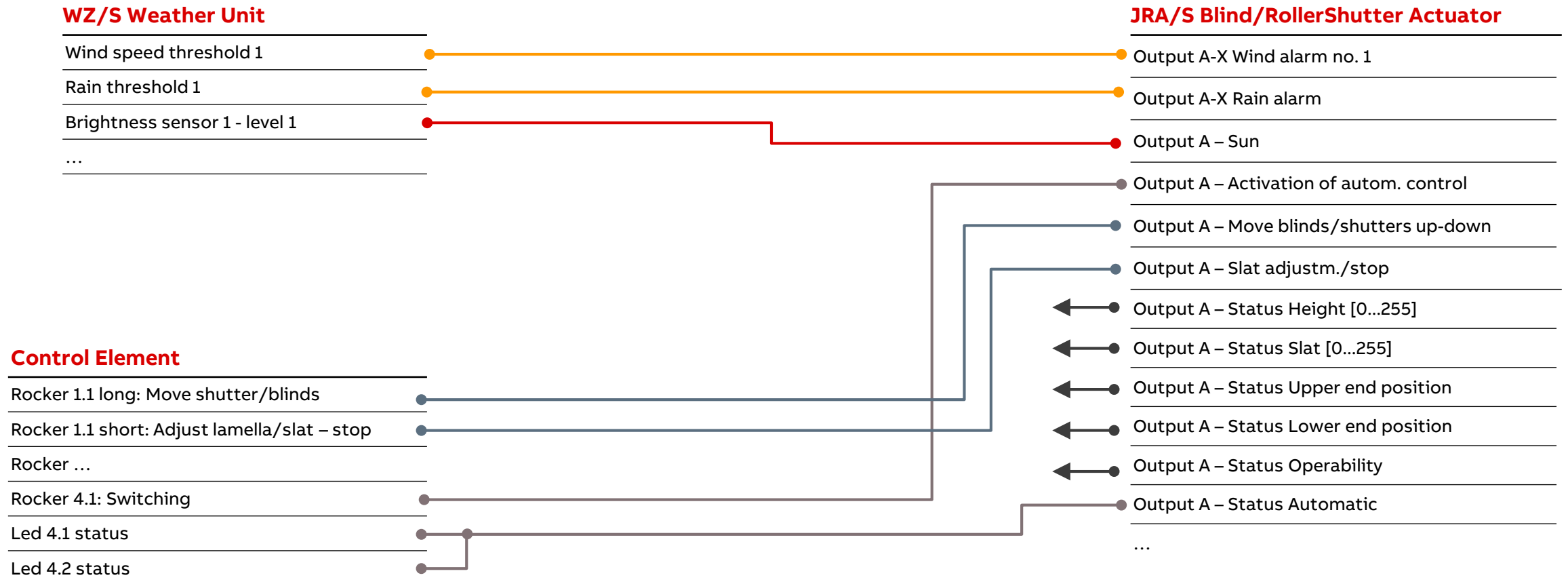
or



Universal Interface
US/U

Automatic sun protection with tracking of the sun's position

Exercise 4 – Automatic sun protection: Standard



Agenda

Solutions for shading in building with KNX

Basic shutter control with safety functions (wind and rain alarm)

Automatic sun protection

- Standard
- Automatic sun protection with tracking of the sun's position and redirection of daylight
- Automatic and presence-dependent sun protection with integration in the room temperature control (heating/cooling automatic)

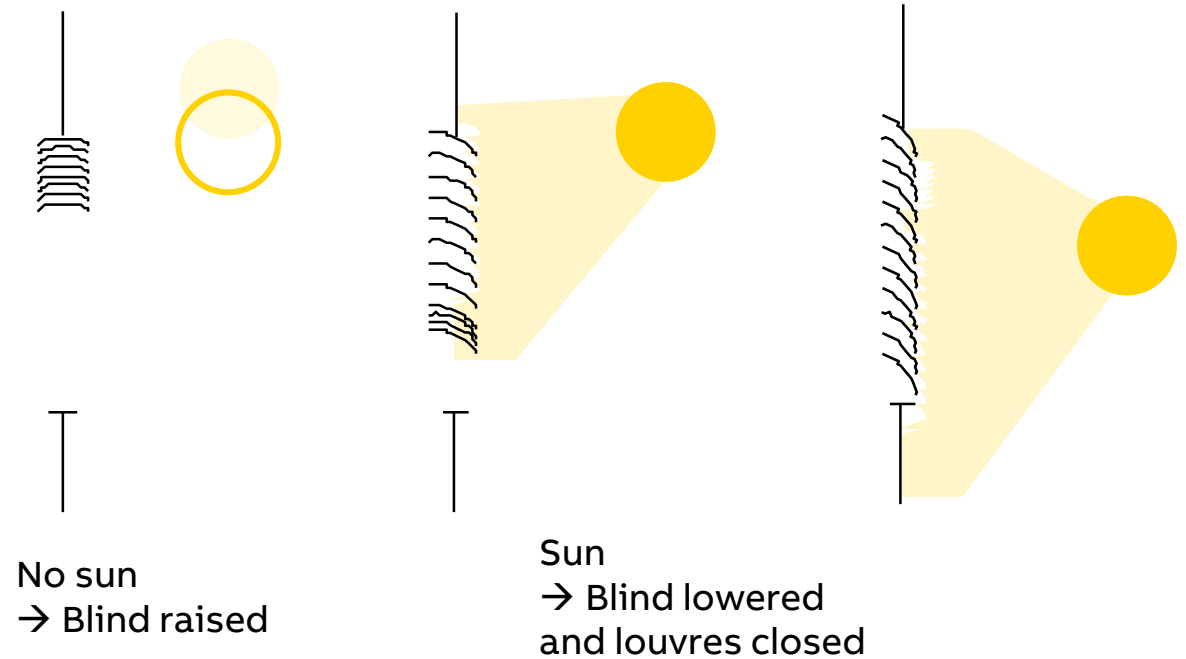
Optimum room air quality via automatic ventilation

Appendix (Shutter Control Unit JSB/S, Night cool down, SMI – Standard Motor Interface)

Automatic sun protection with tracking of the sun's position

Automatic control

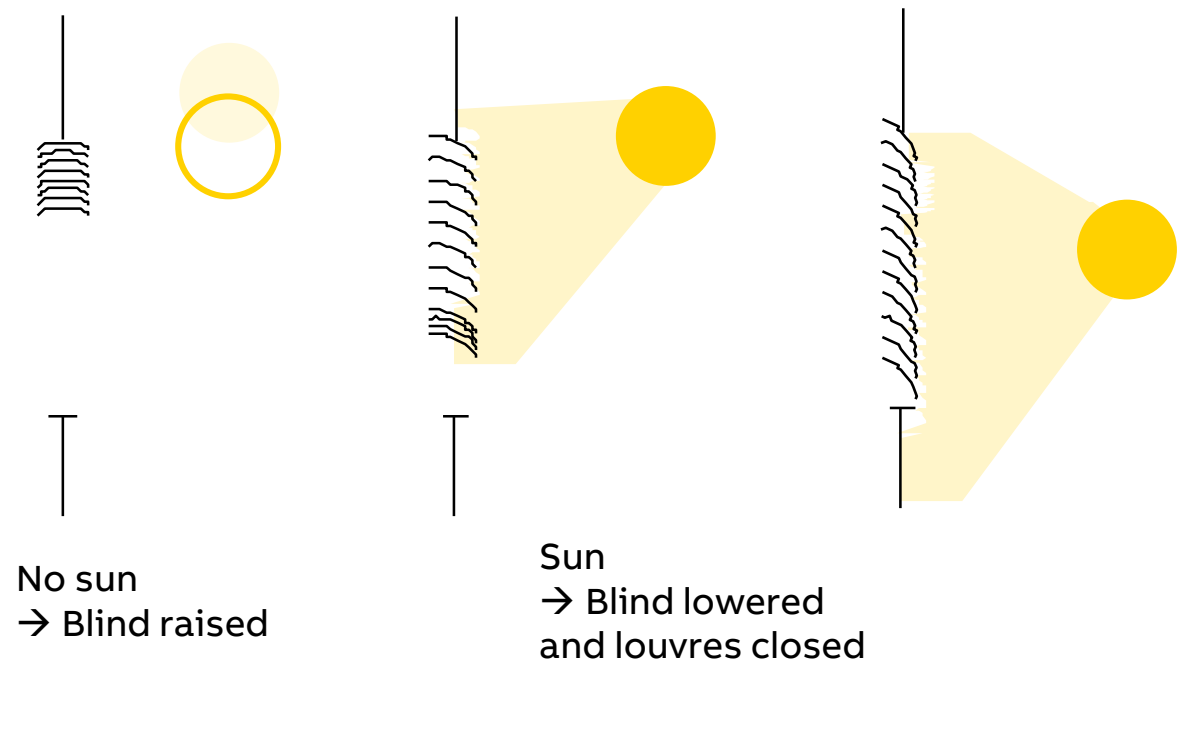
- Together with other KNX components, e.g. Shutter Control Unit JSB/S, the Blind/Roller Shutter Actuator can provide convenient automatic sun protection control
- The automatic sun protection controls the shutter/blind according to the level of sunlight
- Depending on the strength and direction of the sun, the shutter/blind is moved into a set position via an 8-bit value or into a variable position depending on the situation
- For example, the blinds can be raised if the sunshine is very weak or if the window concerned is in the shadows
- This lets as much light as possible into the room but without having to take account of any uncomfortable direct sunlight
- However, if there is blazing sunshine on the window, the blind is lowered and the slats are closed to the extent that direct sunlight cannot penetrate the room



Automatic sun protection with tracking of the sun's position

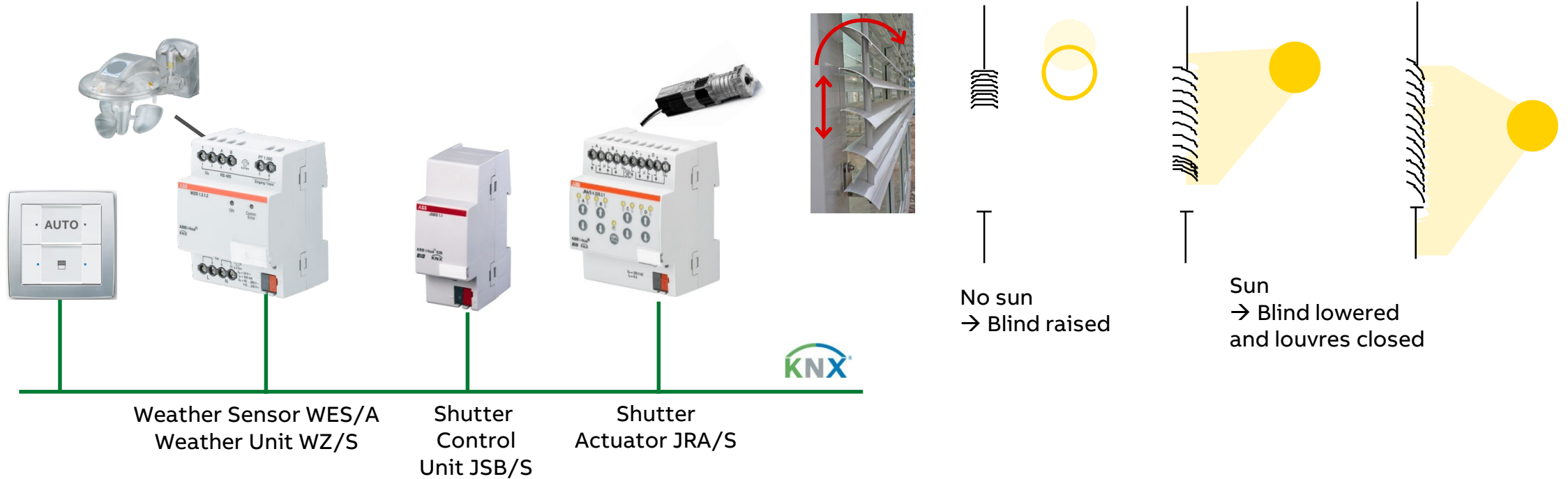
Automatic control

- The current position of the sun is continually calculated in the Shutter Control Unit JSB/S (synchronization with time and date required)
- The shutter/blind is moved via an 8-bit value into the optimum position to deflect direct sunshine but to let through as much diffuse light as possible
- The influence of shadows e.g. the buildings opposite can also be taken into account in the Shutter Control Unit JSB/S



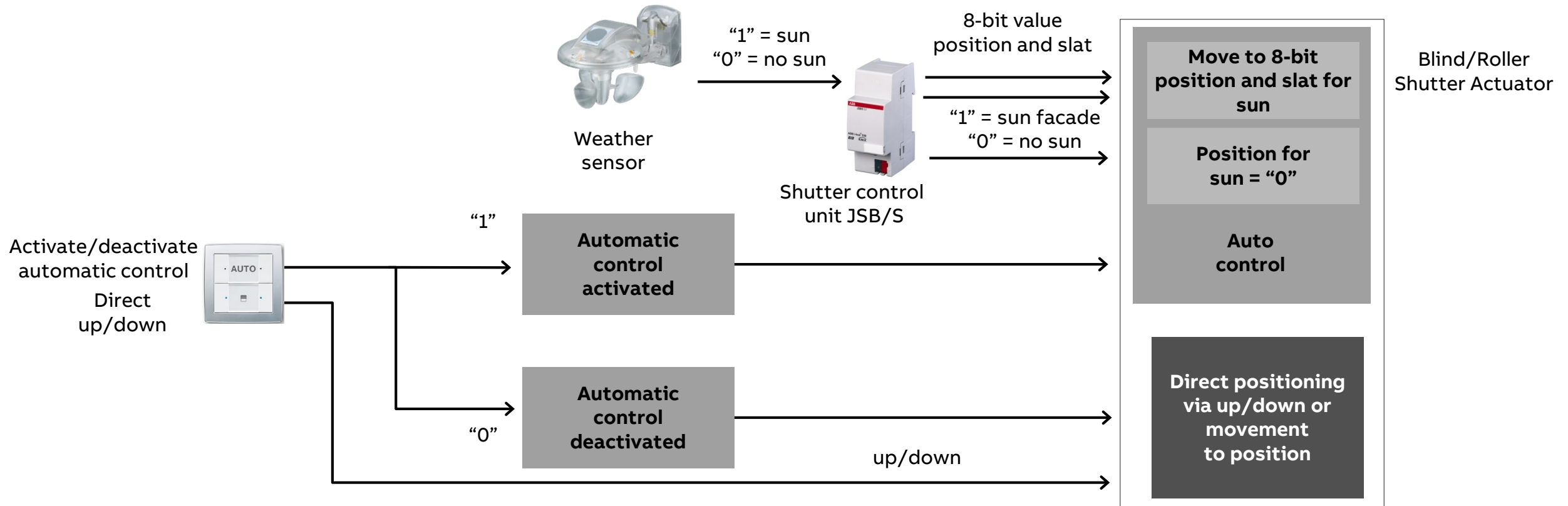
Automatic sun protection with tracking of the sun's position

Automatic control



Automatic sun protection with tracking of the sun's position

Automatic control



Automatic sun protection with tracking of the sun's position

Automatic control

➡ 21	Output A	Activation of autom. control	1 bit	C - W T U
➡ 22	Output A	Sun	1 bit	C - W T U
➡ 23	Output A	Move to height for sun 0..255	1 byte	C - W T U
➡ 24	Output A	Adjust slat for sun 0..255	1 byte	C - W T U

1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Automatic Sun Protection

A: Blinds/Shutter	Deactivation of automatic control	<input type="radio"/> Via object "Act. of automatic control" <input checked="" type="radio"/> Via object "Activation" and move command
A: Functions	Automatic reactivation of automatic control	<input checked="" type="radio"/> Deactivated <input type="radio"/> Activated
A: Positions/Presets	Toggleing to automatic control	<input checked="" type="radio"/> Enabled <input type="radio"/> Disable/enable via object
A: Automatic Sun Protection	Toggleing to direct control	<input checked="" type="radio"/> Enabled <input type="radio"/> Disable/enable via object
A: Scene	Position for sun = 1 (sun)	Receive position and slat via object
A: Status messages	Position for sun = 0 (no sun)	Up
B: General	Delay for sun = 1 in s [0..6,000]	0
B: Safety/Weather	Delay for sun = 0 in s [0..6,000]	0
B: Drive	Read activated automatic objects after bus voltage recovery	<input type="radio"/> Yes <input checked="" type="radio"/> No
	Enable automatic heating/cooling	<input type="radio"/> Yes <input checked="" type="radio"/> No

Automatic sun protection with tracking of the sun's position

Exercise 5 – Automatic sun protection: “Tracking of the sun’s position”

Blind/Roller Shutter Actuator JRA/S

- R1: Up/down and open/close slats
- R2: Left height 80% and slat 30%
Right height 50% and slat 70%
- R3: Left scene 2 and right scene 14
- R4: Activate/deactivate auto. control



