



ABB i-bus[®] KNX JRA/S 6.230.3.1 Blind/Roller Shutter Actuator with Binary Inputs Product Manual

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1 General

The JRA/S 6.230.3.1 Blind/Roller Shutter Actuator with Binary Inputs provides intelligent building engineering technology for a variety of room applications and partitioning requirements, for example in hotel rooms, apartments, schools or public buildings.

Modern buildings require intelligent building engineering technology for safe and efficient operation. Many buildings worldwide already use networked electrical installations to their fullest potential.

Hotels, hospitals, senior and student residential homes, assisted living accommodation, apartments and much more: the Blind/Roller Shutter Actuator opens up new possibilities for buildings in the residential, purpose-built and hotel sectors.

The 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

In addition to these basic functions, it can be combined with a presence detector to provide additional automation features. The fact that the devices communicate via the KNX bus also makes it possible to use central control functions as well as sending emergency signals from rooms to a control center.

1.1 Using the product manual

This manual provides detailed technical information on the function, installation and programming of the ABB i-bus® KNX JRA/S 6.230.3.1 Blind/Roller Shutter Actuator with Binary Inputs. The device is explained using examples.

This manual is divided into the following chapters:

Chapter 1	General
Chapter 2	Device technology
Chapter 3	Commissioning
Chapter 4	Planning and application
Chapter A	Appendix

1.1.1 Notes


Notes and safety instructions are represented as follows in this manual:

Note
Tips for usage and operation

Examples
Application examples, installation examples, programming examples

Important
These safety instructions are used as soon as there is danger of a malfunction without risk of damage or injury.

Caution
These safety instructions are used as soon as there is danger of a malfunction without risk of damage or injury.

 Danger
These safety instructions are used if there is a danger to life and limb with inappropriate use.

  Danger
These safety instructions are used if there is an extreme danger to life with inappropriate use.

1.2 Overview of product and functions

The Blind/Roller Shutter Actuator controls blinds or shutters. The input signals are detected via binary inputs or directly via the sensors connected to the KNX.

The Blind/Roller Shutter Actuator is a modular installation device with a module width of 12 units in Pro *M* design for installation in the distribution board. It connects to the ABB i-bus® via a bus connection terminal at the front. The device can be operated manually, for example during commissioning, by applying an auxiliary voltage to the bus terminals. Physical address assignment and parametrization are carried out with the ETS Engineering Tool Software.

The device has six changeover contacts for actuating blinds, shutters or window curtains. They can also be programmed as switch outputs, e.g.:

- As a blind output: blinds, curtains or shutters
- As a switch output: switching for lights and consumers

It also has twelve floating binary inputs. These are used to control the blind/shutter channels. They can also be used for the lighting switch function.

The scanning voltage for the binary inputs is provided by the device. The binary inputs are divided into six groups of two.

Overview of the number and allocation of the inputs and outputs:

Inputs	JRA/S 6.230.3.1
Binary via contact scanning	12
Outputs	JRA/S 6.230.3.1
6 A changeover contact (blind) or 6 A switching contact	6

2 Device technology



JRA/S 6.230.3.1

The Blind/Roller Shutter Actuator with Binary Inputs is a modular installation (MDRC) device in Pro *M* design. It is intended for installation in the distribution board on 35 mm mounting rails. Physical address assignment and device parametrization are carried out using ETS and the current application.

The JRA/S 6.230.3.1 is powered via the ABB i-bus® and does not require an additional auxiliary voltage supply. The device is ready for operation after connecting the bus voltage.

2.1 Technical data



Power supply	Bus voltage	21...32 V DC
	Current consumption, bus	Maximum 12 mA (Fan-in 1)
	Leakage loss, bus	Maximum 250 mW
	Leakage loss, device	Maximum 4.8 W *
	Relay 6 A	6 x 0.8 W
* The maximum power consumption of the device results from the following specifications:		
Connections	Blind output	6 x 6 A, AC3, 250 V AC
	KNX	Via bus connection terminals, 2-fold (red/black) 0.8 mm Ø, single core
	Circuits	Screw terminal with universal head (PZ 1) 0.2...4 mm² stranded, 2 x (0.2...2.5 mm²) 0.2...6 mm² single core, 2 x (0.2...4 mm²)
	Ferrules without/with plastic sleeves	without: 0.25...2.5 mm² with: 0.25...4 mm²
	TWIN ferrules	0.5...2.5 mm²
	Tightening torque	Max. 0.6 Nm
Operating and display elements	Push button/LED  	For assignment of the physical address
Protection degree	IP 20	To DIN EN 60 529
Protection class	II	To DIN EN 61 140
Isolation category	Overvoltage category	III according to EN 60 664-1
	Pollution degree	2 to EN 60 664-1
KNX safety extra low voltage	SELV 24 V DC	

ABB i-bus® KNX

Device technology

Temperature range	Operation	-5 °C...+45 °C
	Transport	-25...+70 °C
	Storage	-25...+55 °C
Ambient conditions	Maximum air humidity	93 %, no condensation allowed
Design	Modular installation device (MDRC)	Modular installation device, Pro <i>M</i>
	Dimensions	90 x 216 x 64.5 mm (H x W x D)
	Mounting width in space units	12x 18 mm modules
	Mounting depth	64.5 mm
Installation	On 35 mm mounting rail	To DIN EN 60 715
Mounting position	any	
Weight	0.55 kg	
Housing/color	Plastic housing, gray	
Approvals	KNX to EN 50 090-1, -2	Certification
CE marking	In accordance with the EMC directive and low voltage directive	

2.1.1 Binary inputs

Rated values	Number	12 ¹⁾
	U _n scanning voltage	32 V, pulsed
	I _n scanning current	0.1 mA
	I _n scanning current when switching on	Maximum 355 mA
	Permitted cable length	≤ 100 m one-way, at cross-section 1.5 mm² even when the core is routed in a multi-control cable

¹⁾ All binary inputs are internally connected to the same potential.

2.1.2 Rated current output 6 A

Rated values	Number	6 or 12 contacts
	U _n rated voltage	250/440 V AC (50/60 Hz)
	I _n rated current (per output)	6 A
Switching currents	AC3* operation (cos φ = 0.45) To EN 60 947-4-1	6 A/230 V
	AC1* operation (cos φ = 0.8) To EN 60 947-4-1	6 A/230 V
	Fluorescent lighting load as per DIN EN 60 669-1	6 A/250 V (35 μ F) ¹⁾
	Minimum switching capacity	20 mA/5 V
		10 mA/12 V
		7 mA/24 V
Service life	DC current switching capacity (resistive load)	6 A/24 V=
	Mechanical service life	> 10 ⁷
	Electronic service life To IEC 60 947-4-1	
	AC1* (240 V/cos φ = 0.8)	> 10 ⁵
	AC3* (240 V/cos φ = 0.45)	> 1.5 x 10 ⁴
	AC5a* (240 V/cos φ = 0.45)	> 1.5 x 10 ⁴
Switching times ²⁾	Maximum relay position change per output and minute if only one relay is switched.	2,683

¹⁾ The maximum inrush-current peak may not be exceeded, see [chapter 2.1.3](#).

²⁾ The specifications apply only after the bus voltage has been applied to the device for at least 10 seconds. The typical relay delay is approx. 20 ms.

*What do the terms AC1, AC3 and AC5a mean?

In intelligent installation systems, different switching capacities and performance specifications that are dependent on the special applications have become established in domestic and industrial installations. These performance specifications are rooted in the respective national and international standards. The tests are defined to simulate typical applications, e.g. motor loads (industrial) or fluorescent lamps (residential).

Specifications AC1 and AC3 are switching performance specifications which have become established in the industrial field.

Typical application:

AC1 – Non-inductive or slightly inductive load, resistive furnaces (relates to switching of ohmic/resistive loads)

AC3 – Squirrel-cage motors: starting, switching off motors during running (relates to (inductive) motor load)

AC5a – Switching of electric discharge lamps

These switching performances are defined in the standard EN 60947-4-1 *Contactors and motor-starters - Electromechanical contactors and motor-starters*. The standard describes starters and/or contactors that were originally used primarily in industrial applications.

2.1.3 Lamp load output 6 A

Lamps	Incandescent lamp load	1200 W
Fluorescent lamps T5/T8	Uncompensated	800 W
	Parallel compensated	300 W
	DUO circuit	350 W
Low-voltage halogen lamps	Inductive transformer	800 W
	Electronic transformer	1000 W
	Halogen lamps 230 V	1000 W
Dulux lamp	Uncompensated	800 W
	Parallel compensated	800 W
Mercury-vapor lamp	Uncompensated	1000 W
	Parallel compensated	800 W
Switching capacity (switching contact)	Maximum peak inrush current I_p (150 μ s)	200 A
	Maximum peak inrush current I_p (250 μ s)	160 A
	Maximum peak inrush current I_p (600 μ s)	100 A

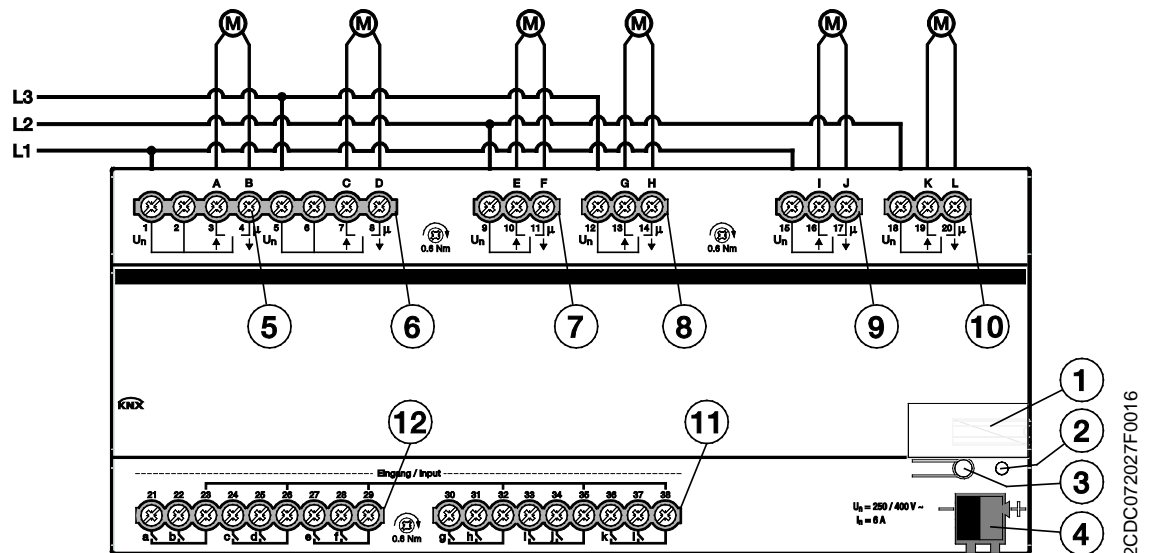
Device type	Application	Max. number of Group objects	Max. number of Group addresses	Max. number of assignments
JRA/S 6.230.3.1	Shutter Actuator binary input 6f12f/...	255	255	255

* ... = Current version number of the application. **Please refer to the software information on our website for this purpose.**

Note

ETS and the current version of the device application are required for programming.
The current version of the application is available for download at www.abb.com/knx. After import into ETS, it is available in ETS under *ABB/Blind/Switch*.
The device does not support the locking function of a KNX device in ETS. Using a *BCU code* to inhibit access to all the project devices has no effect on this device. Data can still be read and programmed.

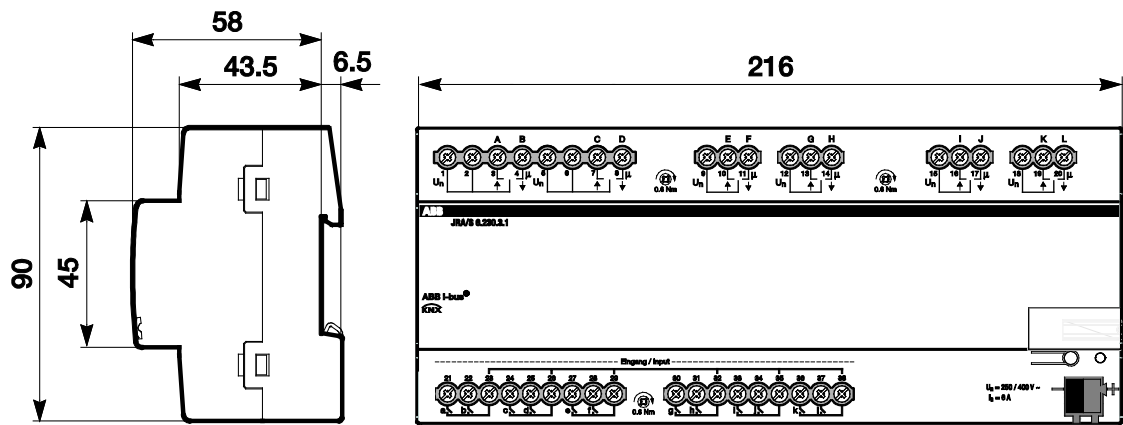
2.2 Connection diagram



JRA/S 6.230.3.1

- 1 Label carrier
- 2 *Programming* LED
- 3 *Programming* button
- 4 Bus connection terminal
- 5 Blind/shutter (A, B)
- 6 Blind/shutter (C, D)
- 7 Blind/shutter (E, F)
- 8 Blind/shutter (G, H)
- 9 Blind/shutter (I, J)
- 10 Blind/shutter (K, L)
- 11 Binary inputs (g, h, i, j, k, l)
- 12 Binary inputs (a, b, c, d, e, f)

2.3 Dimension drawing



2CDC072028F0016

2.4 Mounting and installation

The device is a modular installation device for quick installation in distribution boards on 35 mm mounting rails to DIN EN 60 715.

The installation position can be selected as required.

Electrical connection is via screw terminals. The device connects to the bus via the supplied bus connection terminal. The terminal assignment is located on the housing.

The device is ready for operation after connection to the bus voltage.

The devices must be accessible for the purposes of operation, testing, visual inspection, maintenance and repair in compliance with DIN VDE 0100-520.

Commissioning requirement

In order to commission the device, a PC with ETS, as well as a connection to the ABB i-bus®, e.g. via a KNX interface, is required.

The device is ready for operation after the bus voltage is applied. No additional auxiliary voltage is required.

Mounting and commissioning may only be carried out by electrical specialists. The applicable standards, directives, regulations and specifications for the country in question must be observed when planning and setting up electrical installations and security systems for intrusion and fire detection.

- Protect the device from damp, dirt and damage during transport, storage and operation.
- Only operate the device within the specified technical data!
- The device should only be operated in an enclosed housing (distribution board)!
- Switch off the device supply voltage before mounting.



Danger

To avoid dangerous touch voltages which originate through feedback from differing phase conductors, all poles must be disconnected when extending or modifying the electrical connections.




Supplied state

The device is supplied with the physical address 15.15.255. The application is pre-installed. Hence, only group addresses and parameters need to be loaded during commissioning.

The complete application can be reloaded if required. Downloads may take longer after a change of application or a discharge.

Allocation of the physical address

The assignment and programming of the physical address are carried out in ETS.

The device features a  button for assignment of the physical device address. The red LED  lights up after the button has been pushed. It switches off as soon as ETS has assigned the physical address or the  button is pressed again.

Download response

Depending on the PC that is used, the progress bar for the download may take up to one and a half minutes to appear, due to the complexity of the device.

Cleaning

The voltage supply to the device must be switched off before cleaning. If devices become dirty, they can be cleaned using a dry cloth or a cloth dampened with a soapy solution. Never use corrosive agents or solutions.

Maintenance

The device is maintenance-free. In the event of damage (e.g. during transport and/or storage), do not carry out any repairs.

3 Commissioning

3.1 Supplied state

In the supplied state, all outputs are set to Blind mode.

All inputs are set to 2-button blind operation mode, with the first input assigned to "up" and the second to "down".

Input pairs are always assigned to the output with the same letter (e.g. a, b to A, B)

This means that the outputs can be switched as soon as the bus voltage is applied:

Closing the contact at input a closes relay A, raising the connected blind. Closing the contact at input b closes relay B, lowering the connected blind.

3.2 Overview

The *Shutter Actuator binary input 6f12f* application and ETS Engineering Tool Software 4.2 or later are used to parametrize the device. The application provides the device with a comprehensive and flexible range of functions. The standard settings allow simple commissioning. The functions can be expanded if required.

The available functions are as follows:

Binary input	Twelve binary inputs are available, e.g. Light ON/OFF in the entrance area of the room, in the bathroom and for freestanding or table lamps, move blinds UP/DOWN, and send an emergency signal.
Blind/shutter	Six blind outputs are available. They can also be set as switch outputs.

3.2.1 Input functions

The following table provides an overview of the functions possible with the device inputs and the *Shutter Actuator binary input 6f12f* application:

Input functions	a...l
Switch sensor	■
Switch/dimming sensor	■
Blind sensor	■
Value/forced operation	■

■ = Function is supported

3.2.2 Output functions

The following table provides an overview of the functions possible with device outputs and the *Shutter Actuator binary input 6f12f* application:

Output functions	Blind/shutter output AB, CD, EF, GH, IJ, KL	Switch output A, C, E, G, I, K
Time		
Staircase lighting		■
Switching ON/OFF delay		■
Flashing		■
Scene		
Assignment of the output to scenes	■	■
Bit logic		
AND/OR/XOR or GATE		■
Forced operation		
1 bit or 2 bit		■
Shading control		
Automatic Sun Protection	■	
Safety function	■	

■ = Function is supported

3.3 Parameters

The ETS Engineering Tool Software is used to parametrize the device. The application is available in ETS under *ABB/Blind/Switch*.

This chapter describes the device parameters using the parameter windows. Parameter windows are structured dynamically so that further parameters are enabled depending on the parametrization and function of the outputs.

The default values of the parameters are underlined, e.g.:

Options: Yes
 No

Note
The device features several inputs/outputs. As the functions are identical for all inputs/outputs, they will be explained using input/output A/B as an example.

3.3.1 General parameter window

The higher-level parameters can be set in this parameter window.