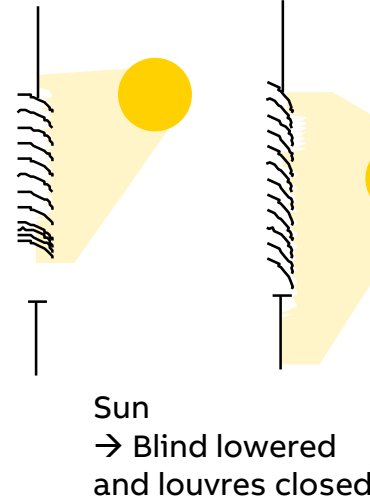
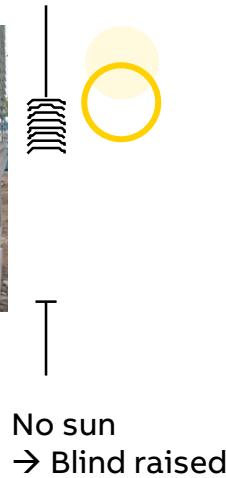
Control Element
6127/01



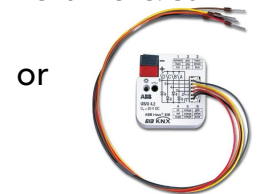
Shutter Control
Unit JSB/S



Shutter
Actuator JRA/S



Weather Sensor WES/A
Weather Unit WZ/S



Universal Interface
US/U

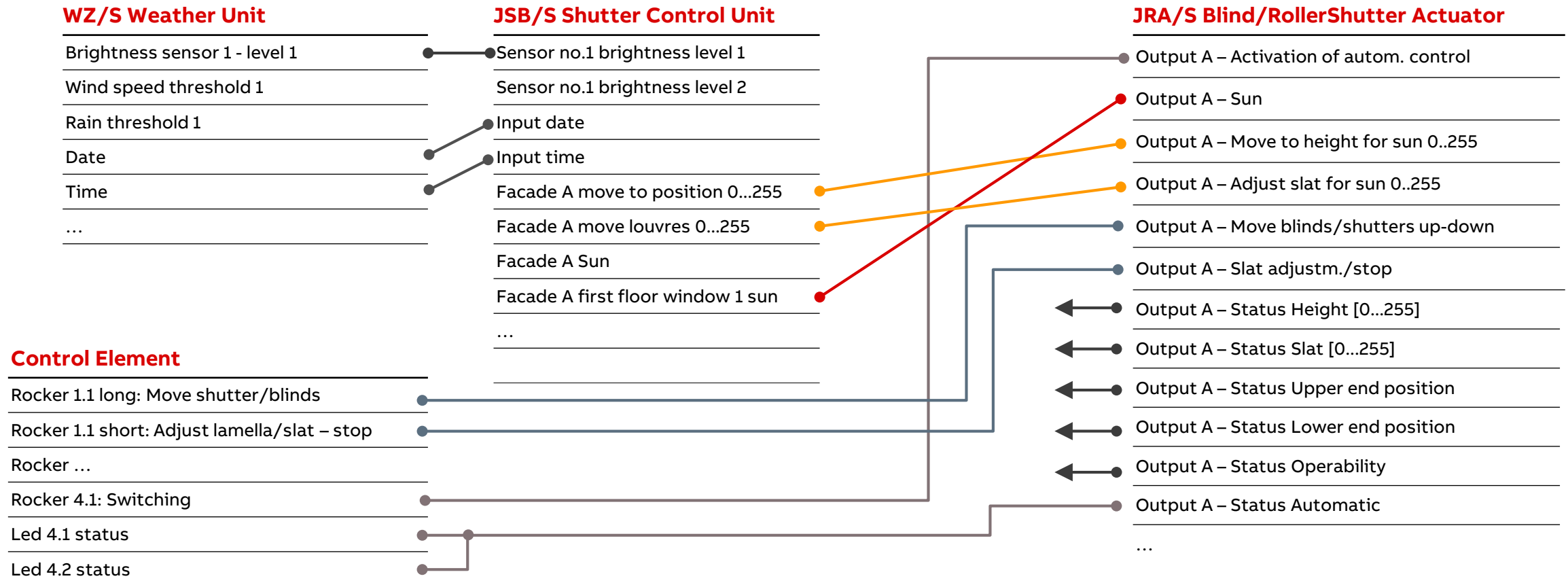


Simulate sun

- Channel A: Wind alarm no. 1
- Channel B: Rain alarm
- Channel C: Sun

Automatic sun protection with tracking of the sun's position

Exercise 5 – Automatic sun protection: “Tracking of the sun’s position”/Window groups as a grid



Agenda

Solutions for shading in building with KNX

Basic shutter control with safety functions (wind and rain alarm)

Automatic sun protection

- Standard
- Automatic sun protection with tracking of the sun's position and redirection of daylight
- **Automatic and presence-dependent sun protection with integration in the room temperature control (heating/cooling automatic)**

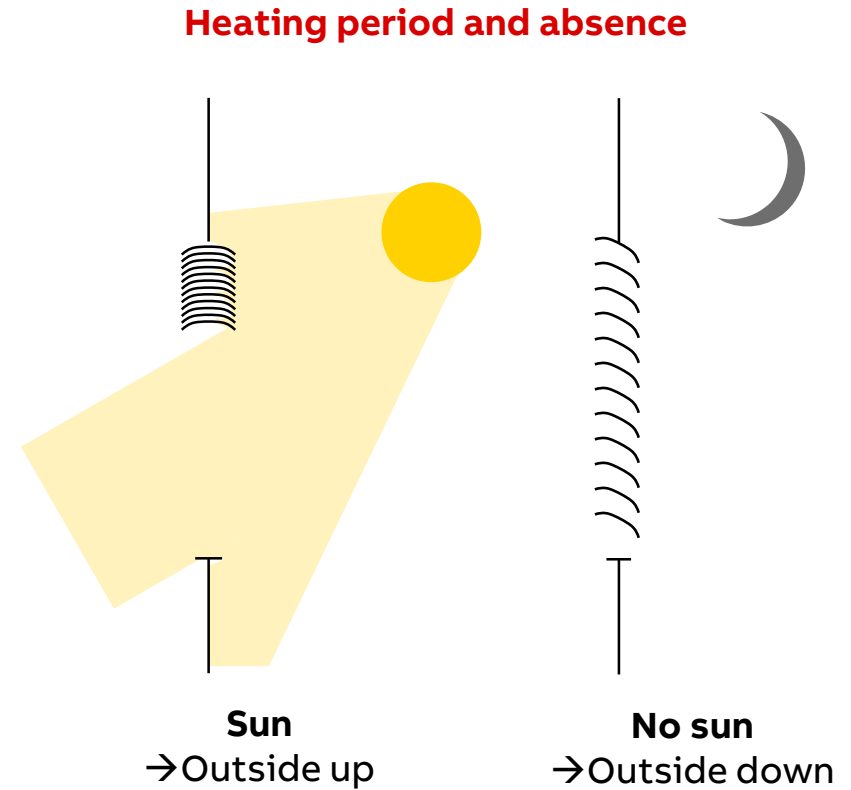
Optimum room air quality via automatic ventilation

Appendix (Shutter Control Unit JSB/S, Night cool down, SMI – Standard Motor Interface)

Automatic and presence-dependent sun protection with integration in the room temperature control (heating/cooling automatic)

Automatic control

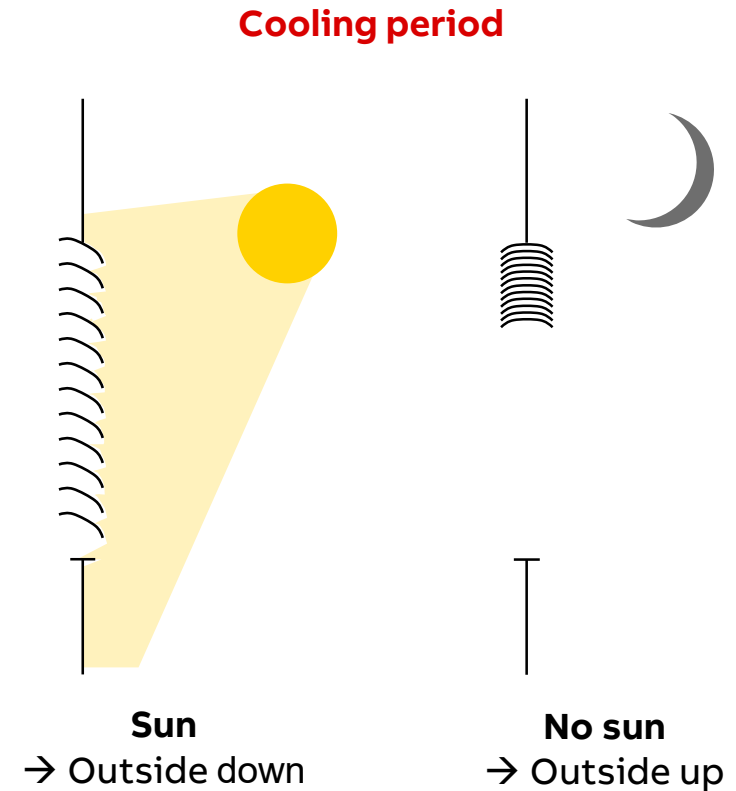
- The automatic heating/cooling is an enhancement of the automatic sun protection
- The Blind/Roller Shutter Actuator receives the information via the presence detector as to whether there are people in the room
 - If the room is occupied, the blind is controlled according to the automatic sun protection function
 - If nobody is in the room, the blind is controlled according to the automatic heating/cooling function
- The shutter/blind is moved into a set position depending on whether the room should be heated or cooled and how strong the sun is and in which direction it is shining
- The following parameters must be linked:
 - Absence of persons
 - Sun
 - Heating or cooling period



Automatic and presence-dependent sun protection with integration in the room temperature control (heating/cooling automatic)

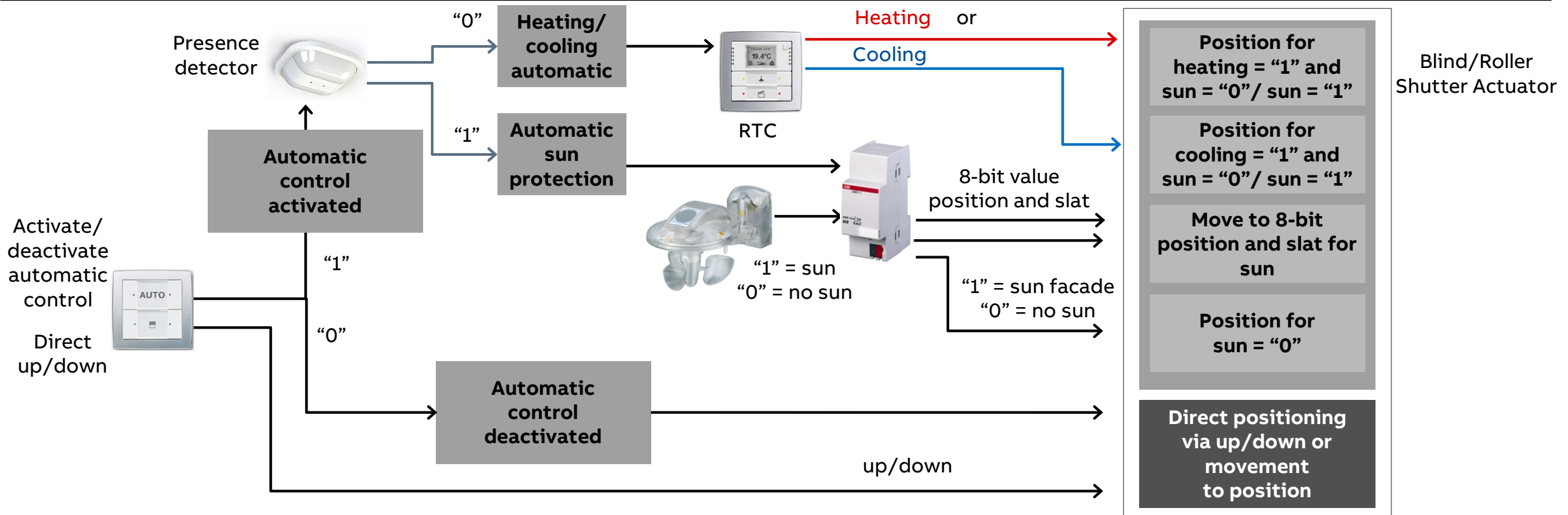
Automatic control

- Two further components are required in addition to the automatic sun protection
 - A toggling option between automatic sun protection and automatic heating/cooling (e.g. a presence detector)
 - A toggling option between heating and cooling (e.g. a year time switch or a temperature sensor)
- With the help of a control element, the user of the room can specify whether he wishes to use the automatic control or whether he would rather control the shutters/blinds manually
- If the automatic sun protection is activated via a control element, the shutter/blind moves automatically until either the automatic function is deactivated via the same control element or the user issues a direct movement command (e.g. UP/DOWN or move into position)



Automatic and presence-dependent sun protection with integration in the room temperature control (heating/cooling automatic)

Automatic control



Automatic and presence-dependent sun protection with integration in the room temperature control (heating/cooling automatic)

Automatic control

↕21	Output A	Activation of autom. control	1 bit	C - W T U
↕22	Output A	Sun	1 bit	C - W T U
↕23	Output A	Move to height for sun 0..255	1 byte	C - W T U
↕24	Output A	Adjust slat for sun 0..255	1 byte	C - W T U
↕25	Output A	Presence	1 bit	C - W T U
↕26	Output A	Heating	1 bit	C - W T U
↕27	Output A	Cooling	1 bit	C - W T U

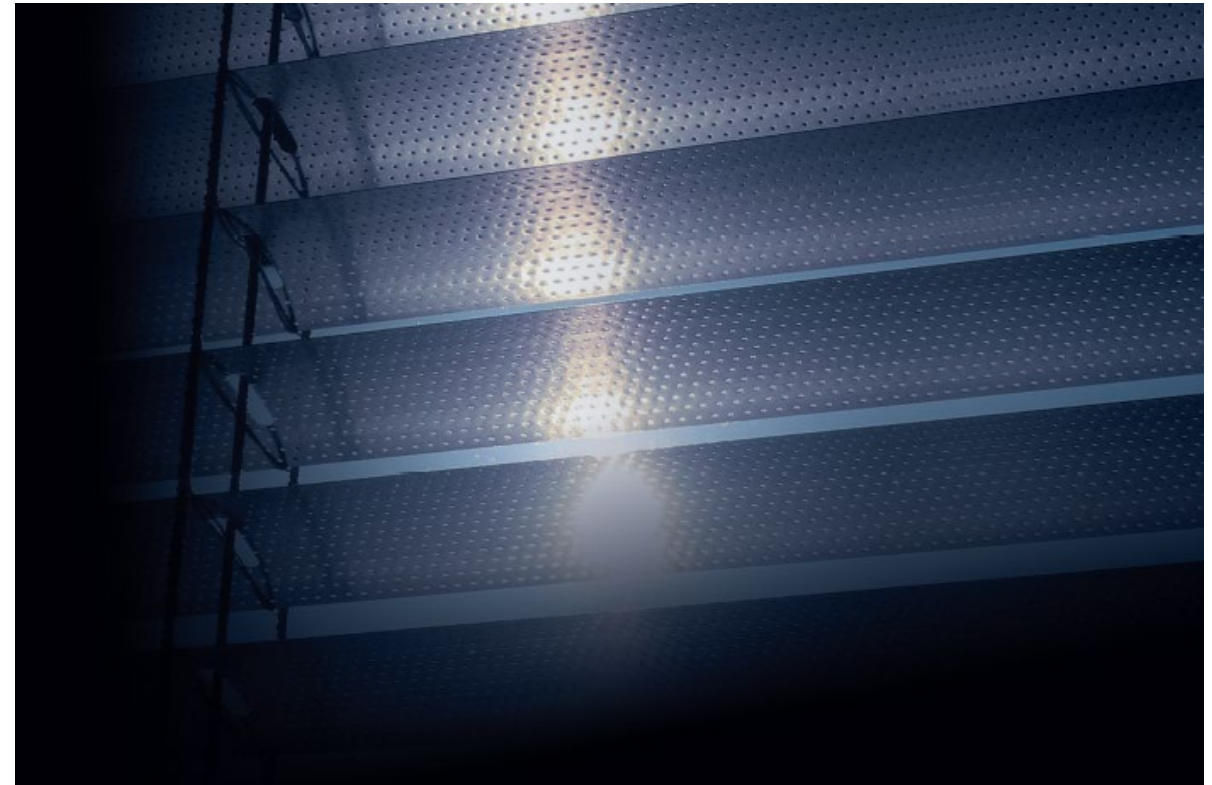
1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Automatic Sun Protection