General	
+ Output A,B	Sending and switching delay after bus voltage recovery in s [2...255] <input type="text" value="2"/>
+ Output C,D	Rate of telegrams <input type="text" value="Not limited"/>
+ Output E,F	Send group object "In operation" <input type="text" value="No"/>
+ Output G,H	Enable group object "Request status values" 1 bit <input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output I,J	
+ Output K,L	
+ Input a	
+ Input b	
+ Input c	
+ Input d	
+ Input e	
+ Input f	
+ Input g	
+ Input h	
+ Input i	

Sending and switching delay after bus voltage recovery in s [2...255]

Options: 2...255

During the sending and switching delay, telegrams are only received. However, the telegrams are not processed and the outputs remain unchanged. No telegrams are sent on the bus.

After the sending and switching delay, telegrams are sent and the state of the outputs is set to correspond with the parameterization or the communication object values.

If group objects are read out via the bus during the sending and switching delay, e.g. by a visual display system, these requests are stored and a response is sent once the delay time has expired.

An initialization time of about two seconds is included in the delay time. The initialization time is the time that the processor requires before it is ready to function.

How does the device react on bus voltage recovery?

After bus voltage recovery, the device always waits for the sending delay time to elapse before sending telegrams via the bus.

Rate of telegrams

Options: Not limited
 Send maximum 1 telegram/s
 Send telegram every 0.1 s

- *Send maximum 1 telegram/s*: No more than one telegram is sent per second.
- *Send telegram every 0.1 s*: A telegram is sent every 0.1 seconds.

This parameter limits the bus load of the device depending on its parameterization.

Send group object "In operation"

Options: No
 Send value 0 cyclically
 Send value 1 cyclically

The communication object *In operation* indicates the presence of the device on the bus. This cyclic telegram can be monitored by an external device. If a telegram is not received, the device may be defective or the bus cable to the transmitting device may be interrupted.

- *No*: The communication object *In operation* is not enabled.
- *Send value 0/1 cyclically*: The *In operation* group object (no. 0) is sent cyclically via KNX.
The following parameter appears:

Sending cycle time in s [1...65,535]

Options: 1...60...65,535

The time interval, at which the communication object *In operation* (No. 0) cyclically sends a telegram, is set here.

Note

After bus voltage recovery the group object sends its value after the set sending and switching delay.

Enable group object "Request status values" 1 bit

Options: No
 Yes

- *Yes*: The 1-bit communication object *Request status values* is enabled.

Via this communication object, all status messages can be requested, provided that they have been parameterized with the option *After a change or request*.

With the option *Yes*, the following parameters appear:

Request with object value

Options: 0
 1
 0 or 1

- *0*: Sending status messages is requested with the value 0.
- *1*: Sending status messages is requested with the value 1.
- *0 or 1*: Sending status messages is requested with the values 0 or 1.

3.3.2 Output A,B Operation mode parameter window

This parameter window is used to make settings for Output A,B.

The screenshot shows a software interface for configuring Output A,B. On the left, a sidebar contains a tree view with 'General' at the top, followed by 'Output A,B' which is expanded to show 'Operation mode' and 'Disabled'. The main panel on the right is titled 'Operation mode output' and features a dropdown menu currently set to 'Disabled'.

Note

Setting options for outputs A...L are explained below using output A, B.
The setting options for outputs A...L are identical.

Output A,B

(A only for switch actuator)

Options: Disabled
 Switch Actuator
 Blind
 Shutter

- *Disabled*: Output A,B is deactivated/hidden and no group objects are visible.
- *Switch Actuator*: The *Switch actuator (only "UP" contact)* parameter window appears along with dependent group objects.
- *Blind*: The *Blind* parameter window appears along with dependent group objects.
- *Shutter*: The *Shutter* parameter window appears along with dependent group objects.

3.3.2.1 Output A,B: Blind parameter window

All settings for Output A,B: *Blind* are undertaken in this parameter window. It is visible if the *Operation mode* parameter is set to *Blind* in the *Output A,B Operation mode parameter window, p. 21*.

General	Reaction on bus voltage failure	Unchanged
Output A,B	Reaction on bus voltage recovery	Unchanged
Operation mode	Position after reference movement	Back to stored position
Blind	Position of slat after arriving at lower end position	100% (deactivated)
- Drive	Move to position	Direct
Output C,D	Enable function Automatic	<input checked="" type="radio"/> No <input type="radio"/> Yes
Output E,F	Enable function Scene	<input checked="" type="radio"/> No <input type="radio"/> Yes
Output G,H	Enable function "Priority and safety operation"	<input checked="" type="radio"/> No <input type="radio"/> Yes
Output I,J		
Output K,L	Feedback via group objects "Move to position/slat"	<input checked="" type="radio"/> No <input type="radio"/> Yes
Input a	Extra feedback	None

Reaction on bus voltage failure

Options: Unchanged
 UP
 DOWN
 STOP

The output can assume a defined state on bus voltage failure via this parameter.

- *Unchanged*: The relay position of the outputs does not change. Any movements in progress are therefore performed to completion.
- *UP/DOWN/STOP*: Sets a fixed relay contact position.

Note
If the relay has been switched immediately before a bus voltage failure, it may not be possible to implement the options <i>UP</i> and <i>DOWN</i> . The power stored in the Blind/Roller Shutter Actuator is not sufficient for this.

Reaction on bus voltage recovery

Options: Unchanged
 UP
 DOWN
 STOP

This parameter defines how the output should react on bus voltage recovery.

- *Unchanged*: Retains the current state.
- *UP/DOWN/STOP*: Sets a fixed relay contact position.

Position after reference movement

Options: Deactivated; object hidden
 No reaction
 Back to stored position

This parameter enables the *Reference movement* group object and defines how the Blind/Roller Shutter Actuator reacts after a reference movement.

For further information see: Output A,B: Blind and Shutter group objects, p. 109

- *Deactivated*: The *Reference movement* group object is hidden. No referencing can be performed.
- *No reaction*: The blind remains either up or down in the reference position after the reference movement.
- *Back to stored position*: The blind is retracted to the position it was in before the reference movement. If the *Automatic* function was activated for the blind before the reference movement, it is automatically re-activated after the stored position is reached.

Note

If a direct or automatic Movement or Position telegram is received during a reference movement, the reference movement is performed first and the received target position is approached afterwards.

For further information see: Determining the current position p. 118

Position of slat after arriving at lower end position

Options: 100% (deactivated)
 90%
 ...
 10%
 0%

After the blind is moved to the end position, the slats are normally closed. This parameter can be used to define the slat position that the Blind/Roller Shutter Actuator sets when the blind reaches the end position.

The parameter relates to the reaction of the blind if the movement has been triggered via the *Move Blind/Shutter UP/DOWN* group object or by the *Automatic* function.

Move to position

Options: Direct
 Indirectly via upper end position
 Indirectly via lower end position
 Indirectly via shortest way

- *Direct*: The blind moves from the current position straight to the new target position after receiving a Position telegram.
- *Indirectly via upper/lower end position*: The blind will initially move fully up or down after receiving a Position telegram and then move to the target position.
- *Indirectly via shortest way*: The blind will initially move fully upwards or downwards after a Position telegram depending on which direction is the shortest distance. Thereafter, it moves to the target position.

Enable function Automatic

Options: No
 Yes

- No: The parameter window remains disabled and invisible.
- Yes: The - *Automatic* parameter window appears.

Enabling the *Automatic* function enables the *Automatic* parameter window, where further settings can be made.

Enable function Scene

Options: No
 Yes

- No: The parameter window remains disabled and invisible.
- Yes: The - *Scene* parameter window appears.

Enabling the *Scene* function enables the - *Scene* parameter window, where further settings can be made, e.g. the assignment of the output to a scene.

Enable function "Priority and safety operation"

Options: No
 Yes

- No: The parameter window remains disabled and invisible.
- Yes: The - *Safety* parameter window appears.

Enabling the *Safety* function enables the - *Safety* parameter window, where further settings can be made.

Feedback via group objects "Move to position/slat"

Options: No
 Yes

This parameter defines whether the group object *Move to position/Adjust slat* [0...255] sends a status response.

- Yes: The following parameter appears:

Send object value

Options: No, update only
 On change
 After request
 After a change or request

- *No, update only*: The status is updated but not sent.
- *On change*: The status is sent when a change occurs.
- *After request*: The status is sent when a request occurs.
- *After a change or request*: The status is sent when a change or request occurs.

Extra feedback

Options: None
 End positions
 Status byte

An additional status response can be enabled with this parameter.

- *None*: There is no feedback.
- *End positions*: This enables the group objects *Status Lower end position* and *Status Upper end position*. These indicate that the blind is in the upper or lower position (measured based on total travel time).
- *Status byte*: This enables the group object *Status byte*. This contains further information in coded form.

The following parameters appear when *End positions* or *Status byte* is selected:

Send object value

Options: No, update only
 On change
 After request
 After a change or request

- *No, update only*: The status is updated but not sent.
- *On change*: The status is sent when a change occurs.
- *After request*: The status is sent when a request occurs.
- *After a change or request*: The status is sent when a change or request occurs.

3.3.2.1.1 **Output A,B: Blind - Drive parameter window**

All settings for the blind drive are undertaken in this parameter window. It is visible if the *Operation mode* parameter is set to *Blind* in the Output A,B Operation mode parameter window, p. 21.

General	Total travel time in s [1...18,000]	60
Output A,B	Slat adjustment switch on duration in ms [30...65,535]	300
Operation mode	Slat adjustment total travel time [0...100] in ms [30...65,535]	1200
Blind	Reversing time delay in ms[50...5,000] (see techn. data of the drive!)	700
- Drive	Outputs are disconnected from voltage after	Total travel time + 10% overrun

Total travel time
in s [1...18,000]
Options: 1...60...18,000

This parameter defines the total travel time from the upper end position to the lower end position.