A: Blinds/Shutter	Read activated automatic objects after bus voltage recovery	<input type="radio"/> Yes <input checked="" type="radio"/> No
A: Functions	Enable automatic heating/cooling	<input checked="" type="radio"/> Yes <input type="radio"/> No
A: Positions/Presets	Delay for presence = 1 in s [0...6,000]	0
	Delay for presence = 0 in s [0...6,000]	0
A: Automatic Sun Protection	Position for heating = 1 and sun = 1	Up
A: Scene	Use overheat control	<input type="radio"/> Yes <input checked="" type="radio"/> No
A: Status messages	Position for heating = 1 and sun = 0	No reaction
B: General	Position for cooling = 1 and sun = 1	Down
B: Safety/Weather	Position for cooling = 1 and sun = 0	No reaction
B: Drive	On heating = 1 and cooling = 1 or on heating = 0 and cooling = 0 the output is controlled only by automatic sun protection	Up
B: Blinds/Shutter		Down
B: Functions		No reaction
B: Status messages		Up
		Down
		Position 1
		Position 2
		Position 3
		Position 4
		Individual position

Automatic and presence-dependent sun protection with integration in the room temperature control (heating/cooling automatic)

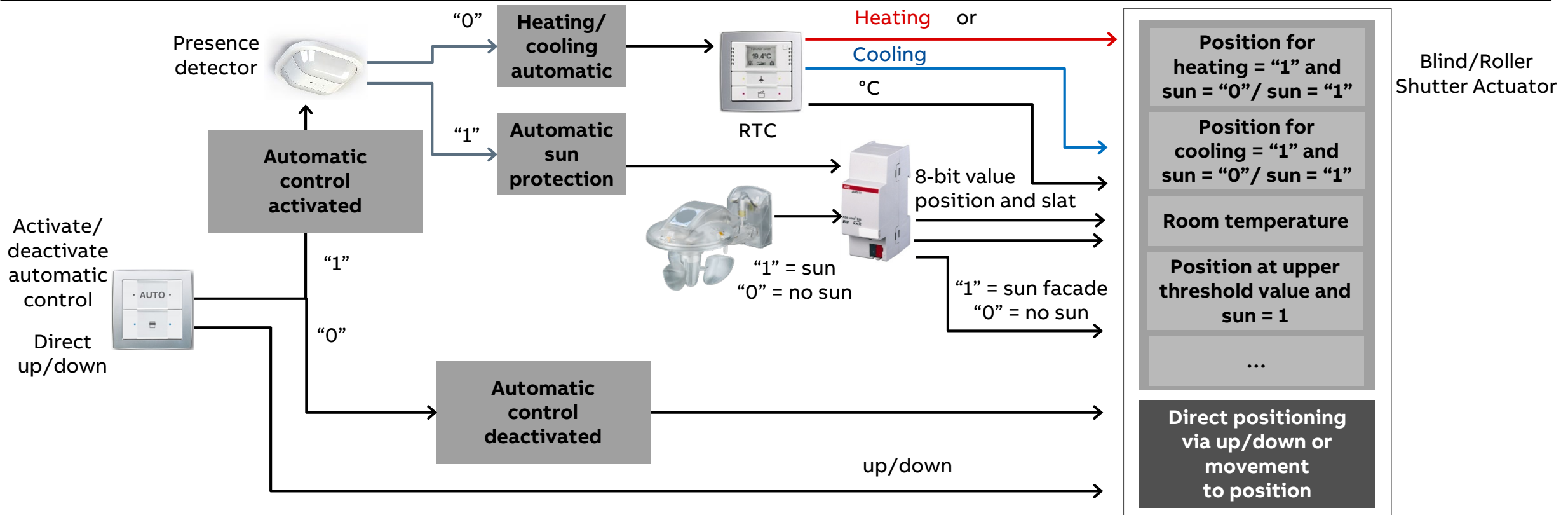
Automatic and overheat control

- The overheat control is an enhancement of the active heating/cooling automatic
- Heat up of the unoccupied room is avoided using “overheat control”
- During the heating period, rooms with large glass fronts can heat up very quickly in strong sunshine, even if the external temperature is low
- Overheat control is used in order to avoid the need for any cooling energy
- If the temperature threshold here is reached or exceeded, the blinds/shutters will move to a parameterizable position, e.g. DOWN
- If the temperature value drops by more than 3 degrees Kelvin, overheat control is ended
- The blinds/shutters are then moved to the parameterized position



Automatic and presence-dependent sun protection with integration in the room temperature control (heating/cooling automatic)

Automatic and overheat control



Automatic and presence-dependent sun protection with integration in the room temperature control (heating/cooling automatic)

Automatic and overheat control

21	Output A	Activation of autom. control	1 bit	C - W T U
22	Output A	Sun	1 bit	C - W T U
23	Output A	Move to height for sun 0..255	1 byte	C - W T U
24	Output A	Adjust slat for sun 0..255	1 byte	C - W T U
25	Output A	Presence	1 bit	C - W T U
26	Output A	Heating	1 bit	C - W T U
27	Output A	Cooling	1 bit	C - W T U
28	Output A	Receive room temperature	2 bytes	C - W T U

1.6.1 JRA/S4.230.5.1 Blind/RollerShutterAct,TD,M,4f,230V > A: Automatic Sun Protection

A: Blinds/Shutter	Enable automatic heating/cooling	<input checked="" type="radio"/> Yes <input type="radio"/> No
A: Functions	Delay for presence = 1 in s [0...6,000]	0
A: Positions/Presets	Delay for presence = 0 in s [0...6,000]	0
A: Automatic Sun Protection	Position for heating = 1 and sun = 1	Up
A: Scene	Use overheat control	<input checked="" type="radio"/> Yes <input type="radio"/> No
A: Status messages	Upper threshold value room temperature in °C [21...50]	24
B: General	Position at upper threshold value and sun = 1	Down
B: Safety/Weather	Position for heating = 1 and sun = 0	No reaction
B: Drive	Position for cooling = 1 and sun = 1	Down
B: Blinds/Shutter	Position for cooling = 1 and sun = 0	No reaction
B: Functions	On heating = 1 and cooling = 1 or on heating = 0 and cooling = 0	<-- Note
B: Status messages	the output is controlled only by automatic sun protection	

Agenda

Solutions for shading in building with KNX

Basic shutter control with safety functions (wind and rain alarm)

Automatic sun protection

- Standard
- Automatic sun protection with tracking of the sun's position and redirection of daylight
- Automatic and presence-dependent sun protection with integration in the room temperature control (heating/cooling automatic)

Optimum room air quality via automatic ventilation

Appendix (Shutter Control Unit JSB/S, Night cool down, SMI – Standard Motor Interface)

Optimum room air quality via automatic ventilation

Influence of the CO₂ concentration on well-being of people

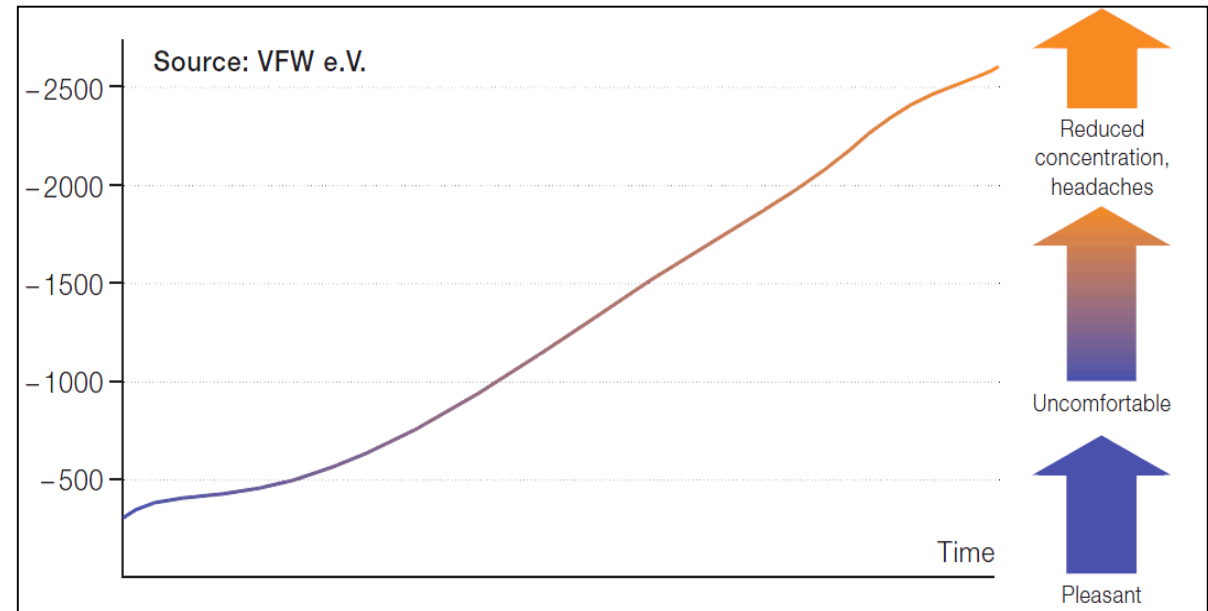
- Room air quality is an important planning parameter for energy-efficient buildings
- The European building directive (EPBD – Energy Performance of Buildings Directive) requires that when verifying energy performance, in addition to the systems for compensating outdoor ambient conditions (i.e. heating, cooling), the indoor climatic conditions must also be monitored
- The requirements for reduction of energy consumption often lead to poor ventilation in today's highly insulated buildings
- The quality of the room air often does not meet the desired and stipulated levels
- A suitable indicator for determination of the room air quality is the CO₂ concentration



Optimum room air quality via automatic ventilation

Influence of the CO₂ concentration on well-being of people

- People increase the CO₂ concentration in the air naturally during respiration
- A high CO₂ concentration in the air influences the well-being as well as the performance and learning ability of people
- This means that rooms in which many persons are present (schools, conference rooms, open-plan offices) will require the provision of a sufficient supply of fresh air



Optimum room air quality via automatic ventilation

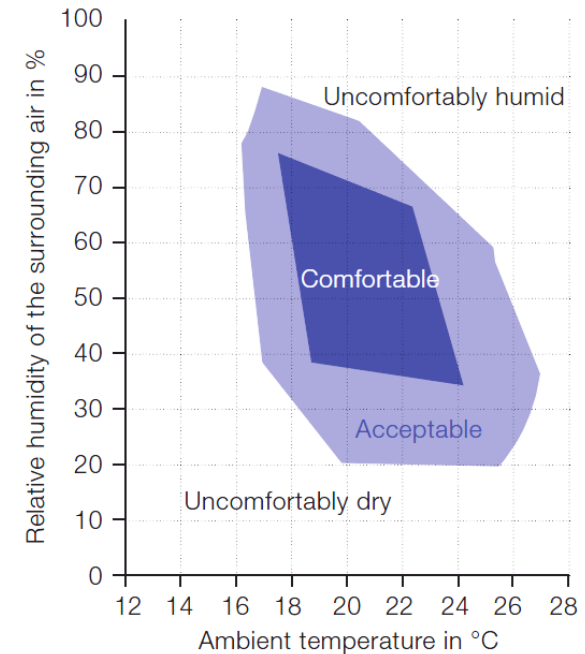
Comfortable room climate

People raise the CO₂ concentration in the air when they breathe:

- Normal room air has about 21% Oxygen (O₂) and about
- 0.035 % Carbon Dioxide (CO₂)

However, during exhalation the air only contains about 16 % O₂ (reduction of about 24 %), but 4 % CO₂ (a more than 100-fold increase!)

In addition to the CO₂ concentration, the relationship between room temperature and humidity is also an important consideration in achieving a comfortable room climate



Comfortable room climate in dependence on the room temperature and humidity

Optimum room air quality via automatic ventilation

Comfortable room climate - a sample calculation

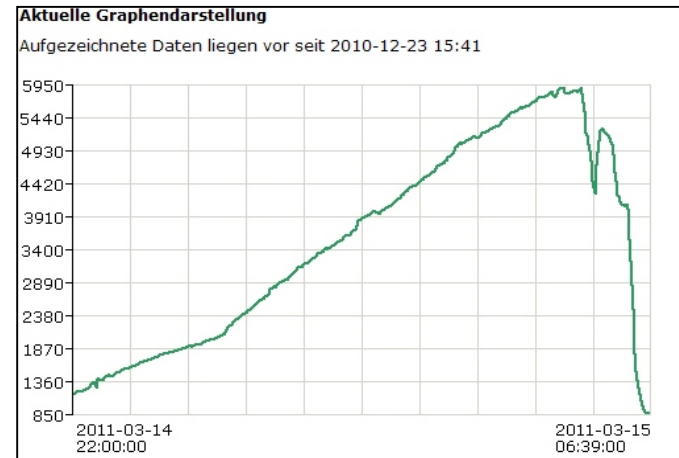
- The respiratory volume of an adult at rest is between 450 and 500 ml and the respiratory rate is about 18 times a minute
- If a seminar room (8 m x 7 m x 2.5 m = 140 m³), without a supply of fresh air, is occupied by 30 persons for 1 hour, the oxygen concentration in the room air is reduced from 21% to about 20.5%
- However the CO₂ concentration increases sharply to about 4,500 ppm
- The concentration at which physical limitations e.g. reduced concentration, tiredness, headaches, are to be expected, starts as early as 2,000 ppm



Optimum room air quality via automatic ventilation

Comfortable room climate

- Starting from a concentration of 800 ppm (0.08 Vol %) makes carbon dioxide, humans tired!
- The German Standard DIN 1946-6 prescribes due to its an outside air flow rate of 30 m³/h per person
- With the current build standard this value is not reached
- Reason for it is e.g. the high tightness of the building cover and the occasional air with tilted windows
- A control ventilation of areas in buildings is therefore urgently necessary



Recording the CO₂-concentration in a bedroom
2 adults, window and door were closed

Optimum room air quality via automatic ventilation

Air Quality Sensor with Room Temperature Controller LGS/A 1.2

Usage and Application

- The air quality sensor is used to measure the room temperature as well as the CO₂ concentration and the humidity in the room
- Based on these information it's possible to implement a room temperature control and also air quality control via ventilation
- Additionally the measured values can be used to display them in the visualization as information for the room user
- The LED on front of the device can be used to show the room user an indication of the air quality



Optimum room air quality via automatic ventilation

Air Quality Sensor with Room Temperature Controller LGS/A 1.2

Introduction

- Extension/Replacement of ABB's range of air quality (CO₂) sensors with a new surface mounted device
- **Existing range:**
 - 6109/28 with display
 - LGS/A 1.1 with colored LED
- **New:**
 - Air quality sensor LGS/A 1.2
 - CO₂ Measurement and control
 - Measurement of relative humidity and control
 - Temperature measurement and control
 - Air pressure measurement
 - Dew point calculation
 - 2 LEDs to display exceeding CO₂/Humidity level
 - Replacement of LGS/A 1.1



Optimum room air quality via automatic ventilation

Air Quality Sensor with Room Temperature Controller LGS/A 1.2

Motivation

- Replacement/Update of existing surface mounted air quality sensor LGS/A 1.1
- Integration of controller functionality (temperature, CO₂, humidity)
- Implementation of unified RTC concept like all other room temperature controller from ABB
- Design update, less depth of housing



Optimum room air quality via automatic ventilation

Air Quality Sensor with Room Temperature Controller LGS/A 1.2

Benefits

- Surface mounted air quality sensor
 - Easy installation, supply via KNX
- Integrated temperature controller with unified RTC concept different from LGS/A 1.1
- LEDs for simple information about CO₂ and humidity level for the end user
- Maintenance free and precise CO₂ measurement with automatic calibration
- Comprehensive ETS application with more functions (e.g. integrated controller) compared with former LGS/A 1.1



Optimum room air quality via automatic ventilation

Air Quality Sensor with Room Temperature Controller LGS/A 1.2

Hard- and Software

Hardware

- Surface mounted device
- CO₂ measurement: 390 ... 10.000 ppm
- Temperature measurement: 0 ... 50° C
- Relative humidity measurement: 0 ... 100 %
- Air pressure
- Automatic calibration of CO₂ measurement

Software

- Sending of measured values
- PI control for CO₂ and humidity
- 1/2/3 step control for CO₂ and humidity thresholds) (3
- Dew point calculation and alarm
- Software application like RTC 6109/28 (unified RTC)

Functionality	CO ₂	Humidity	Temperature	Dew point
Send value	X	X	X	X
PI Control	X	X	X (unified RTC)	
Thresholds	X	X		
Alarm				X

Optimum room air quality via automatic ventilation

Air Quality Sensor with Room Temperature Controller LGS/A 1.2

Hardware

- Optical indication of CO₂ limits via LED
 - Threshold 1 (orange): 400...1500 ppm
 - Threshold 2 (red): threshold 1 + (50...1000ppm)
- Optical indication of humidity via LED
 - Threshold 1 (orange): 20...50 %
 - Threshold 2 (red): threshold 1 + (1...30%)
- Green LED when below threshold 1
- LEDs can be switched off via telegram