Slat adjustment switch on duration
in ms [30...65,535]
Options: 30...300...65,535

This parameter determines the switch on duration for slat adjustment, i.e. the time for which a slat is rotated after it receives a *STOP/Slat adjustment* telegram.

Slat adjustment total travel time
[0...100] in ms [30...65,535]
Options: 30...1,200...65,535

This parameter determines the total travel time for slat adjustment, i.e. the time a slat requires to rotate from one end position to the other.

Note
On larger slats there is a mechanical dead zone time involved until the blind reacts. For this reason, the total slat travel time will be extended by this reaction time.

Reversing time delay in ms [50...5,000]
(see techn. data of the drive!)
Options: 50...700...5,000

This parameter defines the duration of the minimum reversing time between two directions of travel.

Outputs are disconnected from voltage after

Options:

- End position, no overrun
- End position + 2% overrun
- End position + 5% overrun
- End position + 10% overrun
- End position + 20% overrun
- Total travel time + 10% overrun

- *End position...*: The application calculates the travel time required from the current position to the end position. On reaching the end position (the very top or bottom), the blind drive will switch off independently. A so-called "overrun" can be set to ensure that the Blind/Roller Shutter Actuator safely reaches the end position. Thus, the voltage remains applied for a short time so as to move the drive definitively to the end position.
- *Total travel time + 10% overrun*: The blind drive is always activated for the set total travel time + 10% regardless of the current position of the blind.

For further information see: Travel times, p. 115

3.3.2.1.2 **Output A,B: Blind - Automatic parameter window**

This parameter window is used to make settings for the *Automatic* function. It is visible if the *Enable function Automatic* parameter is set to *Yes* in the *Output A,B: Blind parameter window*, p. 22.

General	Deactivation by direct operation <input checked="" type="radio"/> No <input type="radio"/> Yes	
Output A,B		
Operation mode		
Blind		
- Drive		
- Automatic		
	Position for sun = 1 (sun)	Receive position via 8-bit values
	Delay for sun = 1 in s [0...65,535]	60
	Position for sun = 0 (no sun)	UP
	Delay for sun = 0 in s [0...65,535]	60

The *Automatic* function enables simple automatic sun protection, and automatic protection against dazzle in conjunction with the Shutter Control Unit.

For further information see: [Automatic sun protection, p. 120](#) and [Output A,B: Blind and Shutter group objects, p. 109](#)

Deactivation by direct operation

Options: ☒ No
☐ Yes

This parameter defines how the *Automatic* function is deactivated: via either the *Activation of autom. control* group object or via *direct operation*.

Note
The position of the blind or shutter is also stored in the event of bus voltage failure if the <i>Automatic</i> function is activated. The blind or shutter remains in the same position. On bus voltage recovery, the position is retained and the group object value is undefined. The value is not updated until the next Move telegram. If the <i>Activation of autom. control</i> group object has not been assigned a group address, the <i>Automatic</i> function is deactivated when there is a download. If Automatic is active, it remains on after a download until the next manual override or until it is deactivated by the <i>Activation of autom. control</i> group object.

- Yes: The following parameter appears:

**Automatic reactivation
of automatic control**

Options: No
 Yes

If automatic control has been deactivated via a telegram to the direct group objects, it can be automatically reactivated after the parametrized time has elapsed. This function is also particularly suitable if no additional button is available for the activation or deactivation of automatic control.

- Yes: The following parameter appears:

**Automatically reactivate after
in min [10...6,000]**

Options: 10...300...6,000

The parameter defines the time period for automatic reactivation of automatic control. If automatic control is interrupted during the parametrized time by a direct group object, the parametrized time restarts from 0 (retriggering).

Note
Changes to the parameter value do not take effect until after the next deactivation of automatic control.

Position for sun = 1 (sun)

Options: No reaction
 UP
 DOWN
 STOP
 Receive position via 8-bit values

This parameter defines the reaction for sun = 1 (sun) in automatic sun protection mode.

- *No reaction*: The current movement is completed.
- *UP*: The blind moves UP.
- *DOWN*: The blind moves DOWN.
- *STOP*: The output is electrically disconnected, i.e. a moving blind is stopped.
- *Receive position via 8-bit values*: The blind moves to the position by receiving an 8-bit value from group objects *Move to pos. for sun [0..255]* or *Adjust slat for sun [0..255]*.

Delay for sun = 1 in s [0...65,535]

Options: 0...60...65,535

This parameter defines the delay on activation of *Position for sun = 1*.

Via this parameter you can, for example, prevent the blind moving UP and DOWN if the sun is only overcast for a short period of time.

Position for sun = 0 (no sun)

Options: No reaction
 UP
 DOWN
 STOP
 Receive position via 8-bit values

Defines the reaction for sun = 0 (no sun) in automatic sun protection mode.

- *No reaction*: The current movement is completed.
- *UP*: The blind moves UP.
- *DOWN*: The blind moves DOWN.
- *STOP*: The output is electrically disconnected, i.e. a moving blind is stopped.
- *Receive position via 8-bit values*: The blind moves to the position by receiving an 8-bit value from group objects *Move to pos. for sun [0..255]* or *Adjust slat for sun [0...255]*.

Delay for sun = 0 in s [0...65,535]

Options: 0...60...65,535

This parameter defines the delay on activation of Position if sun = 0.

Via this parameter you can, for example, prevent the blind moving UP and DOWN if the sun is only overcast for a short period of time.

3.3.2.1.3

Output A,B: Blind - Scene parameter window

All settings for the *Scene* function are undertaken in this parameter window.

It is visible if the *Enable function Scene* parameter is enabled in [Output A,B: Blind parameter window, p. 22](#).

General		Set standard values after download or ETS reset <input type="radio"/> No <input checked="" type="radio"/> Yes	
- Output A,B			
Operation mode		Assignment to scene number (No. 1...64, 0 = no assignment) <input type="text" value="1"/>	
Blind		Standard value position in % [0...100] <input type="text" value="0"/>	
- Drive		Standard value slat in % [0...100] <input type="text" value="0"/>	
- Automatic			
- Scene		Assignment to scene number (No. 1...64, 0 = no assignment) <input type="text" value="0"/>	
- Safety			
+ Output C,D		Assignment to scene number (No. 1...64, 0 = no assignment) <input type="text" value="0"/>	
+ Output E,F		Assignment to scene number (No. 1...64, 0 = no assignment) <input type="text" value="0"/>	
+ Output G,H		Assignment to scene number (No. 1...64, 0 = no assignment) <input type="text" value="0"/>	
+ Output I,J		Assignment to scene number (No. 1...64, 0 = no assignment) <input type="text" value="0"/>	
+ Output K,L		Assignment to scene number (No. 1...64, 0 = no assignment) <input type="text" value="0"/>	
+ Input a		Assignment to scene number (No. 1...64, 0 = no assignment) <input type="text" value="0"/>	
+ Input b		Assignment to scene number (No. 1...64, 0 = no assignment) <input type="text" value="0"/>	
+ Input c		Assignment to scene number (No. 1...64, 0 = no assignment) <input type="text" value="0"/>	
+ Input d		Assignment to scene number (No. 1...64, 0 = no assignment) <input type="text" value="0"/>	

How is a scene set?

Via the *Scene* group object

- The scene can be recalled.
- The scene can be changed.
- The scene can be saved.

An example:

Scene recall:

- Send value 0-63 for the scene (no. 1-64) to the *Scene* group object.

Scene change and save:

- Scene no. 24 is assigned to the output with the value move UP.
- Scene no. 24 should be assigned to the output with the value move DOWN.
 - Set the output to move DOWN with a Switch telegram.
 - Send value 151 (128 + 23) to store scene number 24 to the *Scene* group object.

General values for scene storage:

- 128 + (0...63) for the scene (No. 1...64)
 - The stored scene values are retained until there is a device reset.

Note

The saved scene values are retained in the event of a bus voltage failure.
After a device reset, the parametrized scene values can be reactivated.
For further information see: [ETS reset, p. 137](#).

Set standard values after download or ETS reset

Options: No
 Yes

- No: The standard values are not applied after a download or ETS reset.
- Yes: The standard values are applied after a download or ETS reset.

Assignment to scene number (No. 1...64, 0 = no assignment)

Options: 0...64

The scene values are undefined by default and must therefore be learned once via the bus.

The *Scene* function manages up to 64 different scenes via a single group address. With this group address, all slaves integrated into a scene are linked via a 1-byte group object. The following information is contained in a telegram:

- Scene number (1...64) and
- Telegram: Recall scene or Store scene.

Each blind can be integrated in up to eight scenes. For example, the scene can move the blind UP in the morning and DOWN in the evening, or the blind can also be integrated into a light scene.

If a telegram is received on the *Scene* group object, on all outputs assigned to the sent scene number the blind moves to the stored scene position or stores the current position as the new scene position.

For further information see: Group objects Output E, F: Blind and Shutter, p. 109, Scene function, p. 133 and Code table, 8 bit scene, p. 143

Standard value position in % [0...100]

Options: 0...100

This parameter determines the position, in percent, to which the blind should move when the scene is recalled.

Standard value slat in % [0...100]

Options: 0...100

This parameter determines the slat position, in percent, to which the blind should move when the scene is recalled.