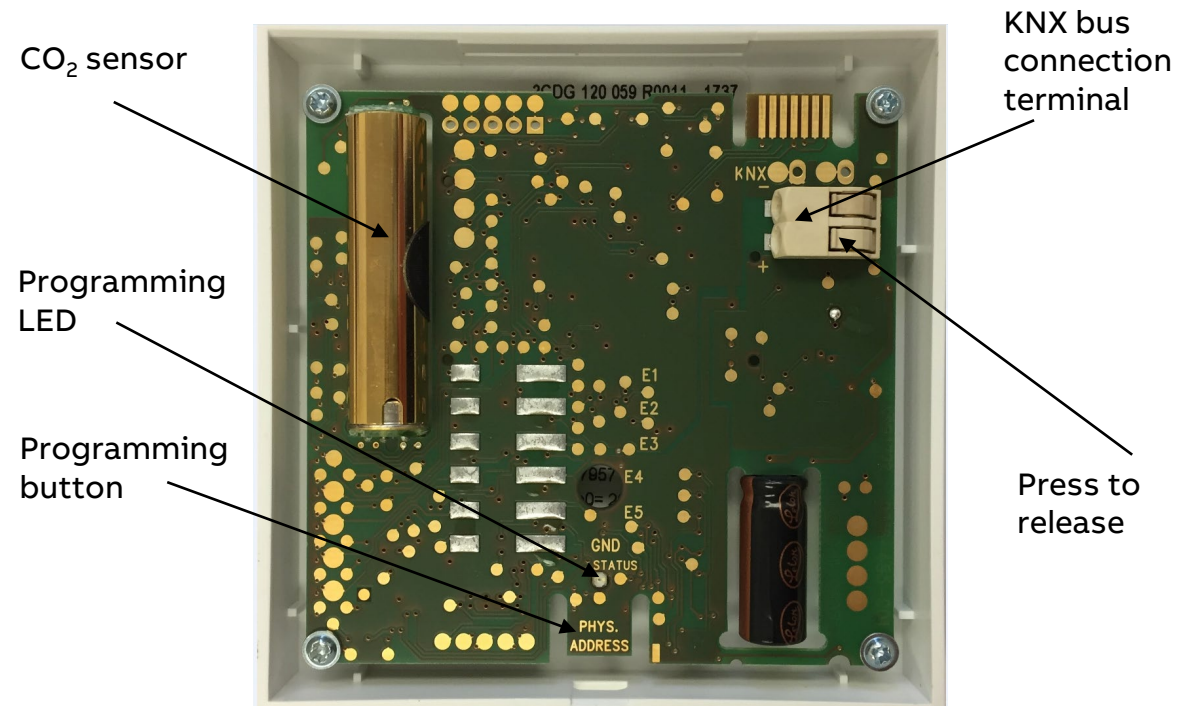


Optimum room air quality via automatic ventilation

Air Quality Sensor with Room Temperature Controller LGS/A 1.2

Hardware

- Bus connection including power supply
 - Insertion of wire without tool, by pressing the cover wire can be removed
- Calibration of CO₂ measurement, automatically with switch on of KNX voltage/Reset
- Activation of programming button by pressing on the circuit board marked with PHYS. ADRESS



Optimum room air quality via automatic ventilation

Air Quality Sensor with Room Temperature Controller LGS/A 1.2

ETS Application

- Application based on ABB's unified RTC concept
- It is the same software concept, providing the user with the same function for all devices → easier to commission and operate
- Uniform Master Slave concept → easy implementation of more than one RTC's in a room
- One set point mode → easier to program, easier to operate for the user (Alternatively two set point mode with dead zone parametrizable)
- Additional stage for heating and cooling with individual parameters as an independent second control circuit (e.g. basic floor heating) → more flexibility

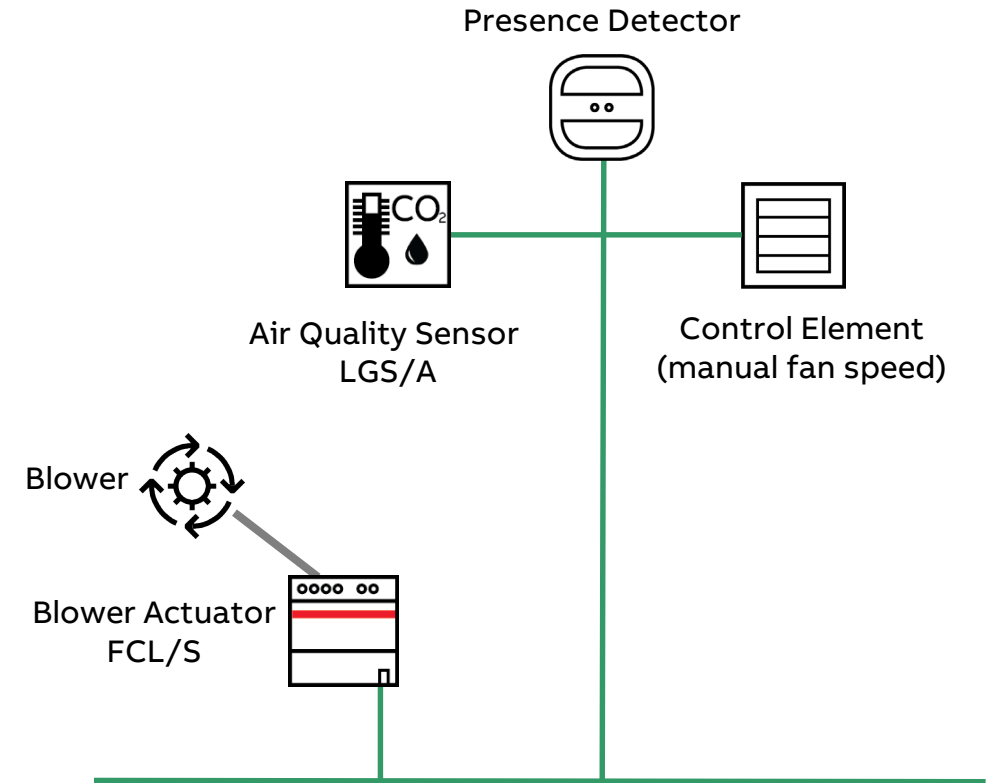


Optimum room air quality via automatic ventilation

Air Quality Sensor with Room Temperature Controller LGS/A 1.2

Applications

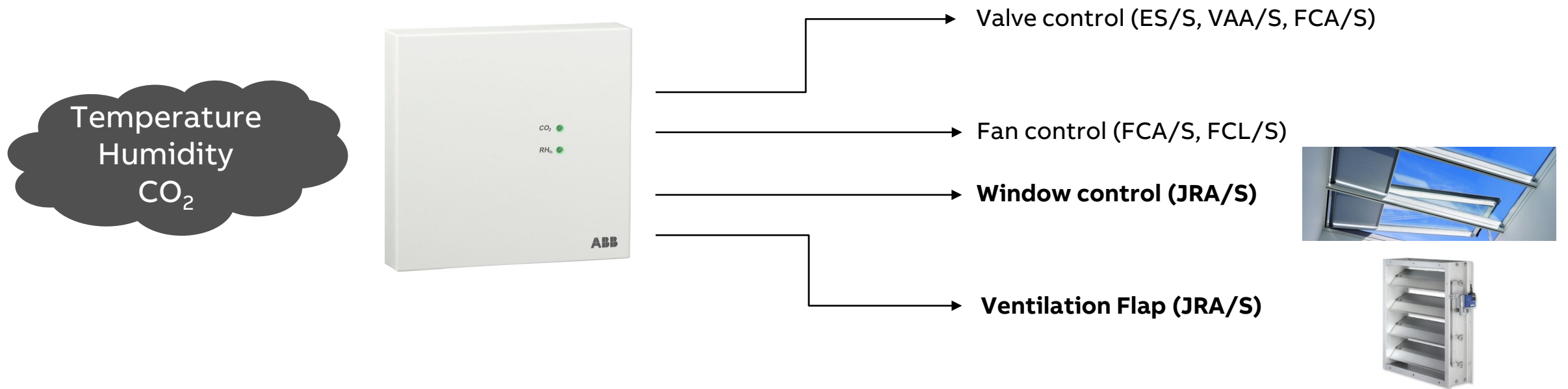
- Air quality control
 - Dependent on CO₂ level
 - Dependent on humidity level
 - e.g. in combination with Blower Actuator FCL/S x.6.1.1
- CO₂/Humidity/Temperature/Air pressure measurement
- Dew point calculation and alarm
- Room temperature control
 - e.g. in combination with Fan Coil Actuator FCA/S 1.x.y.1
 - RTC master functionality
- Optical indication of CO₂ and humidity limits for the user



Optimum room air quality via automatic ventilation

Air Quality Sensor with Room Temperature Controller LGS/A 1.2

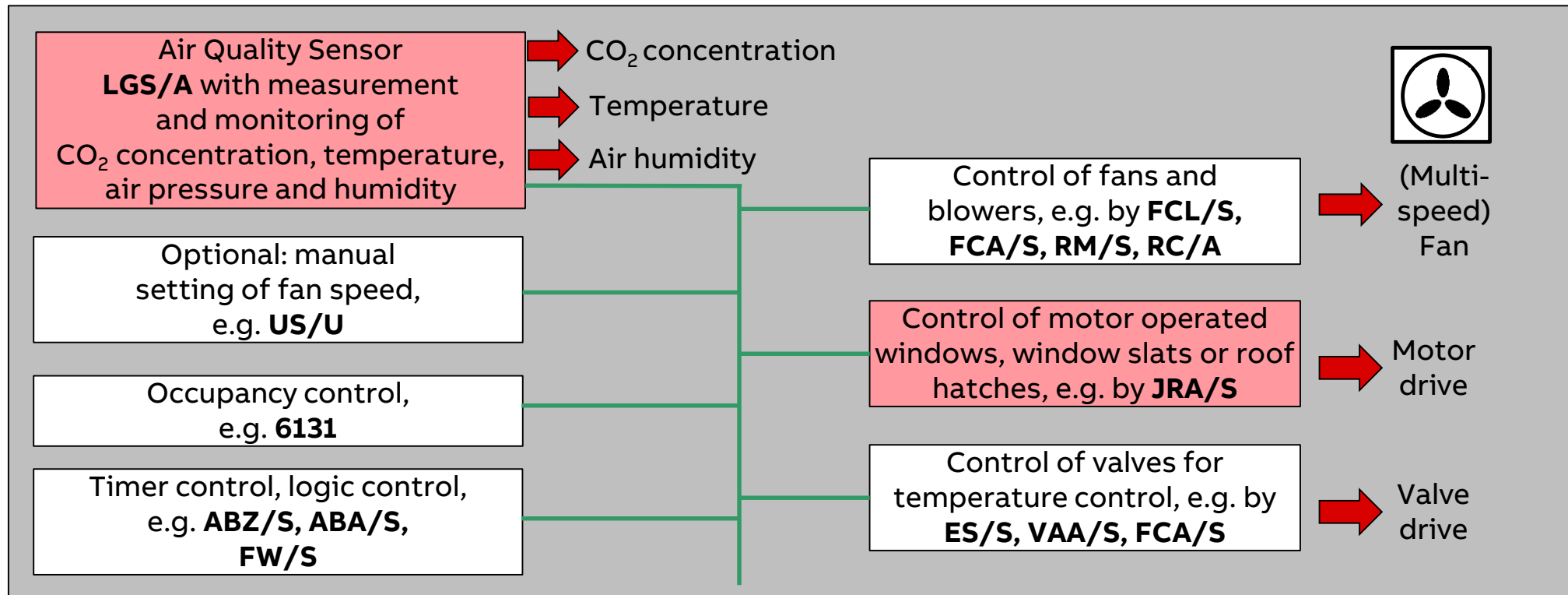
Applications



Optimum room air quality via automatic ventilation

Air Quality Sensor with Room Temperature Controller LGS/A 1.2

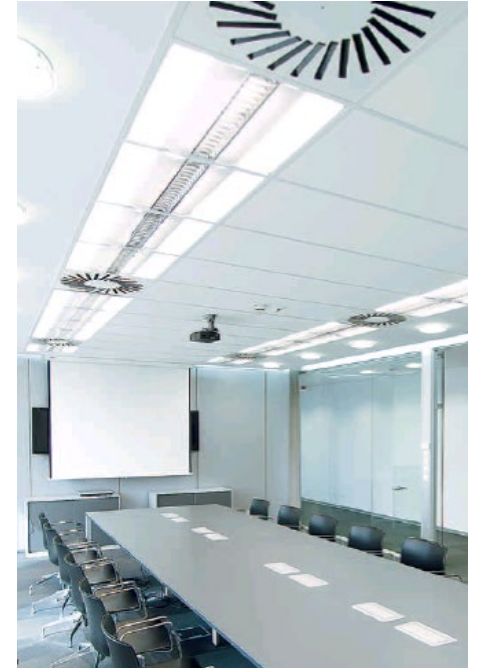
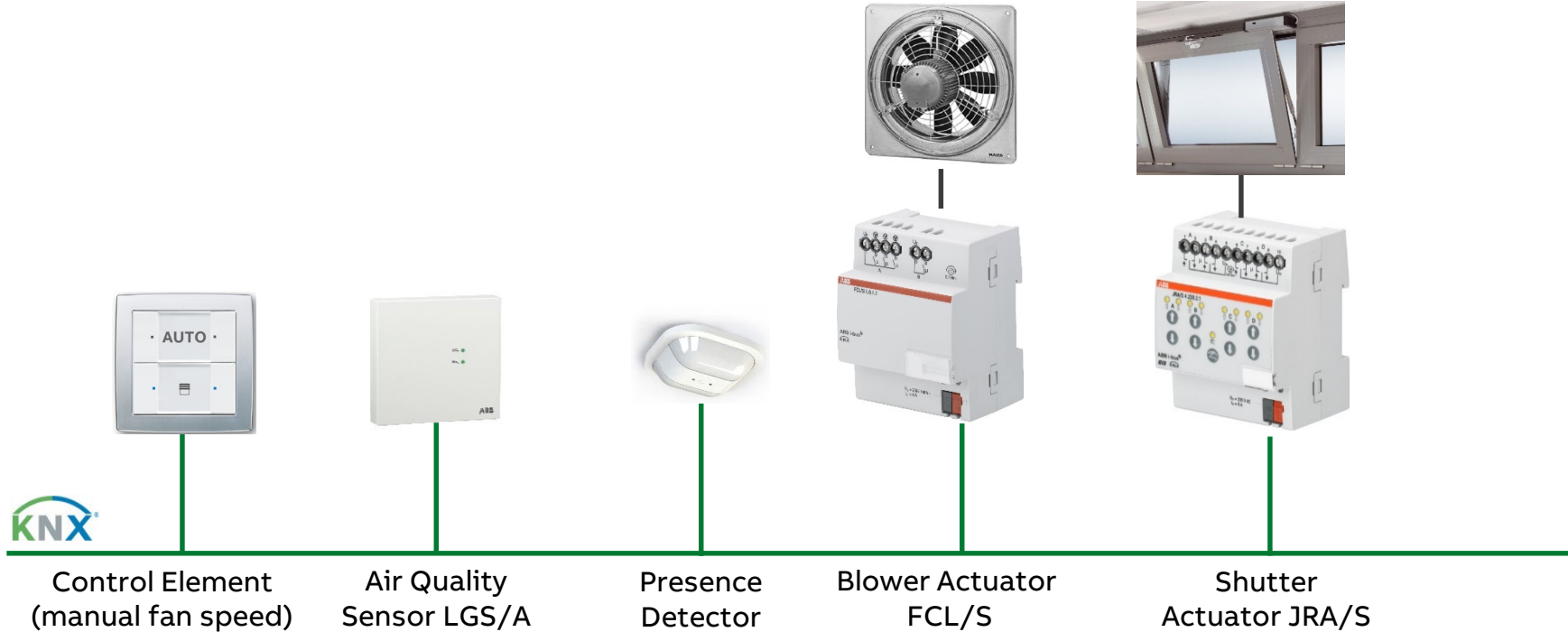
Applications



Optimum room air quality via automatic ventilation

Air Quality Sensor with Room Temperature Controller LGS/A 1.2

Applications



Agenda

Solutions for shading in building with KNX

Basic shutter control with safety functions (wind and rain alarm)

Automatic sun protection

- Standard
- Automatic sun protection with tracking of the sun's position and redirection of daylight
- Automatic and presence-dependent sun protection with integration in the room temperature control (heating/cooling automatic)

Optimum room air quality via automatic ventilation

Appendix (Shutter Control Unit JSB/S, Night cool down, SMI – Standard Motor Interface)