3.3.2.1.4

Output A,B: Blind - Safety parameter window

All settings for the *Safety* function are undertaken in this parameter window. It is visible if the *Enable function Safety* parameter is enabled in Output A,B: Blind parameter window, p. 22.

General	Reaction on bus voltage failure	Unchanged
Output A,B	Reaction on bus voltage recovery	Unchanged
Operation mode	Position after reference movement	Back to stored position
Blind	Position of slat after arriving at lower end position	100% (deactivated)
- Drive	Move to position	Direct
- Automatic	Enable function Automatic	<input type="radio"/> No <input checked="" type="radio"/> Yes
- Scene	Enable function Scene	<input type="radio"/> No <input checked="" type="radio"/> Yes
- Safety	Enable function "Priority and safety operation"	<input type="radio"/> No <input checked="" type="radio"/> Yes
+ Output C,D	Feedback via group objects "Move to position/slat"	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output E,F	Extra feedback	None
+ Output G,H		
+ Output I,J		

Safety operation A active

This parameter is set to Yes.

Activate safety operation on object value

Options: $\frac{1}{0}$

- 1: The safety operation is triggered by the value 1.
- 0: The safety operation is triggered by the value 0.

Position on safety operation

Options: Unchanged
UP
DOWN
STOP

This parameter defines the reaction to the triggering of a safety operation.

- *Unchanged*: The blind remains unchanged in its position and/or the current movement is completed.
- *UP*: The blind moves UP.
- *DOWN*: The blind moves DOWN.
- *STOP*: The output is electrically disconnected, i.e. a moving blind is stopped.

Cyclic monitoring time in s [0...65,535, 0 = no monitoring]

Options: 0...65,535

The parameter defines the intervals at which the safety is monitored. If set to 0, the safety is not monitored. If the *Safety A* group object does not receive a telegram after the set monitoring time, the safety operation is activated.

Note

The monitoring time restarts after ETS reset and bus voltage recovery.

Important

On bus voltage recovery, the safety operation remains active until enable is resent.

Safety operation B active

Options: No
 Yes

This parameter defines how safety operation B is activated.

Note

The setting options for Safety operation B are the same as for Safety operation A, see above.

Position with cancelling of the safety operation

Options: Unchanged
 UP
 DOWN
 STOP
 Back to stored position

This parameter defines the position to which the shutter/blind moves after the safety operation is canceled.

- *Unchanged*: The blind remains unchanged in its position and/or the current movement is completed.
- *UP*: The blind moves UP.
- *DOWN*: The blind moves DOWN.
- *STOP*: The output is electrically disconnected, i.e. a moving blind is stopped.
- *Back to stored position*: The blind is moved to its preset position.

3.3.2.2

Output A,B: Switch actuator (only "UP" contact) parameter window

All settings for the parameter window *A: Output* are undertaken in this parameter window. The explanations below also apply to outputs *C, E, G, I and K*.

This parameter window is visible if the *Operation mode* parameter is set to *Switch actuator (only "UP" contact)* in the *Output A,B Operation mode* parameter window, p. 22.

General	Reaction of output	<input type="radio"/> N/C <input checked="" type="radio"/> N/O
Output A,B	Contact position on bus voltage failure	Unchanged
Operation mode	Object value "Switch" on bus voltage recovery	Do not write
Switch actuator (only "UP" c...		
Output C,D	Enable function Time	<input checked="" type="radio"/> No <input type="radio"/> Yes
Output E,F	Enable function Scene	<input checked="" type="radio"/> No <input type="radio"/> Yes
Output G,H	Enable function Connection/Logic	<input checked="" type="radio"/> No <input type="radio"/> Yes
Output I,J	Enable function Forced operation	<input checked="" type="radio"/> No <input type="radio"/> Yes
Output K,L	Enable communication object "Status Switch" 1-bit	<input type="radio"/> No <input checked="" type="radio"/> Yes
Input a	Send object value	On change
	Object value of contact position	<input checked="" type="radio"/> 1 = closed, 0 = open <input type="radio"/> 0 = closed, 1 = open

Reaction of output

Options: N/C
N/O

This parameter sets whether the output operates as a *normally closed contact* or *normally open contact*.

- *Normally opened contact*: An ON telegram (1) closes the contact, and an OFF telegram (0) opens the contact.
- *Normally closed contact*: An ON telegram (1) opens the contact, and an OFF telegram (0) closes the contact.

Contact position on bus voltage failure

Options: Open
Closed
Unchanged

The output can assume a defined state on bus voltage failure via this parameter.

- *Open*: The contact is opened on bus voltage failure.
- *Closed*: The contact is closed on bus voltage failure.
- *Unchanged*: The contact setting does not change.

Note

Take note of the reaction on bus voltage failure, recovery and download.

Object value "Switch" on bus voltage recovery

Options: Do not write
 Write with "0"
 Write with "1"

This parameter allows the output to be influenced by the value of the *Switch* group object on bus voltage recovery.

The *Switch* group object can be written with either 0 or 1 when the bus voltage recovers. The contact position is redefined and set based on the set device parametrization.

- *Do not write*: The group object assumes the value 0. This value remains in place until changed by the bus and is not recalculated until this point.

Note

Take note of the reaction on bus voltage failure, recovery and download.

The blind/shutter actuator draws the energy for switching the contact from the bus. After bus voltage is applied, it takes about ten seconds before sufficient energy is available to switch all contacts simultaneously.

Depending on the sending and switching delay on bus voltage recovery set in the *General* parameter window, the individual outputs will only assume the required contact position after this time.

If a shorter time is set, the JRA/S will only switch the first contact when sufficient energy is stored in the blind/shutter actuator, in order to ensure that enough energy is available to immediately switch all outputs safely to the required contact position if there is another bus voltage failure.

Enable function Time

Options: No
 Yes

- *No*: The parameter window remains disabled and invisible.
- *Yes*: The - *Time* parameter window appears.

Enabling the *Time* function enables the - *Time* parameter window. Further settings can be made here, e.g. on and off delays or staircase lighting.

Note

For a more precise description of the function, see [Output A group objects](#) , p. 106

Enable function Scene

Options: No
 Yes

- No: The parameter window remains disabled and invisible.
- Yes: The - *Scene* parameter window appears.

Enabling the *Scene* function enables the - *Scene* parameter window. Further settings can be made here, e.g. assign the output to a scene or standard value.

Enable function Connection/Logic

Options: No
 Yes

- No: The parameter window remains disabled and invisible.
- Yes: The - *Logic* parameter window appears.

Enabling the *Connection/Logic* function enables the - *Logic* parameter window. Further settings can be made here, e.g. connection and function of logical connection.

Enable function Forced operation

Options: No
 Yes

Enabling the *Forced operation* function enables the - *Forced Operation* parameter window, where further forced operation settings can be made.

Enable communication object "Status Switch" 1-bit

Options: No
 Yes

Caution

If an internal connection with an output is selected, and at the same time the reaction to an event is parametrized with TOGGLE, the binary input's *Switch 1* group object is updated with the inverted value of the output's *Status Switch* group object.

Ensure that the output's *Status Switch* group object is enabled. The *N/C* / *N/O* settings should be parametrized so that TOGGLE is possible.

- Yes: The following parameters appear:

Send object value

Options: No, update only
 On change
 After request
 After a change or request

- *No, update only*: The status is updated but not sent.
- *On change*: The status is sent when a change occurs.
- *After request*: The status is sent when a request occurs.
- *After a change or request*: The status is sent on a change or a request.

Object value of contact position

Options: 1=closed, 0=open
 0 = closed, 1 = open

This parameter defines the communication object value of the switch status (*Status switch*).

- *1 = Closed, 0 = Open*: A closed contact is represented by group object value 1 and an open contact is represented by the value 0.
- *0 = Closed, 1 = Open*: A closed contact is represented by group object value 0 and an open contact is represented by the value 1.

Note

The contact position and thus the switch status can be the result of a series of priorities and connections.

3.3.2.2.1 Output A,B: Switch actuator - Time parameter window

All settings for the *Time* function – *Staircase lighting*, *Switching ON/OFF delay* and *Flashing* – are undertaken in this parameter window.

This parameter window is visible if the *Enable function Time* parameter is enabled in Output A,B: Switch actuator (only "UP" contact) parameter window, p. 38.

General	Time function	Staircase lighting
– Output A,B	Staircase lighting time in s [1...65,535]	30
Operation mode	Extending staircase lighting time by multiple switch on ("Pumping up")	Yes (retriggerable)
Switch actuator (only "UP" co...	Staircase lighting can be switched	ON with 1 and OFF with 0
- Time	Staircase lighting starts after permanent ON is ended	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output C,D	Object value "Disable function Time" on bus voltage recovery	0, i.e., enable function Time

Explanations of the *Time* functions and sequences are provided in Planning and application, p. 115. Please also observe Function diagram, p. 126, from which the switching and timing priorities originate.

Note
Observe the contact life span and switching cycles per minute. For the contact life and switching operations per minute, see <u>Technical data, p 7</u>

Time function

Options: Staircase lighting
 Switching ON/OFF delay
 Flashing

This parameter defines the type of *Time* function for each output.

- *Staircase lighting*: The value that switches the staircase lighting on and off can be parametrized. The staircase lighting time starts when the function is switched on. It is switched off immediately after the staircase lighting time ends.

Note
The <i>Staircase lighting</i> function can also be called via the <i>Switch, Logical connection x</i> (x = 1, 2) group object or with a light scene recall.

- *Switching ON/OFF delay*: The output can be switched on or off with a delay via this function.
- *Flashing*: see Output A,B: Switch actuator - Time, - Flashing parameter window, p. 47.

The following parameters appear when *Staircase lighting* is selected:

Staircase lighting time

in s [1...65,535]

Options: 1...30...65,535

The staircase lighting time defines how long the contact is closed – provided that the output is parametrized as a normally open contact – and how long the light remains on after an ON telegram. The value is input in seconds.

Extending staircase lighting time by multiple operation ("Pumping up")

Options: no (not retriggerable)
Yes (retriggerable)
Up to max. 2 x staircase lighting time
Up to max. 3 x staircase lighting time
Up to max. 4 x staircase lighting time
Up to max. 5 x staircase lighting time

If a further ON telegram is received during the staircase lighting time sequence, the remaining staircase lighting time can be extended. This is possible by repeated operation of the push button ("pumping up") until the maximum parametrized number of retriggering operations is reached. The maximum time can be set to 1, 2, 3, 4 or 5 times the staircase lighting time.

Let's say the staircase lighting time has been extended by "pumping up" to the maximum time. If some of the time has already timed out, the staircase lighting time can be re-extended to the maximum time by "pumping up". However, the parametrized maximum time may not be exceeded.

- *No (not retriggerable)*: The receipt of an ON telegram is ignored. The staircase lighting time continues unmodified to completion.
- *Yes (retriggerable)*: New ON telegrams reset the staircase lighting time and it starts to count again. This option allows the process to be repeated as often as desired.
- *Up to max. 2/3/4/5 x staircase lighting time*: New ON telegrams extend the staircase lighting time by 2/3/4/5 times.

Staircase lighting can be switched

Options: ON with 1 and OFF with 0
ON with 1 no action with 0
ON with 0 or 1, switch OFF not possible

This parameter defines the telegram value used for switching the staircase lighting on and off prematurely.

- *ON with 0 or 1, switch OFF not poss.*: The function *Staircase lighting* is switched on independently of the value of the incoming telegram. Premature switch off is not possible.

Staircase lighting starts after permanent ON is ended

Options: No
 Yes

- *No*: The lighting switches off if *Permanent ON* is ended.
- *Yes*: The lighting remains on and the staircase lighting time restarts.

The function of Permanent ON is controlled via the *Permanent ON* communication object value. If the communication object receives a telegram with the value 1, the output is switched on regardless of the value of the communication object *Switch* and remains switched on until the communication object *Permanent ON* has the value 0.

Object value "Disable function Time" on bus voltage recovery

Options: Unchanged
 1, i.e., disable function Time
 0, i.e., enable function Time

This parameter defines how the *Time* function should react after bus voltage recovery. The *Time* function can be disabled with a telegram to the *Disable function Time* group object.

- *Unchanged*: The *Time* function continues unchanged.

Note
The state of the <i>Time</i> function is stored on bus voltage failure and continues unchanged after bus voltage recovery.

- *1, i.e., disable function time*: A telegram with the value 1 disables the *Time* function.

Note
Enabling is only possible via the group object <i>Disable function Time</i> .

- *0, i.e., enable function time*: A telegram with the value 0 enables the *Time* function.

Note
If the staircase lighting is disabled when the function <i>Time</i> is operational, the light will stay at ON until it is switched to OFF manually.

How does the staircase lighting react on bus voltage failure?

Reaction in the event of bus voltage failure is specified by the parameter *Contact position on bus voltage failure* in the *Switch actuator (only "UP" contact)* parameter window.

How does the staircase lighting react on bus voltage recovery?

Reaction on bus voltage recovery is defined by two conditions.

1. By the communication object *Disable function time*. If staircase lighting is disabled after bus voltage recovery, it can only be switched on or off via the communication object *Switch*.
2. By the parameterization of the communication object *Switch*. Whether the light is switched on or off on bus voltage recovery depends on the settings of *Switch*.

The following parameters appear when *Switching ON/OFF delay* is selected:

General	Time function	Switching ON/OFF delay ▼
— Output A,B	Switching ON delay in s [0...65,535]	5 ▲ ▼
Operation mode	Switching OFF delay in s [0...65,535]	5 ▲ ▼
Switch actuator (only "UP" co...	Switching delays retriggerable	<input type="radio"/> No <input checked="" type="radio"/> Yes
- Time	Object value "Disable function Time" on bus voltage recovery	0, i.e., enable function Time ▼

Explanations for Switching ON/OFF delay are provided in [Switching ON/OFF delay, p. 129](#). You will also find a timing diagram as well as explanations on the effect of various ON and OFF telegrams in combination with Switching ON/OFF delay.

Switching ON delay in s [0...65,535]

Options: 0...5...65,535

This determines how long an ON telegram is delayed after switching on.

Switching OFF delay in s [0...65,535]

Options: 0...5...65,535

This determines how long switching OFF is delayed after a switch OFF telegram.

Switching delays retriggerable

Options: No
 Yes

- No: The delay time cannot be retriggered.
- Yes: The delay time can be retriggered.

Object value "Disable function Time" on bus voltage recovery

Options: Unchanged
 1, i.e., disable function Time
 0, i.e., enable function Time

This parameter defines how the *Time* function should react after bus voltage recovery. The *Time* function can be disabled or enabled with a telegram to the *Disable function Time* group object.

- *Unchanged*: After bus voltage recovery, the *Time* function reacts in the same way as before bus voltage failure.
- *1, i.e., disable function time*: A telegram with the value 1 disables the *Time* function.
- *0, i.e., enable function time*: A telegram with the value 0 enables the *Time* function.

3.3.2.2.2

Output A,B: Switch actuator - Time, Flashing parameter window

All settings for the *Time* function – *Staircase lighting*, *Switching ON/OFF delay* and *flashing* – are undertaken in this parameter window. It is visible if the *Enable function Time* parameter is enabled in Output A,B: Switch actuator (only "UP" contact) parameter window, p. 38.

General	Time function	Blinking ▼
– Output A,B	Observe the contact life span and switching cycles per minute.	
Operation mode	Flashing if group object "Switch" is	ON (1) or OFF (0) ▼
Switch actuator (only "UP" co...	Duration for ON in value x 0.1 s [5...65,535]	10 ▲▼
- Time	Duration for OFF in value x 0.1 s [5...65,535]	10 ▲▼
+ Output C,D	Number of pulses [1...100]	5 ▲▼
+ Output E,F	Contact position after flashing	Calculate present contact position ▼
+ Output G,H	Object value "Disable function Time" on bus voltage recovery	0, i.e., enable function Time ▼

Observe the contact life span and switching cycles per minute.

Note
For the contact life and switching operations per minute, see Technical data, p 7

Time function

Options: [Staircase lighting](#)
Switching ON/OFF delay
Flashing

This parameter defines the type of *Time* function for each output.

- *Staircase lighting*: The staircase lighting is switched via an ON telegram from the output A *Switch* group object, the value of which can be parametrized. The staircase lighting time starts when the function is switched on. It is switched off immediately after the staircase lighting time ends.

Note
The <i>Staircase lighting</i> function can also be called via the <i>Switch, Logical connection x</i> (x = 1, 2) group object or with a light scene recall.

- *Switching ON/OFF delay*: The output can be switched on or off with a delay via this function.

- **Flashing:** The output starts to flash as soon as the *Switch* group object receives the parametrized value. The flashing period can be adjusted via the parametrized time duration for ON or OFF. At the start of the flashing period, the output is switched on with a normally open contact and off with a normally closed contact. When the *Switch* group object receives a new value, the flashing period will restart. The relay state after flashing can be parametrized. Flashing can be inverted when the output is used as a normally closed contact. The *Status Switch* group object indicates the current relay state during flashing.

The following parameters appear when *flashing* is selected:

Flashing if group object "Switch" is

Options: ON (1)
 OFF (0)
 ON (1) or OFF (0)

This determines the value of the *Switch* group object which makes the output flash. Flashing is not retriggerable.

- *ON (1)*: flashing starts when a telegram with the value 1 is received on the *Switch* group object. A telegram with the value 0 ends flashing.
- *OFF (0)*: flashing starts when a telegram with the value 0 is received on the *Switch* group object. A telegram with the value 1 ends flashing.
- *ON (1) or OFF (0)*: A telegram with the value 1 or 0 triggers flashing. Flashing cannot be suspended in this case.

Duration for ON in value x 0.1 s [5...65,535]

Options: 5...10...65,535

This parameter defines how long the output is switched ON during a flashing period.

Duration for OFF in value x 0.1 s [5...65,535]

Options: 5...10...65,535

This parameter defines how long the output is switched off during a flashing period.

Number of pulses [1...100]

Options: 1...5...100

This parameter defines the maximum number of pulses. This is useful to prevent flashing causing unnecessary wear of the contacts.

Contact position after flashing

Options: ON
 OFF
 Calculate present contact position

This parameter defines the state that the output should assume after flashing.

- *ON*: The output is switched on after flashing.
- *OFF*: The output is switched off after flashing.
- *Calculate present contact position*: The output assumes the contact position it had before flashing commenced.