Appendix

Shutter Control Unit JSB/S 1.1

Night cool down

SMI – Standard Motor Interface

Shutter Control Unit JSB/S 1.1

Sun position dependent control

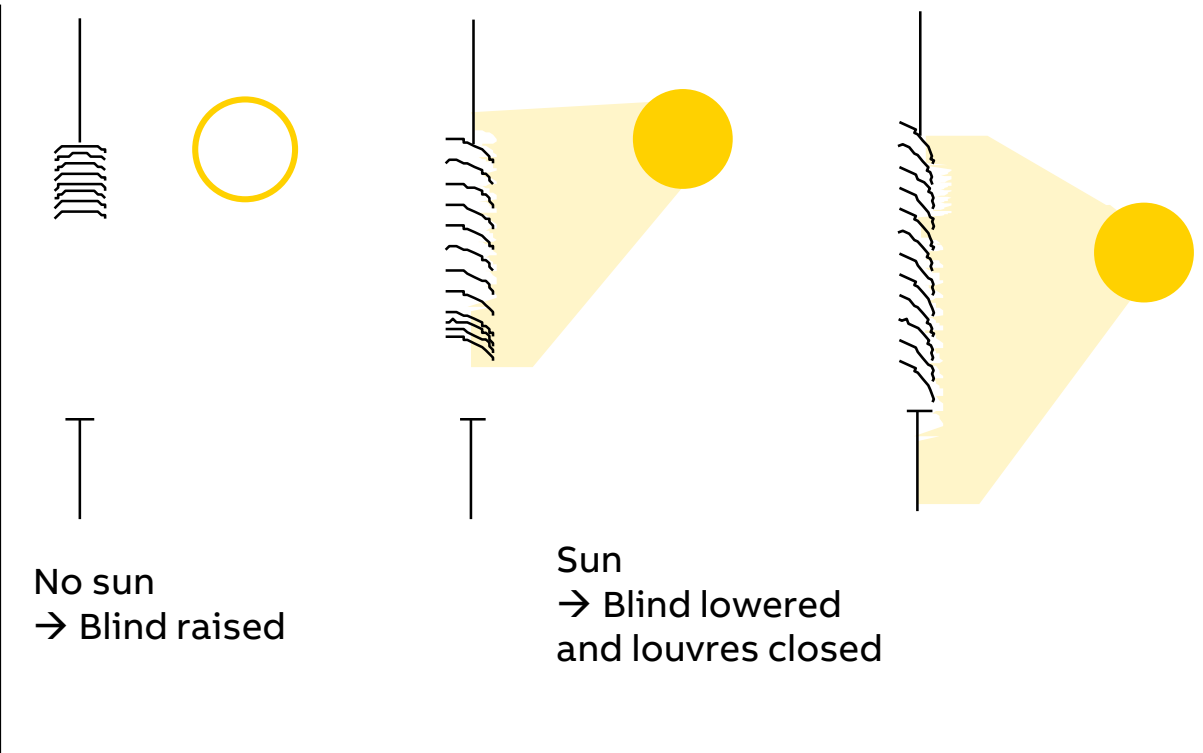
- Tracking the position of the sun
- Applications
 - Anti-glare protection
 - Daylight redirection
 - Position of height only
- Installation on DIN rail
- 2 modules width
- Bus connection terminal



Shutter Control Unit JSB/S 1.1

Application: Anti-glare protection

- Protection against direct, dazzling daylight
- Maximum use of diffuse daylight



Shutter Control Unit JSB/S 1.1

Application: Daylight redirection

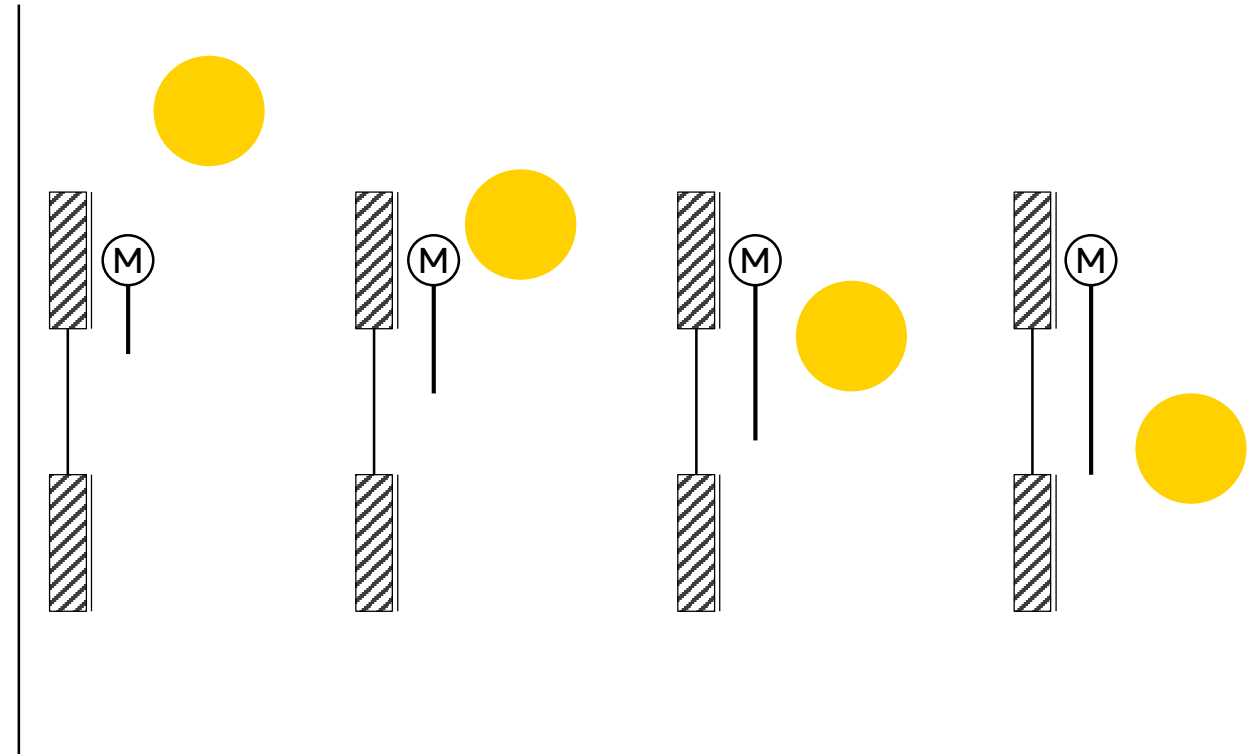
- Redirection of daylight protects against direct, dazzling or glaring sunlight
- The natural brightness is optimally exploited through selective direction of the sunlight into the room
- The objective of this application is controlled inflow of sunlight to the room
- The sunlight is directed onto the ceiling by tracking of the louvre angle, where it brightens the room through indirect but natural lighting → defined direction



Shutter Control Unit JSB/S 1.1

Application: Position of height only

- Shutter height 0...100 % when sun is at height of 0...90°
- Up to 4 positions (0 % top, 100 % bottom)



Shutter Control Unit JSB/S 1.1

Functions

- 4 facades per shutter control unit
- Per facade adjustable operation mode
 - Horizontal louvres
 - Horizontal louvres with light redirection
 - Vertical louvres
- 20 shadow objects (e.g. buildings, trees) per unit
- Structuring of the facade
 - Without shadow objects: All windows equal
 - With shadow objects: Up to 200 windows individually (4 facade with 50 windows each)
 - Shutter Control Units can be operated in parallel



Shutter Control Unit JSB/S 1.1

Communication objects “Brightness”

- Number of sensors
 - Up to 4 brightness sensors
 - Typically: 3 → east, south and west
- Brightness levels
 - Up to 2 (normal/dazzling)
 - Overriding the louvre angle depending on actual brightness level
- Type of brightness sensor
 - Minimum: 0 ... 20,000 Lux
 - Better: 0 ... 100,000 Lux or pyranometer
- Delay periods and intermediate position



Shutter Control Unit JSB/S 1.1

Communication objects “Date” and “Time”

- 2 communication objects
 - “Date”
 - “Time”
- Shutter control unit as
 - Slave
 - Master
 - Separate internal timer



Shutter Control Unit JSB/S 1.1

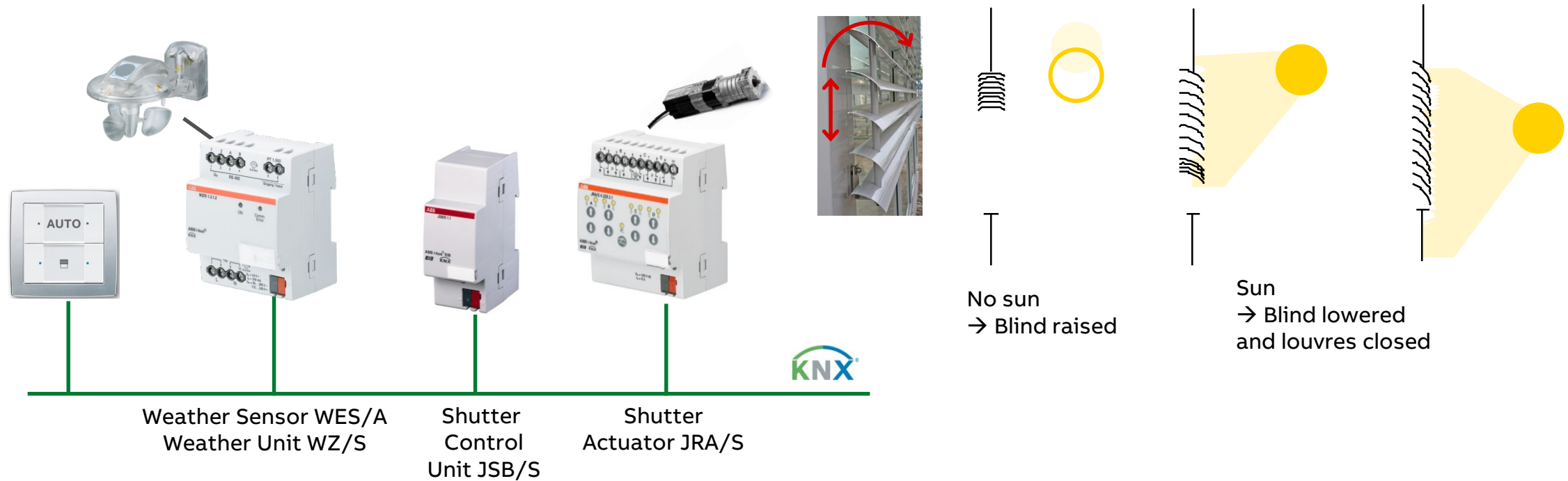
Communication objects “Sun”, ”Sun pos.” and “Sun louvres”

- Sun = “1”: The sun is shining
 - “Move to sun position”: 0...255
- and
- “Move to sun louvres/slats”: 0...255
- Sun = “0”: The sun is not shining
 - Position for sun = “0”
(corresponding to the parameter setting in the actuator)
- Up to 200 communication objects “Sun” possible (4 facades with 50 windows each, necessary in case of shadow effects)



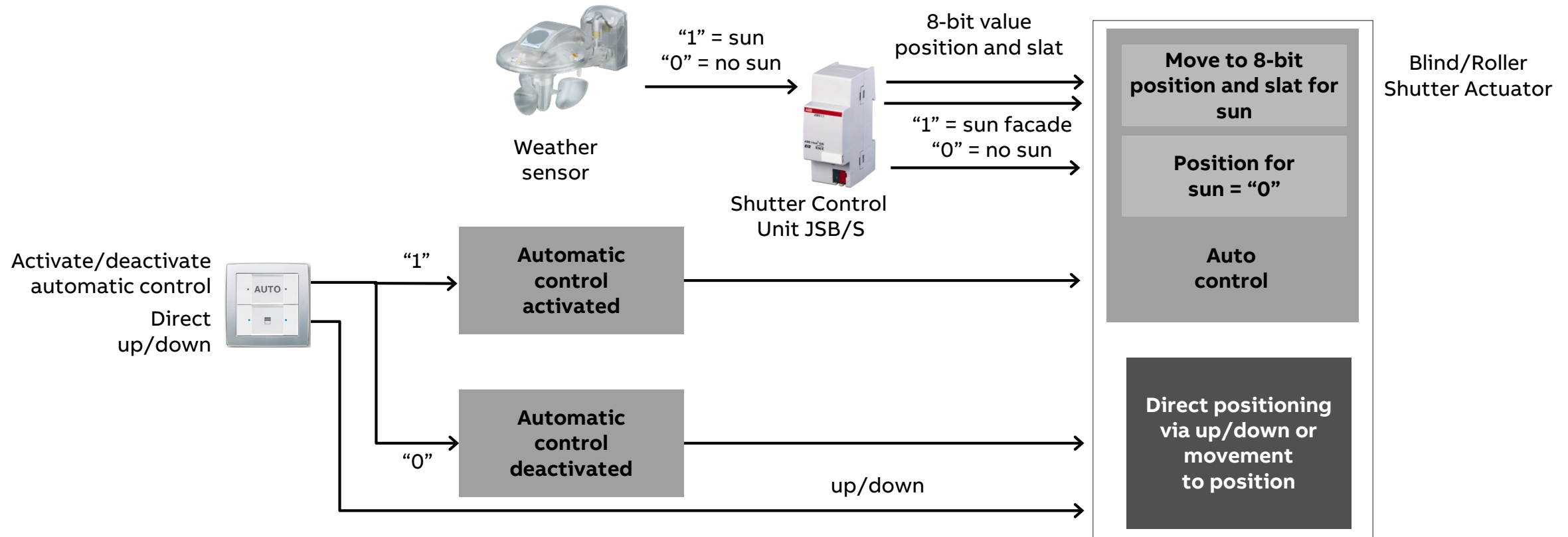
Shutter Control Unit JSB/S 1.1

Planning of a shutter control system using sun position tracking



Shutter Control Unit JSB/S 1.1

Planning of a shutter control system using sun position tracking



Shutter Control Unit JSB/S 1.1

Calculation of the sun position

- Date and time (received via KNX, e.g. Weather Sensor WES/A)
- Building location
 - Latitude
 - Longitude



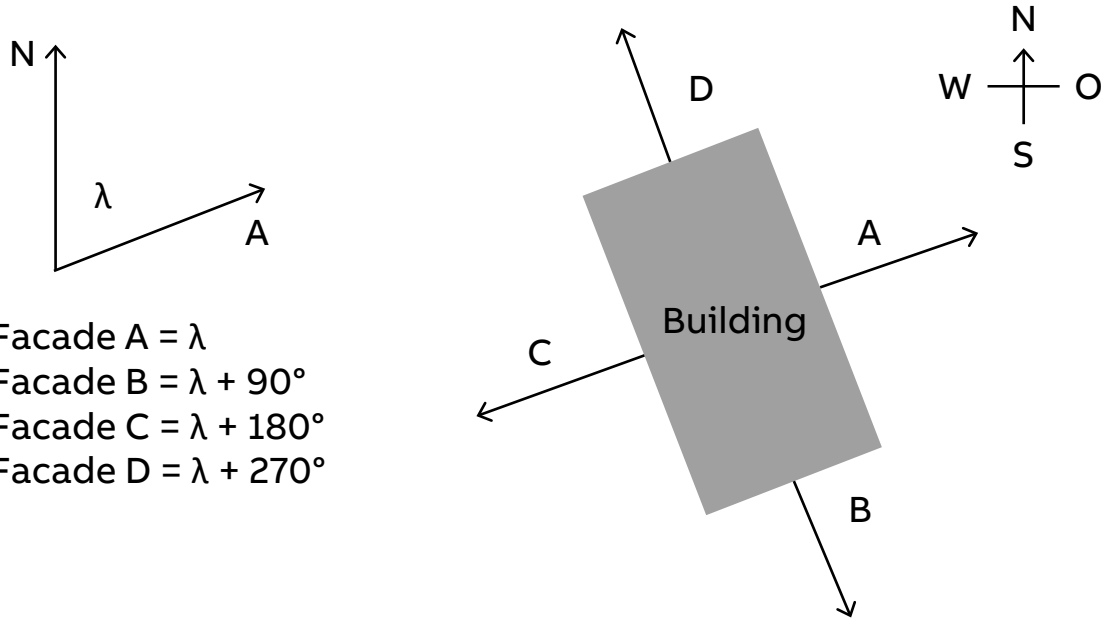
1.6.2 JSB/S1.1 Shutter Control Unit,MDRC > Building data

Horizontal louvres	Building location - Longitude in [°] -180..180 (-=West, +=East)	9
Vertical louvres	Building location - Latitude in [°] -90..90 (-=South, +=North)	49
Building data		
Façade A	Façade A	<input type="radio"/> deactivated <input checked="" type="radio"/> activated
Façade B	Façade B	<input type="radio"/> deactivated <input checked="" type="radio"/> activated
Façade C	Façade C	<input type="radio"/> deactivated <input checked="" type="radio"/> activated
Façade D	Façade D	<input type="radio"/> deactivated <input checked="" type="radio"/> activated
Shadows 1..10		
Shadows 11..20		

Shutter Control Unit JSB/S 1.1

Calculation of the sun position

- Facade orientation: Angle between the north-south axis and a line that runs vertically to the facade



1.6.2 JSB/S1.1 Shutter Control Unit,MDRC > Façade A

Building data	Façade orientation from north to east in [°] 0..360	60
Façade A	Vertical blind spot in [°] 0..90	5
Façade B	Upper horizontal blind spote in [°] 0..90	5
Façade C		
Façade D	Operation mode	Horizontal louvres
Shadows 1..10		
Shadows 11..20	Window/ window groupn	deactivated