For further information see: Function diagram, p. 126

Object value "Disable function Time" on bus voltage recovery

Options: Unchanged
 1, i.e., disable function Time
 0, i.e., enable function Time

This parameter defines how the *Time* function should react after bus voltage recovery. The *Time* function can be disabled with a telegram to the *Disable function Time* group object.

- *Unchanged*: After bus voltage recovery, the *Time* function reacts in the same way as before bus voltage failure.
- *1, i.e., disable function time*: A telegram with the value 1 disables the *Time* function.
- *0, i.e., enable function time*: A telegram with the value 0 enables the *Time* function.

3.3.2.2.3

Output A,B: Switch actuator - Scene parameter window

All settings for the *Scene* function are undertaken in this parameter window.

It is visible if the *Enable function Scene* parameter is enabled in Output A,B: Switch actuator (only "UP" contact) parameter window, p. 38.

General	Set standard values after download or ETS reset	<input type="radio"/> No <input checked="" type="radio"/> Yes
Output A,B	Assignment to scene number (No. 1...64, 0 = no assignment)	1
Operation mode	Standard value	<input checked="" type="radio"/> ON <input type="radio"/> OFF
Switch actuator (only "UP" co...	Assignment to scene number (No. 1...64, 0 = no assignment)	0
- Time	Assignment to scene number (No. 1...64, 0 = no assignment)	0
- Scene	Assignment to scene number (No. 1...64, 0 = no assignment)	0
+ Output C,D	Assignment to scene number (No. 1...64, 0 = no assignment)	0
+ Output E,F	Assignment to scene number (No. 1...64, 0 = no assignment)	0
+ Output G,H	Assignment to scene number (No. 1...64, 0 = no assignment)	0
+ Output I,J	Assignment to scene number (No. 1...64, 0 = no assignment)	0
+ Output K,L	Assignment to scene number (No. 1...64, 0 = no assignment)	0
+ Input a	Assignment to scene number (No. 1...64, 0 = no assignment)	0
+ Input b	Assignment to scene number (No. 1...64, 0 = no assignment)	0
+ Input c	Assignment to scene number (No. 1...64, 0 = no assignment)	0
+ Input d	Assignment to scene number (No. 1...64, 0 = no assignment)	0

How is a scene set?

Via the *Scene* group object

- standard values can be set for the output.
- The scene can be recalled.
- The scene can be changed.
- The scene can be saved.

An example:

Scene recall:

- Send value 0...63 for the scene (no. 1...64) to the *Scene* group object.

Scene change and save:

- Scene no. 24 is assigned to the output with the value ON.
- Scene no. 24 should be assigned to the output with the value OFF:
 - Set the output to OFF with a switch telegram.
 - Send value 151 (128 + 23) to store scene number 24 to the *Scene* group object.

General values for scene storage:

- $128 + (0...63)$ for the scene (No. 1...64)
 - The stored scene values are retained until there is a device reset.

Note

After a device reset, the parametrized values can be reactivated.

For further information see: [ETS reset, p. 137](#).

**Set standard values after download
or ETS reset**

Options: No
 Yes

- *No*: The standard values are not applied after a download or ETS reset.
- *Yes*: The standard values are applied after a download or ETS reset.

Assignment to scene number (No. 1...64, 0 = no assignment)

Options: 0...64

The *Scene* function manages up to 64 scenes using one single group address. With this group address, all slaves integrated into a scene are linked via a 1-byte group object. The following information is contained in a telegram:

- Scene number (1...64) and
- Telegram: Recall scene or Store scene.

The output can be integrated in up to eight scenes. So for example, the output can be switched on by a scene in the morning and switched off in the evening, or it can be integrated into light scenes.

If a telegram is received on the *Scene* group object, on all outputs assigned to the sent scene number the blind moves to the stored scene position or stores the current position as the new scene position.

Standard value

Options: ON
OFF

Here you set the state that the output has when the scene is recalled.

Note
When a scene is recalled: <ul style="list-style-type: none">• the <i>Time</i> function is restarted• the logical connections are re-evaluated

For further information see: Group objects Output A, p. 106, Scene function, p. 133 and Code table, 8 bit scene, p. 143.

3.3.2.2.4

Output A,B: Switch actuator - Logic parameter window

All settings for the *Connection/Logic* function are undertaken in this parameter window.

It is visible if the *Enable function Connection/Logic* parameter is enabled in the Output A,B: Switch actuator (only "UP" contact) parameter window, p. 38.

The screenshot shows a software interface for configuring a switch actuator. On the left is a sidebar with a tree view containing 'General', 'Output A,B', 'Operation mode', 'Switch actuator (only "UP" co...', '- Time', '- Scene', and '- Logic'. The 'General' tab is active. The main panel displays two settings: 'Logical connection 1 active' and 'Logical connection 2 active'. Each has two radio button options: 'No' (which is selected) and 'Yes'.

The *Connection/Logic* function provides up to two connection group objects for each output, which can be logically connected with the *Switch* group object.

The logic is always re-calculated when a group object value is received. First, the *Logical connection 1* group object is evaluated by the *Switch* group object. The result is then logically connected by the *Logical connection 2* group object.

Explanations of the Logic function are provided in Connection/logic, p. 131. Please also note the Function diagram, p. 126, from which the priorities are derived.

Logical connection 1 active

Options: No
Yes

This parameter enables the *Logical connection 1* group object.

- Yes: The following parameters appear:

Function of logical connection

Options: AND
OR
XOR
GATE

The logical function of the *Logical connection 1* group object is determined by the Switch telegram. All three standard operations (AND, OR, XOR) are possible. In addition, the GATE operation can be used to inhibit switch commands.

For further information see: Connection/logic, p. 131

Result is inverted

Options: No
Yes

- Yes: The result of the logical connection can be inverted.
- No: There is no inversion.

Object value "Logical connection 1" after bus voltage recovery

Options: Do not write
 Write with "0"
 Write with "1"

This parameter defines the value assigned to the *Logical connection 1* group object on bus voltage recovery.

- *Do not write*: After bus voltage recovery, the *Switch* group object retains the value 0. The value remains the same until the group object is modified by the bus. The contact position is only re-evaluated and set at this point. The correct status of the contact position is displayed via the *Status Switch* group object independently of the value of the *Switch* group object. However, a precondition is that no manual switching operations have occurred on outputs A, C, E, G, I or K.

Note

The values of group objects *Logical connection 1/2* are stored on bus voltage failure. The values are set again after bus voltage recovery

If values are not assigned for these group objects *Logical Connection 1/2* they will be deactivated.

On reset via the bus, the values of group objects *Logical Connection 1/2* remain unchanged.

A further parameter appears if GATE is selected in the *Function of logical connection* parameter:

GATE disabled if object value "Logical connection 1" is

Options: 1
 0

This parameter defines the value at which group object *Logical Connection 1* disables the GATE.

While it is disabled, telegrams received on the *Switch* group object are ignored. As long as GATE is activated, the value that last sent to the input of the gate remains on the output. After a gate is disabled, the value that was on the output beforehand remains on the output of the gate.

After the gate is enabled, this value will be retained until a new value is received.

For further information see: [Function diagram, p. 126](#)

GATE is disabled after bus voltage failure and remains deactivated after bus voltage recovery.

Logical connection 2 active

This has the same parametrization options as *Logical Connection 1 active*.

3.3.2.2.5

Output A,B: Switch actuator - Forced operation parameter window

All settings for the *Forced Operation* function are undertaken in this parameter window.

It is visible if the *Enable function Forced operation* parameter is enabled in Output A,B: Switch actuator (only "UP" contact) parameter window, p. 38.

A Forced operation group object is available for every output.

The forced operation (a 1 bit or 2 bit communication object per output) sets the output in a defined state, where – as long as the forced operation is active – it can only be changed via the communication object forced operation.

The switch state after the end of forced operation can be set using the parameter *Contact pos. if forced operation*.

- Yes: The following parameters appear:

Type of object "Forced operation"

Options: 1-bit
2 bit

Using the 2-bit group object, the output state is defined directly via the group object value. Control of the output via the *Switch* group object is disabled as long as the output is forcibly switched ON or OFF.

The following parameters appear when *1 bit* is selected:

Contact pos. if forced operation

Options: ON
 OFF
 Unchanged

- *ON*: Contact position of the output during forced operation.
- *OFF*: Contact position of the output during forced operation.
- *Unchanged*: Contact position of the output during forced operation.

The options *Unchanged*, *ON* and *OFF* relate to the 1-bit forced operation group object and determine the switching state of the output during forced operation. The forced operation relates to the 1-bit forced operation group object of output X that is available to every output.

Contact position with end of the forced operation

Options: ON
 OFF
 Unchanged
 Calculate present contact position

This parameter determines the contact position of the relay after the end of forced operation.

- *ON*: The output is switched ON after forced operation has ended
- *OFF*: The output is switched OFF after forced operation has ended
- *Unchanged*: The contact position is retained during forced operation or safety priority. The contact position only changes when a new calculated switch value is received.
- *Calculate present contact position*: After forced operation has ended, the (switch) value is recalculated and immediately initiated, i.e. the output continues to operate normally in the background during forced operation.

The following parameter appears when 2 *bit* is selected:

Contact position with end of the forced operation

Options: ON
 OFF
 Unchanged
 Calculate present contact position

This parameter determines the contact position of the relay after the end of forced operation.