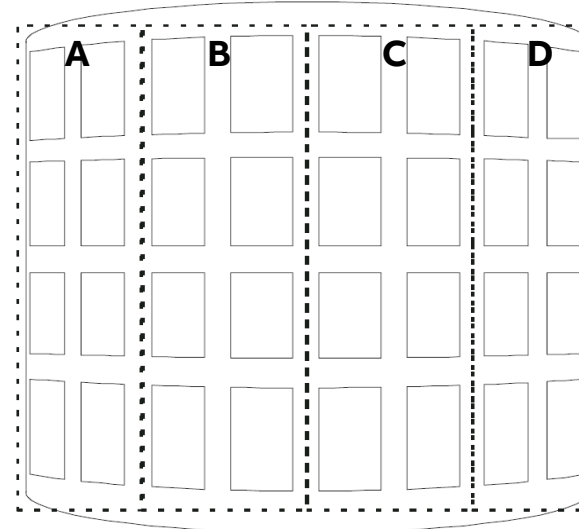
Shutter Control Unit JSB/S 1.1

Calculation of the sun position

Facade orientation

- If the external wall is curved or buckled, it must be divided into several facade sections which can be assumed to be flat

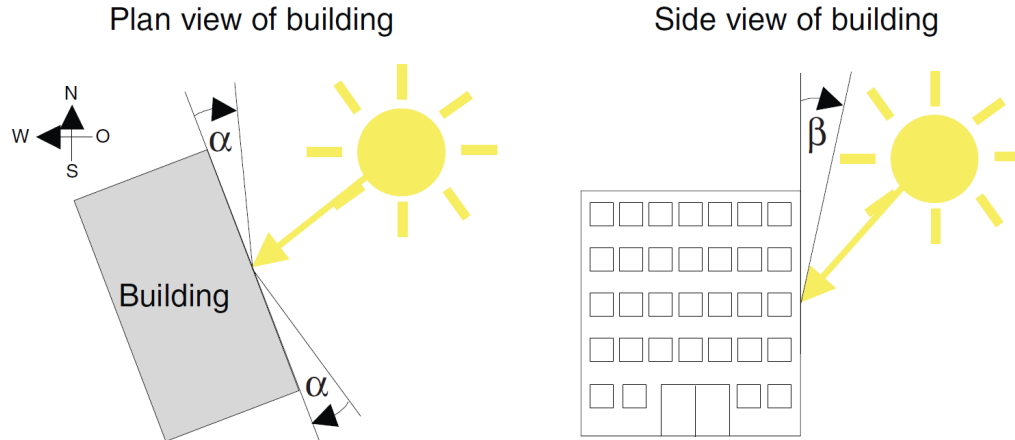
Facade



Shutter Control Unit JSB/S 1.1

Blind spot

- The activation of the louvre control can be limited to a specific angle of incidence for the sun's rays
- If the sun is positioned within the parameterized blind spot, it is considered not to shine



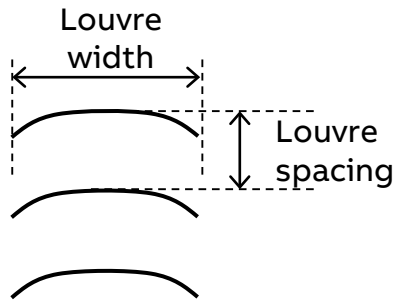
1.6.2 JSB/S1.1 Shutter Control Unit,MDRC > Façade A

Building data	Façade orientation from north to east in [°] 0..360	60
Façade A	Vertical blind spot in [°] 0..90	5
Façade B	Upper horizontal blind spote in [°] 0..90	5
Façade C		
Façade D	Operation mode	Horizontal louvres
Shadows 1..10	Window/ window groupn	deactivated
Shadows 11..20		

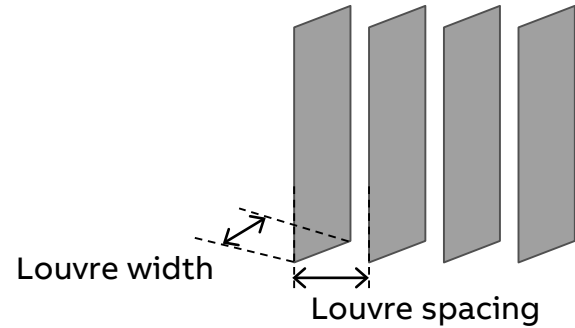
Shutter Control Unit JSB/S 1.1

Louvre dimensions: Louvre width and spacing

Horizontal louvres



Vertical louvres



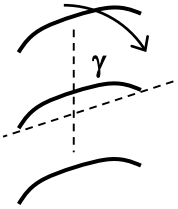
1.6.2 JSB/S1.1 Shutter Control Unit,MDRC > Horizontal louvres		
Height	Horizontal louvres	<input type="radio"/> deactivated <input checked="" type="radio"/> activated
Intermediate position	Louvre width in [mm] (0..1000)	85
Horizontal louvres	Louvre spacing in [mm] (0..1000)	80
Vertical louvres	Angle at louvre position 0% in [°] 0..180	90
Building data	Angle at louvre position 100% in [°] 0..180	140
Façade A		
Façade B	Light redirection	<input checked="" type="radio"/> deactivated <input type="radio"/> activated
Façade C		

Shutter Control Unit JSB/S 1.1

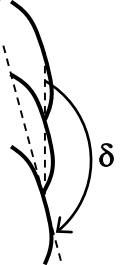
Louvre dimensions: Angle for Louvres fully opened/closed

Horizontal louvres

Louvres fully opened

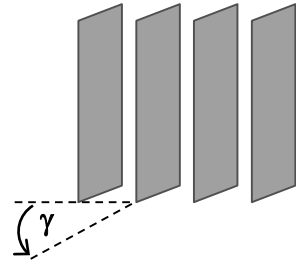


Louvres fully closed

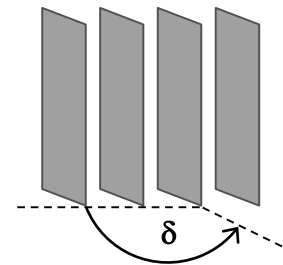


Vertical louvres

Louvres fully opened



Louvres fully closed

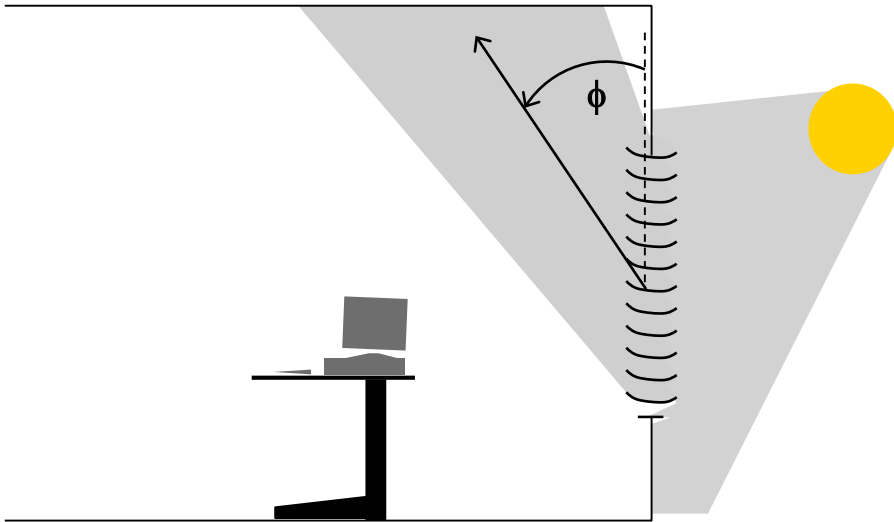


1.6.2 JSB/S1.1 Shutter Control Unit,MDRC > Horizontal louvres		
Height	Horizontal louvres	<input type="radio"/> deactivated <input checked="" type="radio"/> activated
Intermediate position	Louvre width in [mm] (0..1000)	85
Horizontal louvres	Louvre spacing in [mm] (0..1000)	80
Vertical louvres	Angle at louvre position 0% in [°] 0..180	90
Building data	Angle at louvre position 100% in [°] 0..180	140
Façade A		
Façade B	Light redirection	<input checked="" type="radio"/> deactivated <input type="radio"/> activated
Façade C		

Shutter Control Unit JSB/S 1.1

Horizontal louvres with daylight redirection

– Light emission angle



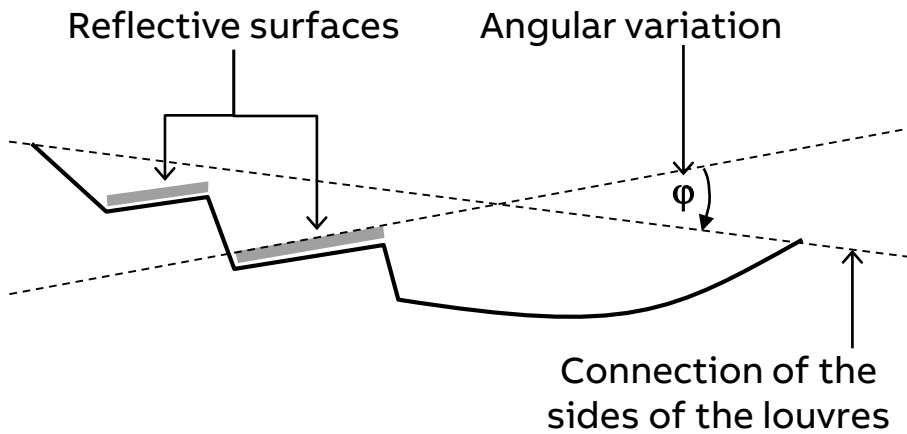
1.6.2 JSB/S1.1 Shutter Control Unit, MDRC > Horizontal louvres

Height	Horizontal louvres	<input type="radio"/> deactivated <input checked="" type="radio"/> activated
Intermediate position	Louvre width in [mm] (0..1000)	85
Horizontal louvres	Louvre spacing in [mm] (0..1000)	80
Vertical louvres	Angle at louvre position 0% in [°] 0..180	90
Building data	Angle at louvre position 100% in [°] 0..180	140
Façade A		
Façade B	Light redirection	<input type="radio"/> deactivated <input checked="" type="radio"/> activated
Façade C	Angular variation of the reflective surfaces in [°] -90...90°	0
Façade D	Light emission angle in the room in [°] 0..90 (0°=vertical; 90° = horizon)	30

Shutter Control Unit JSB/S 1.1

Horizontal louvres with daylight redirection

– Angular deviation of the reflective surface



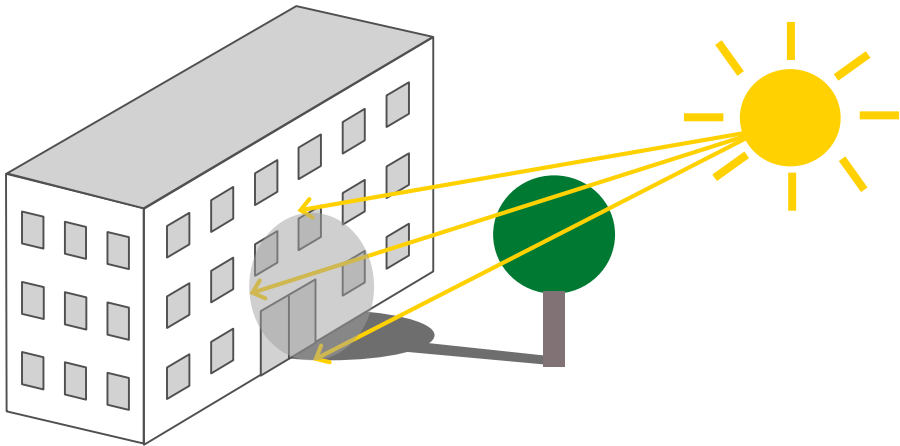
1.6.2 JSB/S1.1 Shutter Control Unit, MDRC > Horizontal louvres

Height	Horizontal louvres	<input type="radio"/> deactivated <input checked="" type="radio"/> activated
Intermediate position	Louvre width in [mm] (0..1000)	85
Horizontal louvres	Louvre spacing in [mm] (0..1000)	80
Vertical louvres	Angle at louvre position 0% in [°] 0..180	90
Building data	Angle at louvre position 100% in [°] 0..180	140
Façade A		
Façade B	Light redirection	<input type="radio"/> deactivated <input checked="" type="radio"/> activated
Façade C	Angular variation of the reflective surfaces in [°] -90...90°	0
Façade D	Light emission angle in the room in [°] 0..90 (0°=vertical; 90° = horizon)	30

Shutter Control Unit JSB/S 1.1

Shadow objects

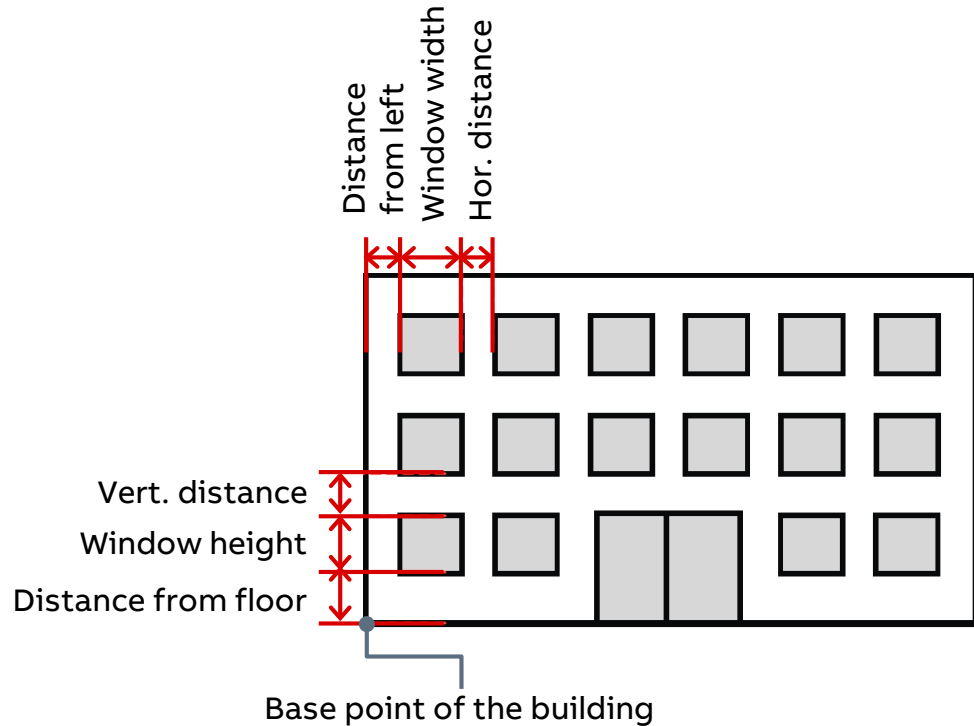
- Calculation of the effect of shadow objects
- Division of the windows of the facade
 - Window grid (same sizes and intervals of windows)
 - User-defined (each window/window group individually)



Shutter Control Unit JSB/S 1.1

Shadow objects

- Parameterization of a window grid



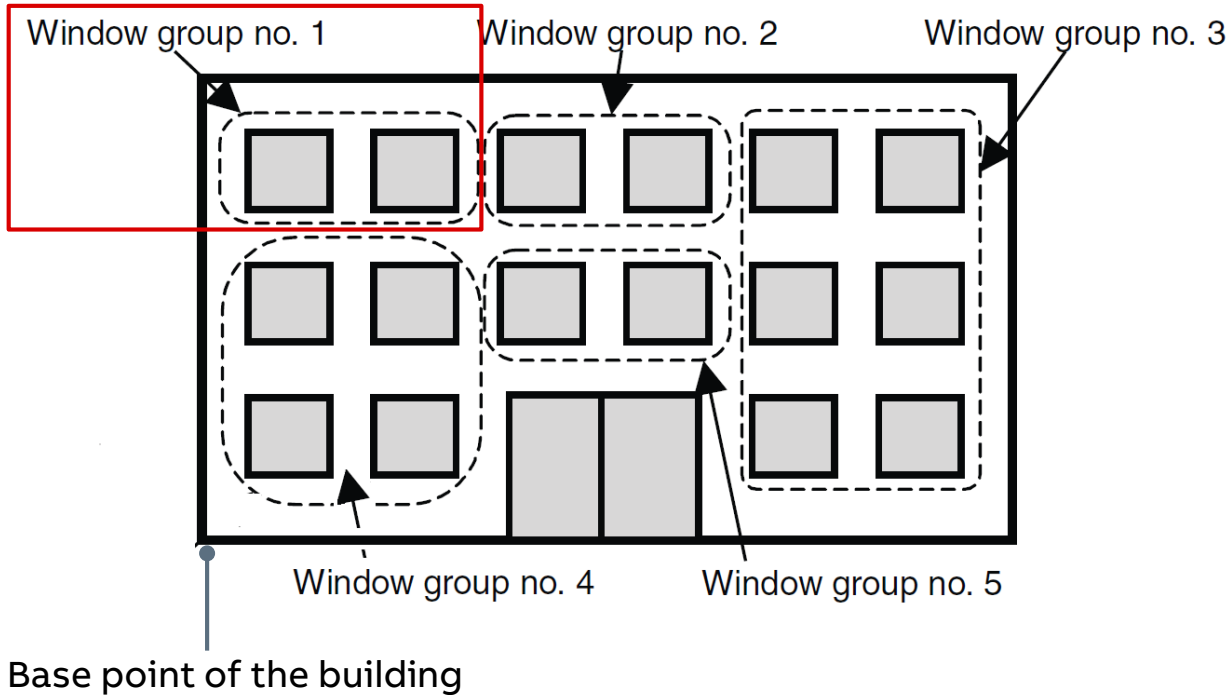
1.6.2 JSB/S1.1 Shutter Control Unit,MDRC > A: Grid system

General	Grid dimensions	5 floors with 10 windows each
Date/time		
Building data	Distance of the left window from the outer edge in [cm] 0..10000	200
Façade A	Width of the window in [cm] 0..10000	200
A: Grid system	Horizontal distance between the windows in [cm] 0..10000	150
Façade B		
Façade C	Distance of the bottom window from the floor in [cm] 0..10000	200
Façade D	Height of the window in [cm] 0..10000	200
Shadows 1..10	Vertical distance between the windows in [cm] 0..10000	150
Shadows 1		

Shutter Control Unit JSB/S 1.1

Shadow objects

– Parameterization of window/window groups (user-defined)

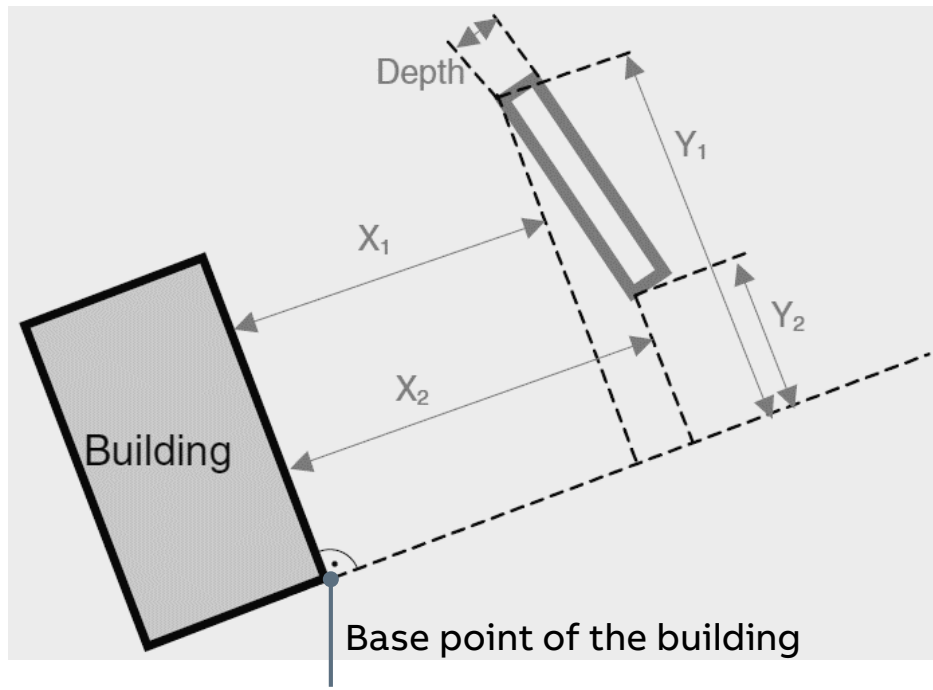


1.6.2 JSB/S1.1 Shutter Control Unit,MDRC > A: Groups		
Vertical louvres	Window/ window group 1	<input type="radio"/> deactivated <input checked="" type="radio"/> activated
Building data	Distance from the left corner of the building in [cm] 0..10000	100
Façade A	Width of the window/ window group in [cm] 0..10000	200
A: Groups	Distance window top edge from the floor in [cm] 0..10000	1000
Façade B	Window/ window group 2	<input type="radio"/> deactivated <input checked="" type="radio"/> activated
Façade C	Distance from the left corner of the building in [cm] 0..10000	400
Façade D	Width of the window/ window group in [cm] 0..10000	200
Shadows 1.10	Distance window top edge from the floor in [cm] 0..10000	1000
Shadows 1		
Shadows 11..20	Window/ window group 3	<input checked="" type="radio"/> deactivated <input type="radio"/> activated

Shutter Control Unit JSB/S 1.1

Shadow objects

- Rectangle
Position and height of shadow objects relative to the facade

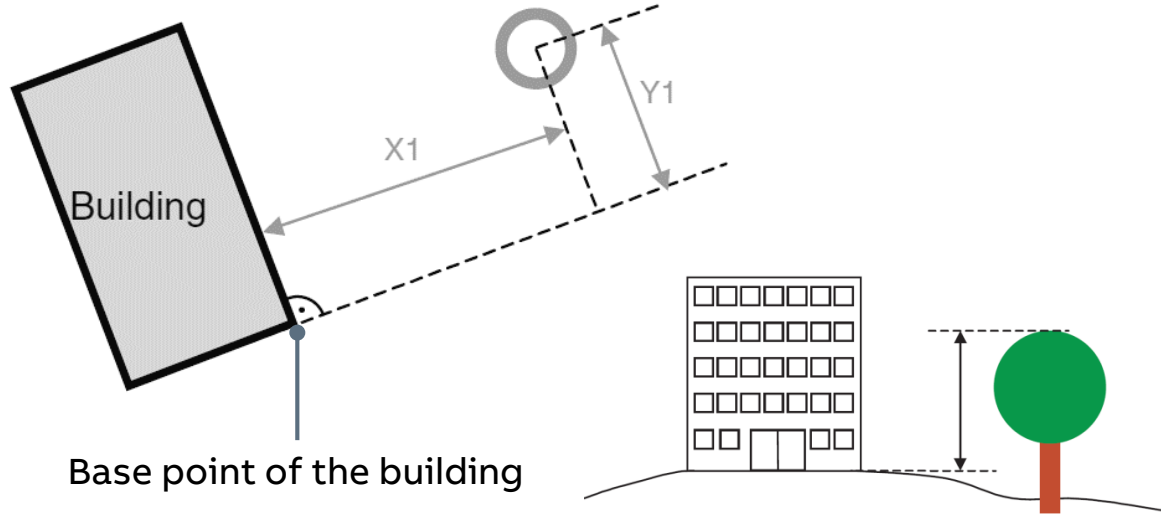


1.6.2 JSB/S1.1 Shutter Control Unit,MDRC > Shadows 1		
Façade A	Shape of shadow object	<input checked="" type="radio"/> rectangle <input type="radio"/> circle
A: Groups	Position X1 in [m] -1000..1000	10
Façade B	Position Y1 in [m] -1000..1000	20
Façade C	Position X2 in [m] -1000..1000	15
Façade D	Position Y2 in [m] -1000..1000	15
Shadows 1..10	Depth in [m] 0..1000	10
Shadows 1	Height in [m] 0..1000	30
Shadows 2	Shadow object influences	Façade A
Shadows 3	Shadow is cast from	January
Shadows 11..20	Shadow is cast until	December

Shutter Control Unit JSB/S 1.1

Shadow objects

- Circle
Position and height of shadow objects (e.g. no. 2) relative to the façade, seasonal influence



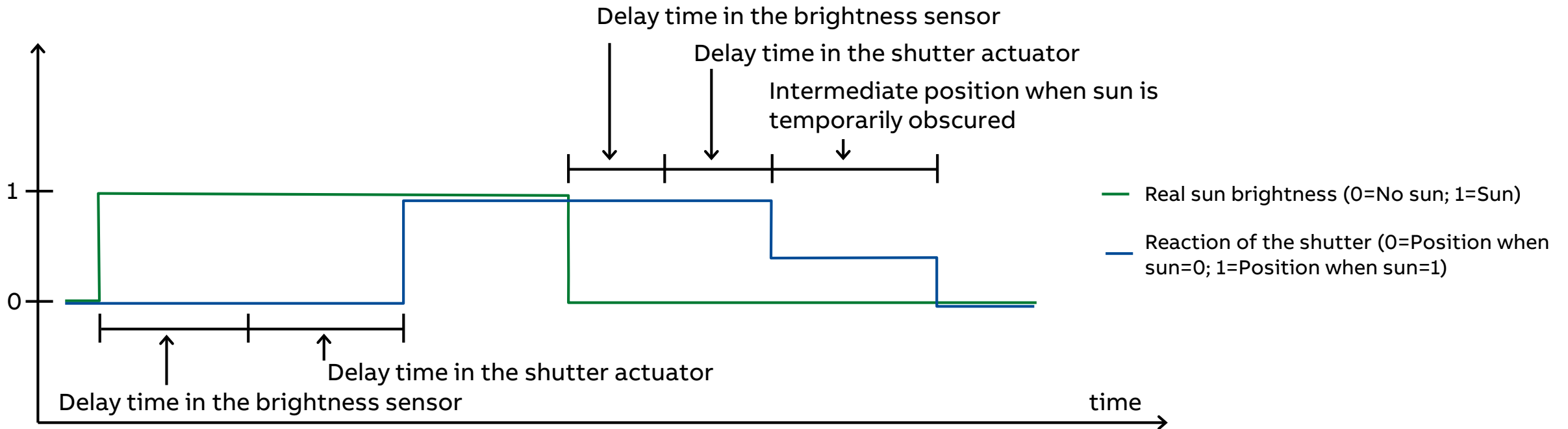
1.6.2 JSB/S1.1 Shutter Control Unit,MDRC > Shadows 2

A: Groups	Shape of shadow object	<input type="radio"/> rectangle <input checked="" type="radio"/> circle
Façade B	Central point X in [m] -1000..1000	20
Façade C	Central point Y in [m] -1000..1000	5
Façade D	Diameter in [m] 0..1000	3
Shadows 1..10	Height in [m] 0..1000	8
Shadows 1	Shadow object influences	Façade A
Shadows 2	Shadow is cast from	April
Shadows 3	Shadow is cast until	Oktober
Shadows 11..20		

Shutter Control Unit JSB/S 1.1

Delay periods

- Delay periods (shutter actuator, brightness sensor)
- Intermediate position when sun is temporarily obscured



Appendix

Shutter Control Unit JSB/S 1.1

Night cool down

SMI – Standard Motor Interface

Night cool down

Automatic control

- Using the “Night cool down” automatic function it is possible to implement cooling of rooms by temperature dependent ventilation
- It is not useful to always open the window at fixed times
- Example: The window of a production hall should be opened for cooling early in the morning before work starts in summer
- The internal and external temperature must be measured
- Two conditions must also be fulfilled
 - Internal temperature is higher than the external temperature
 - External temperature is lower than a defined fixed value, e.g. 18°C



Appendix

Shutter Control Unit JSB/S 1.1

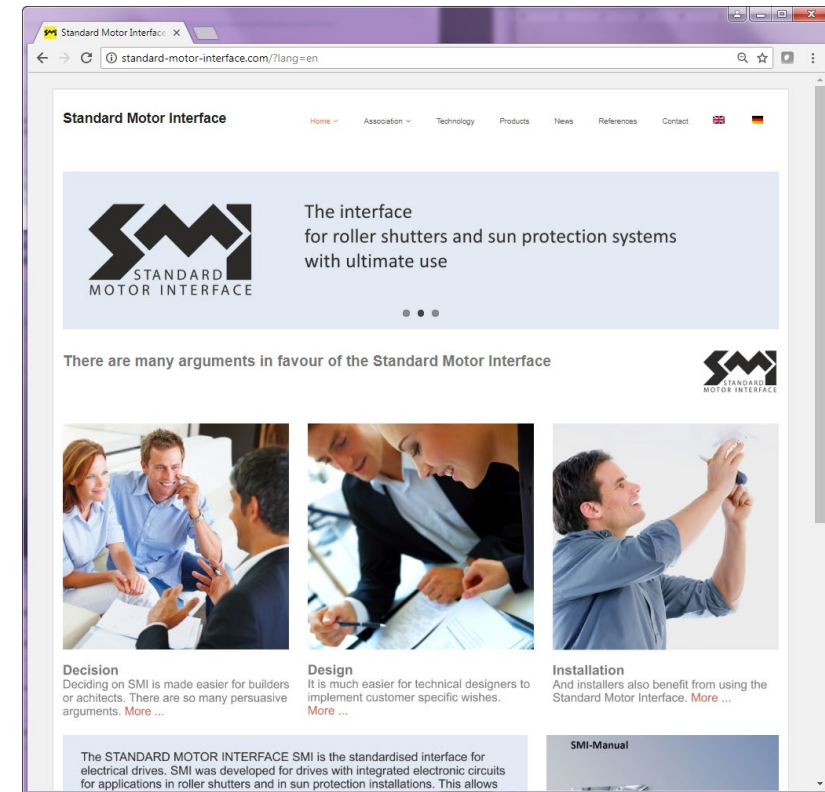
Night cool down

SMI – Standard Motor Interface

Shutter control with KNX

SMI – Standard Motor Interface

- First standard for the connection of intelligent drives for shutters, windows and sun protection systems
- SMI enables telegram transmission from the control unit to the drive and vice versa
- www.standard-motor-interface.com



Shutter control with KNX

SMI – Standard Motor Interface

- SMI is the abbreviation for STANDARD MOTOR INTERFACE and is the standardized electrical connection for shutter, windows and sun protection system drives
- Renowned European manufacturers have joined the SMI Consortium to develop the digital interface
- Using this standard interface drives are controlled via data packages
- Thanks to this technology, SMI drives provide precise feedback
- A parallel connection of up to 16 drives is possible which can each be individually addressed
- SMI drives are available for
 - Mains voltage (230V)
 - Low voltage (24V LoVo)



Shutter control with KNX

Members of SMI Group



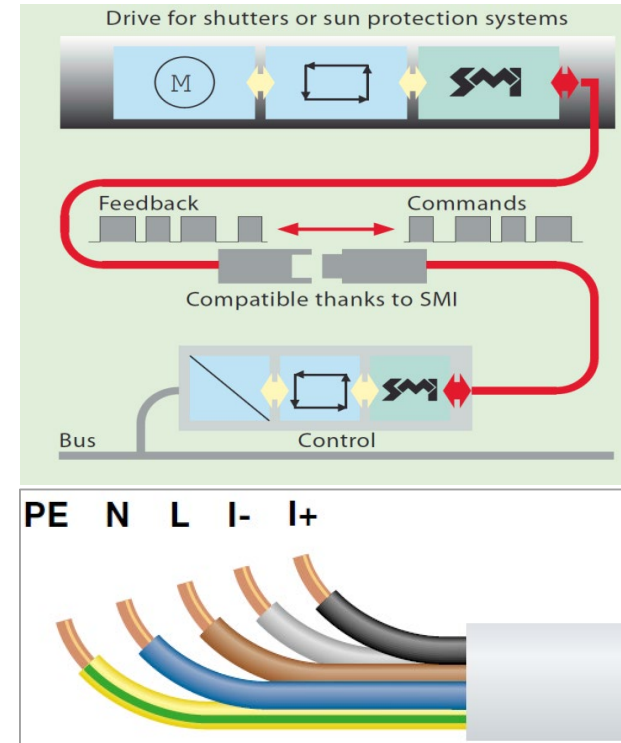
Partner of SMI Group



Shutter control with KNX

SMI – Standard Motor Interface

- Master-Slave System
- Connection of up to 16 drives (slaves) at 1 SMI output (master)
- Broadcast, group and individual addressing
- Motor response
 - Motor is rotating
 - Direction of rotation
 - Motor defect
- Precise positioning (2°/Step)
- Push button operation possible

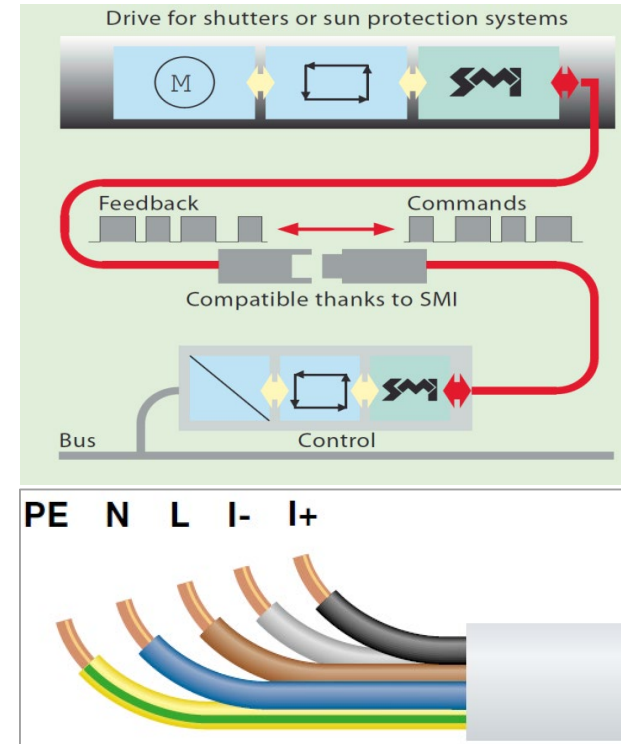


Names and colour codes of the wires for connecting SMI systems

Shutter control with KNX

SMI – Standard Motor Interface

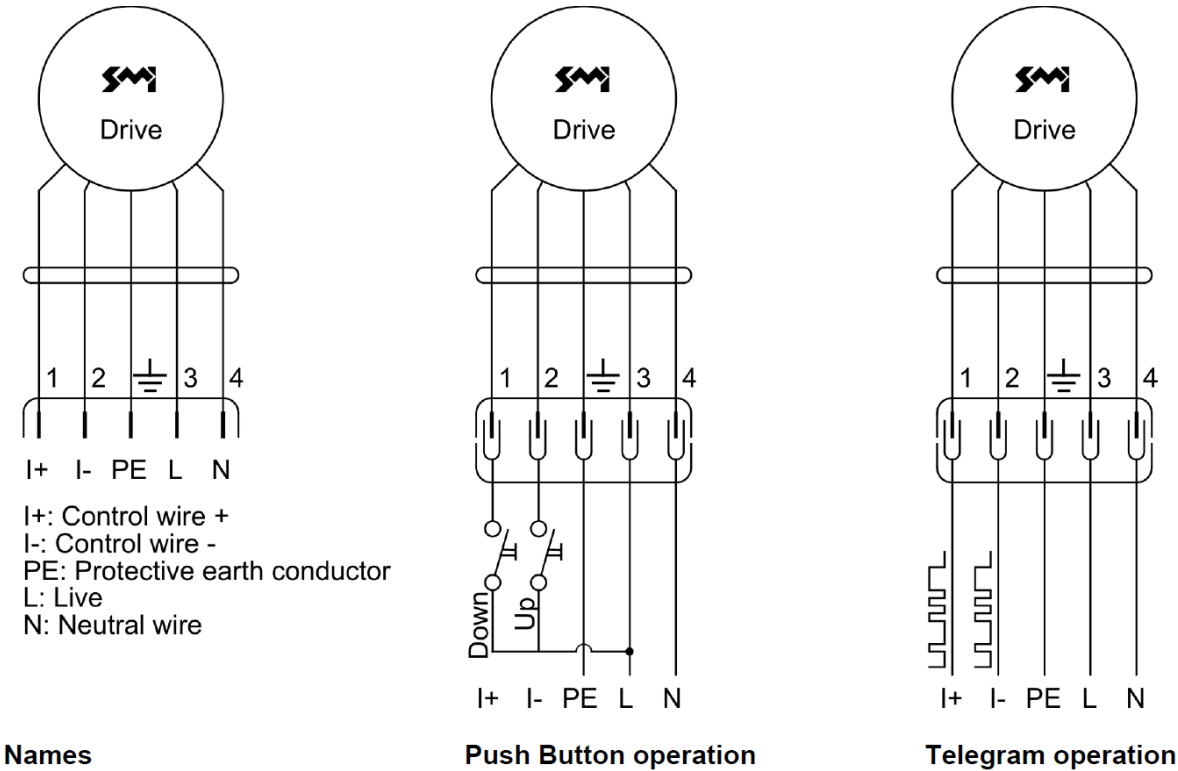
- Connection via 5-core wire
- “I+” and “I-”: SMI telegram transfer
- L, N, PE: Power supply
- Free topology
- SMI cable length max. 350 m
- SMI control voltage 18V DC
- Data transfer 2,400 bit/s
- SMI signal lines are protected against polarity reversal so that an incorrect connection cannot damage the actuator or drives
- The “I+” and “I-” SMI wires can be laid in the motor connection line of the SMI drive or in their own cable



Names and colour codes of the wires for connecting SMI systems

Shutter control with KNX

Conductor assignment for SMI drives for mains voltage



Shutter control with KNX

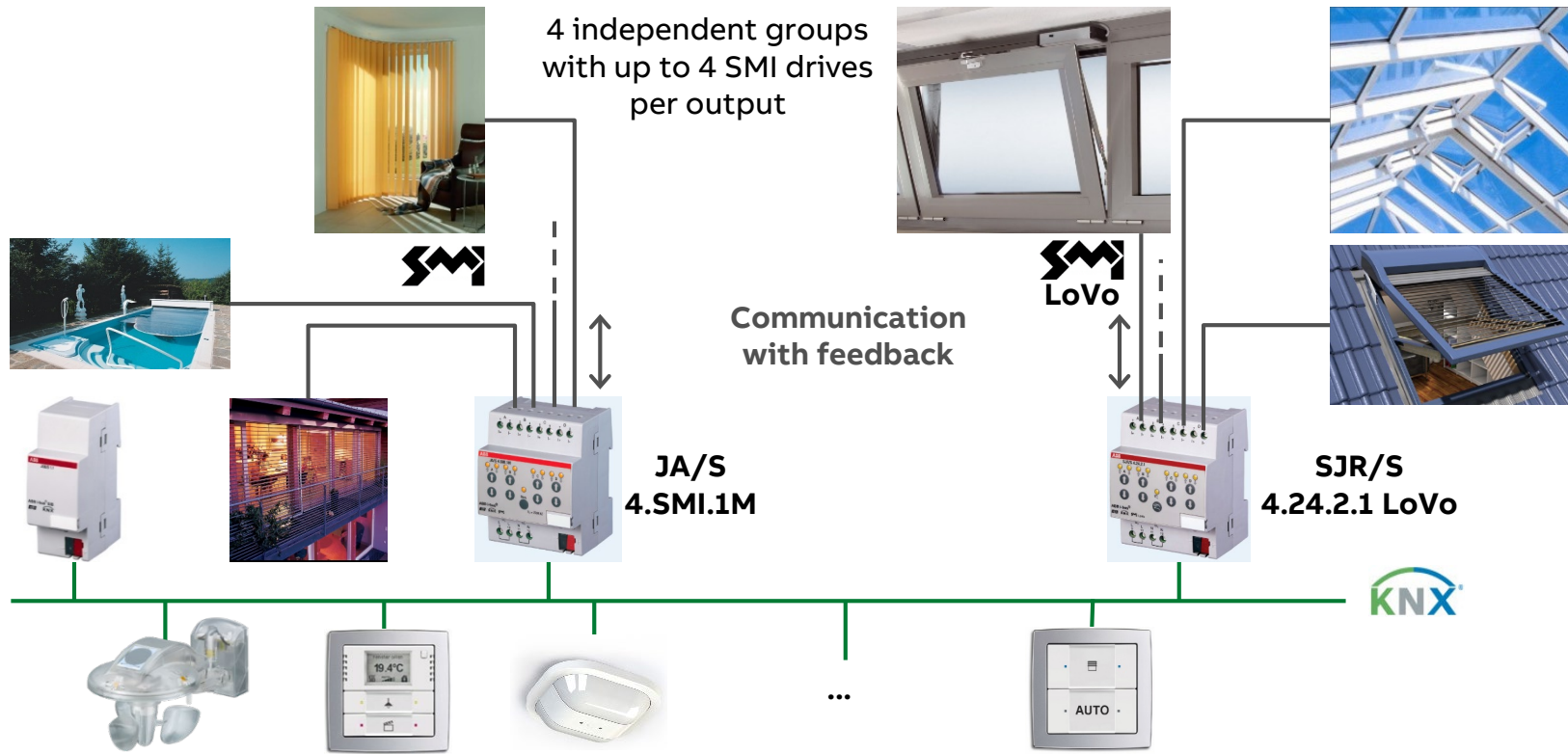
SMI Planning manual

- SMI and building management (technology, ...)
- Development (positioning, advantages, fields of application, ...)
- Planning (principles of sun protection automation, SMI-drive systems, standards, ...)
- Installation (connection scheme, SMI-easy monitor, manual control cable ...)
- Download: www.standard-motor-interface.com



Shutter control with KNX

SMI – Standard Motor Interface



Shutter control with KNX

SMI Blind/Roller Shutter Actuator JA/S 4.SMI.1M

The Shutter Actuator JA/S 4.SMI.1M controls

- Four independent groups (Broadcast Mode)
- Each with up to 4 SMI shutter or roller blind drives (230 V motors)

via the KNX

- No SMI commissioning necessary
- Status signals (motor fault, direction of movement) can also be sent from the SMI drive on KNX
- Manual operation
- Status LEDs



Shutter control with KNX

SMI Blind/Roller Shutter Actuator SJR/S4.24.2.1 LoVo

The Shutter Actuator SJR/S4.24.2.1 LoVo controls

- Four independent groups (Broadcast Mode)
- Each with up to 4 SMI shutter or roller blind drives (24 V motors SMI LoVo)

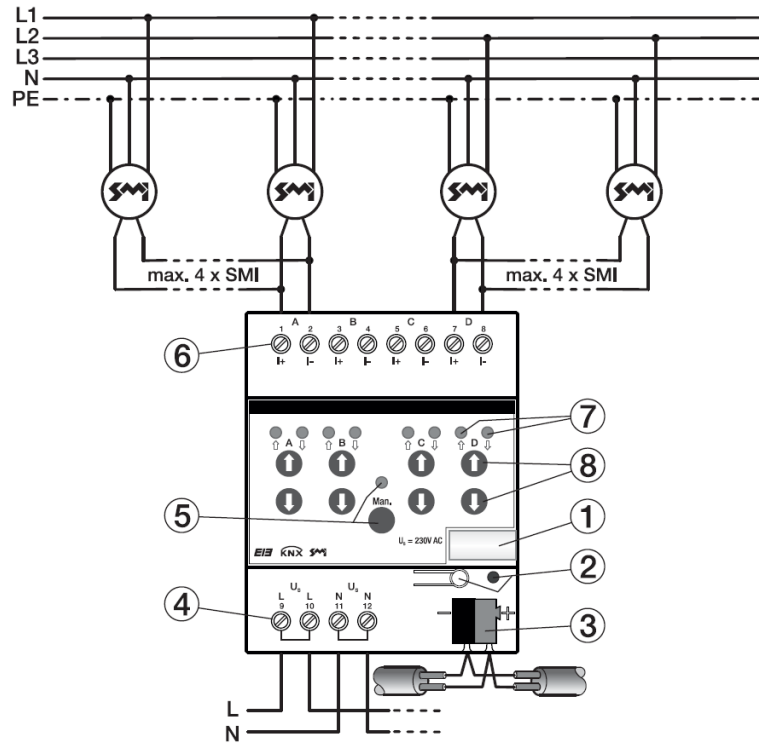
via the KNX

- No SMI commissioning necessary
- Status signals (motor fault, direction of movement) can also be sent from the SMI drive on KNX
- Manual operation
- Status LEDs

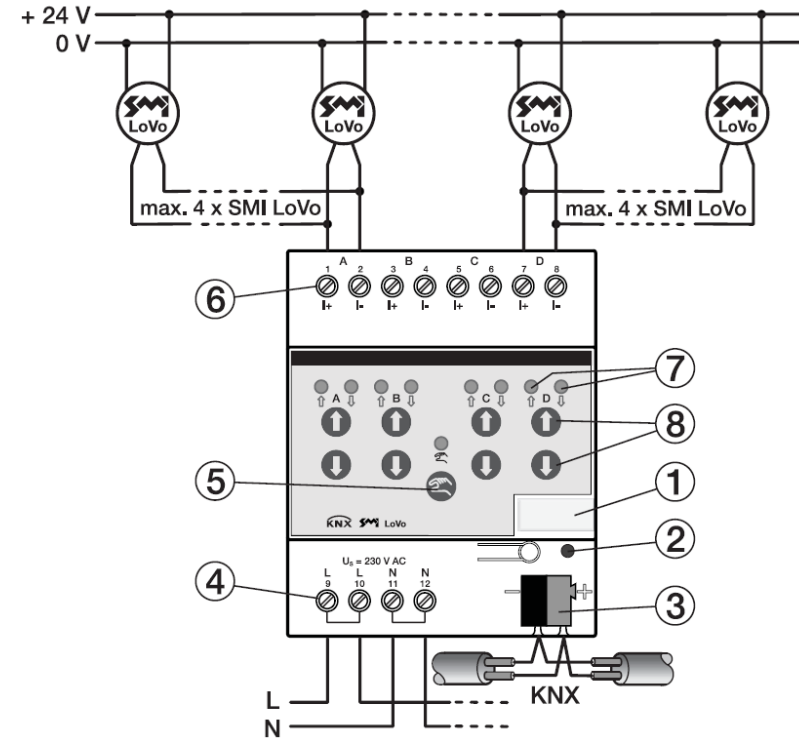


Shutter control with KNX

JA/S 4.SMI.1M



SJR/S 4.24.2.1



Shutter control with KNX

SMI – Standard Motor Interface

The following functions are available with the application program

- Move UP/DOWN, Stop/Louvre adjustment
- Move into position (up to 4 preset positions)
- Set position (modification of the preset position via KNX)
- Move to position 0...100 %
- Scenes
- Sun automatic control
- Heating/cooling automatic control
- Monitoring of wind, rain and frost alarms (cyclical)
- Block and forced operation
- Status messages
- ...

1.6.3 SJR/S4.24.2.1 Blind/RollerShutterAct,4f,SMI LoVo > General

General	Parameter settings	<input checked="" type="radio"/> similar for all outputs <input type="radio"/> individual for every output
Manual		
EIB/KNX	Time-delayed switching of drives	<input checked="" type="radio"/> deactivated <input type="radio"/> activated
Weather		
SMI drives	Maximum telegram rate	1 telegram per second
Output A - D	Allow parameter changes via EIB/KNX	<input checked="" type="radio"/> yes <input type="radio"/> no
Safety	Overwrite parameter changing on download	<input type="radio"/> yes <input checked="" type="radio"/> no
Status		
Position		
Position 1-4		
Auto 1		
Auto 2		
Output A-D scene		
A: Scene		
B: Scene		
C: Scene		
D: Scene		

Shutter control with KNX

SMI – Standard Motor Interface

Status

- Position 0...255
- Louvre/slat 0...255
- Position top
- Position bottom
- Operation
- Automatic control
- Status byte
- SMI failure
- Number of SMI drives
- Diagnostic byte
- ...

1.6.3 SJR/S4.24.2.1 Blind/RollerShutterAct,4f,SMI LoVo > Status		
SMI drives	Send position: 0..255	<input checked="" type="radio"/> yes <input type="radio"/> no
Output A - D	Send position: limit position reached	<input checked="" type="radio"/> yes <input type="radio"/> no
Safety	Send status of operation	<input checked="" type="radio"/> yes <input type="radio"/> no
	Send status of automatic control	<input checked="" type="radio"/> yes <input type="radio"/> no
Status	Send status byte	<input checked="" type="radio"/> yes <input type="radio"/> no
Position	Send status SMI failure	<input checked="" type="radio"/> yes <input type="radio"/> no
Position 1-4	Send status number of SMI drives	<input checked="" type="radio"/> yes <input type="radio"/> no
Auto 1	Send SMI diagnostic byte	<input checked="" type="radio"/> yes <input type="radio"/> no
Auto 2		
Output A-D scene	(The status is always sent after a change of value.)	

Shutter control with KNX

SMI – Standard Motor Interface

SMI status messages (each output)

- One object “SMI failure”(1 bit)
 - “0”: SMI ok
 - “1”: SMI or 230V/24V (motor) has failed
- One object “number of drives”(1 bit)
 - “0”: = number of drives o.k.
 - “1” = number of drives too high/too low
- One object “diagnostic byte”(1 Byte)
 - 7: No communication 6: Motor moves up
 - 5: Motor moves down 4: Motor fault
 - 3: Short-circuit on SMI (hardware fault)
 - 2: More drives detected than configured
 - 1: Less drives detected than configured
 - 0: More than 4 drives detected on SMI

Nur	Name	Object Function	Length	C	R	W	T	U
1	Output A	Move blinds Up-Down	1 bit	C	-	W	-	-
2	Output A	Louvre adj./ Stop Up-Down	1 bit	C	-	W	-	-
3	Output A	Blinds Up-Down limited	1 bit	C	-	W	-	-
4	Output A	Move to position 0..255	1 byte	C	-	W	-	-
5	Output A	Move louvre 0..255	1 byte	C	-	W	-	-
6	Output A	Move to position 1/2	1 bit	C	-	W	-	-
7	Output A	Move to position 3/4	1 bit	C	-	W	-	-
8	Output A	Set position 1/2	1 bit	C	-	W	-	-
9	Output A	Set position 3/4	1 bit	C	-	W	-	-
10	Output A	Activation of aut. Control	1 bit	C	-	W	T	U
11	Output A	Sun	1 bit	C	-	W	T	U
12	Output A	Move to pos. for sun 0..255	1 byte	C	-	W	T	U
13	Output A	Adjust louvres for sun 0..255	1 byte	C	-	W	T	U
14	Output A	Presence	1 bit	C	-	W	T	U
15	Output A	Heating	1 bit	C	-	W	T	U
16	Output A	Cooling	1 bit	C	-	W	T	U
19	Output A	Block	1 bit	C	-	W	-	-
20	Output A	Forced operation	2 bit	C	-	W	-	-
21	Output A	Status of position 0..255	1 byte	C	R	-	T	-
22	Output A	Status louvre 0..255	1 byte	C	R	-	T	-
23	Output A	Status of upper pos.	1 bit	C	R	-	T	-
24	Output A	Status of lower pos.	1 bit	C	R	-	T	-
25	Output A	Status of operation	1 bit	C	R	-	T	-
26	Output A	Status of aut. control	1 bit	C	R	-	T	-
27	Output A	Status byte	1 byte	C	R	-	T	-
28	Output A	Status SMI failure	1 bit	C	R	-	T	-
29	Output A	Status number of drives	1 bit	C	R	-	T	-

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