- *ON*: The output is switched ON after forced operation has ended
- *OFF*: The output is switched OFF after forced operation has ended
- *Unchanged*: The contact position is retained during forced operation or safety priority. It does not change until a new calculated switch value is received.
- *Calculate present contact position*: After forced operation has ended, the (switch) value is recalculated and immediately initiated, i.e. the output continues to operate normally in the background during forced operation.

The telegram value which is sent via the 2-bit group object determines the switch position as follows:

Value	Bit 1	Bit 0	Status	Description
0	0	0	Enabled	If the <i>Forced operation</i> group object receives a telegram with the value 0 (binary 00) or 1 (binary 01), the output is enabled and can be actuated via various group objects.
1	0	1	Enabled	
2	1	0	Forced OFF	If the <i>Forced operation</i> group object receives a telegram with the value 2 (binary 10), the output of the blind/shutter actuator is forced OFF and remains disabled until forced operation is deactivated again. Operation via another group object is not possible as long as forced operation is activated. The state of the output at the end of forced operation can be parametrized.
3	1	1	Forced ON	If the <i>Forced operation</i> group object receives a telegram with the value 3 (binary 11), the output of the blind/shutter actuator is forced ON and remains disabled until forced operation is deactivated again. Operation via another group object is not possible as long as forced operation is activated.

3.3.2.3 Output A,B: Shutter parameter window

All settings for A: Shutter are made in this parameter window. It is visible if the *Operation mode* parameter is set to *Shutter* in the Output A,B Operation mode parameter window, p. 22.

General	Reaction on bus voltage failure	Unchanged
Output A,B	Reaction on bus voltage recovery	Unchanged
Operation mode	Position after reference movement	Back to stored position
Shutter	Move to position	Direct
- Drive		
+ Output C,D	Enable function Automatic	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output E,F	Enable function Scene	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output G,H	Enable function "Priority and safety operation"	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output I,J	Feedback via group object "Move to position"	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output K,L	Extra feedback	None

Reaction on bus voltage failure

Options: Unchanged
 UP
 DOWN
 STOP

The output can assume a defined state on bus voltage failure via this parameter.

- *Unchanged*: The relay position of the outputs does not change. Any movements in progress are therefore performed to completion.
- *UP/DOWN/STOP*: Sets a fixed relay contact position.

Note
If the relay has been switched immediately before a bus voltage failure, it may not be possible to implement the options <i>UP</i> and <i>DOWN</i> . The power stored in the Blind/Roller Shutter Actuator may not be sufficient for this.

Reaction on bus voltage recovery

Options: Unchanged
 UP
 DOWN
 STOP

This parameter defines how the output should react on bus voltage recovery.

- *Unchanged*: Retains the current state.
- *UP/DOWN/STOP*: Sets a fixed relay contact position.

Position after reference movement

Options: Deactivated; objects hidden
 No reaction
 Back to stored position

This parameter enables the *Reference movement* group object and defines how the Blind/Roller Shutter Actuator reacts after a reference movement.

- *Deactivated*: The *Reference movement* group object is hidden. No referencing can be performed.
- *No reaction*: The blind remains either up or down in the reference position after the reference movement.
- *Back to stored position*: The blind is retracted to the position it was in before the reference movement. If the *Automatic* function was activated for the shutter before the reference movement, it is re-activated after the stored position is reached.

Note

If a direct or automatic Movement or Position telegram is received during a reference movement, the reference movement is performed first and the received target position is approached afterwards.

For further information see: Determining the current position, p. 118

Move to position

Options: Direct

Indirectly via upper end position
Indirectly via lower end position
Indirectly via shortest way

- *Direct*: The shutter moves from the current position straight to the new target position after receiving a Position telegram.
- *Indirectly via upper/lower end position*: The shutter will initially move fully up or down after receiving a Position telegram and then move to the target position.
- *Indirectly via shortest way*: The shutter will initially move fully upwards or downwards after a Position telegram depending on which direction is the shortest distance. Thereafter, it moves to the target position.

Enable function Automatic

Options: No
Yes

- *No*: The parameter window remains disabled and invisible.
- *Yes*: The - *Automatic* parameter window appears.

Enabling the *Automatic* function enables the *Automatic* parameter window, where further settings can be made.

Enable function Scene

Options: No
Yes

- *No*: The parameter window remains disabled and invisible.
- *Yes*: The - *Scene* parameter window appears.

Enabling the *Scene* function enables the *Scene* parameter window, where further settings can be made, e.g. the assignment of the output to a scene.

Enable function "Priority and safety operation"

Options: No
Yes

- *No*: The parameter window remains disabled and invisible.
- *Yes*: The - *Safety* parameter window appears.

Enabling the *Safety* function enables the - *Safety* parameter window, where further settings can be made.

Feedback via group object "Move to position"

Options: No
 Yes

This parameter defines whether the *Move to position* [0...255] group object sends a status response.

- Yes: The following parameter appears:

Send object value

Options: No, update only
 On change
 After request
 After a change or request

- *No, update only*: The status is updated but not sent.
- *On change*: The status is sent when a change occurs.
- *After request*: The status is sent when a request occurs.
- *After a change or request*: The status is sent when a change or request occurs.

Extra feedback

Options: None
 End positions
 Status byte

An additional status response can be enabled with this parameter.

- *None*: There is no feedback.
- *End positions*: Enables the group objects *Status Lower end position* and *Status Upper end position*, which indicate that the shutter/blind is in the upper or lower position (measured based on total travel time).
- *Status byte*: This enables the group object *Status byte*. This contains further information in coded form.

The following parameters appear when *End positions* or *Status byte* is selected:

Send object value

Options: No, update only
 On change
 After request
 After a change or request

- *No, update only*: The status is updated but not sent.
- *On change*: The status is sent when a change occurs.
- *After request*: The status is sent when a request occurs.
- *After a change or request*: The status is sent when a change or request occurs.

3.3.2.3.1 Output A,B: Shutter - Drive parameter window

Settings for the shutter drive are undertaken in this parameter window. It is visible if the *Operation mode* parameter is set to *Shutter* in the Output A,B Operation mode parameter window, p. 22.

General	Total travel time in s [1...18,000]	60
Output A,B	Reversing time delay in ms[50...5,000] (see techn. data of the drive!)	700
Operation mode	Outputs are disconnected from voltage after	Total travel time + 10% overrun
Shutter		
- Drive		

Total travel time in s [1...18,000]

Options: 1...60...18,000

This parameter defines the total travel time from the upper end position to the lower end position.

Reversing time delay in ms [50...5,000] (see techn. data of the drive!)

Options: 50...700...5,000

This parameter defines the duration of the minimum reversing time between two directions of travel.

Outputs are disconnected from voltage after

Options:

- End position, no overrun
- End position + 2% overrun
- End position + 5% overrun
- End position + 10% overrun
- End position + 20% overrun
- Total travel time + 10% overrun

- *End position...*: The application calculates the travel time required from the current position to the end position. On reaching the end position (the very top or bottom), the shutter drive will switch off independently. A so-called "overrun" can be set to ensure that the Blind/Roller Shutter Actuator safely reaches the end position. Thus, the voltage remains applied for a short time so as to move the drive definitively to the end position.
- *Total travel time + 10% overrun*: The shutter drive is always activated for the set total travel time + 10% regardless of the current position of the shutter.

For further information see: Travel times, p. 115

3.3.2.3.2 **Output A,B: Shutter - Automatic parameter window**

The shutter *Automatic* function is the same as the blind *Automatic* function.

The parameter setting options and the adjustable group objects are described in the [A,B: Shutter - Automatic parameter window, p. 29](#).

For further information see: [Travel times, p. 115](#)

3.3.2.3.3 **Output A,B: Shutter - Scene parameter window**

The shutter *Scene* function is the same as the blind *Scene* function.

The parameter setting options and the adjustable group objects are described in the [A,B: Blind - Scene parameter window, p. 33](#).

3.3.2.3.4 **Output A,B: - Shutter - Safety parameter window**

The shutter *Safety* function is the same as the blind *Safety* function.

The parameter setting options and the adjustable group objects are described in the [A,B: Blind - Safety parameter window, p. 36](#).

3.3.3 **Input a Function parameter window**

All settings for Input a are made in this parameter window

General	Function	Disabled
+ Output A,B		
+ Output C,D		
+ Output E,F		
+ Output G,H		
+ Output I,J		
+ Output K,L		
- Input a		
Function		
Disabled		

Note

The setting options for inputs a...l are explained below using input a as an example.
The setting options are identical for all inputs.

- Function
- Option:
- Disabled

Switch sensor

Switch/dimming sensor

Blind sensor

Value/forced operation

3.3.3.1 a: *Blind sensor* parameter window

This operation mode allows the operation of blinds and shutters with buttons or switches.

This parameter window is visible if the *Blind sensor* option is selected in the Input a Function parameter window, p. 64.

General	Enable communication object "Block" 1-bit	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output A,B	Debounce time	50 ms
+ Output C,D	Input on operation	<input type="radio"/> Open <input checked="" type="radio"/> Closed
+ Output E,F	Internal connection with blind output Caution: Observe parameterization of outputs!	DOWN
+ Output G,H	Operating functionality of blind	2 button op. (short = stepwise, long = move)
+ Output I,J	Short operation: STOP/stepwise; Long operation: Move UP/DOWN	
+ Output K,L	Long operation after...	0.6 s
- Input a	Reaction on short operation	<input checked="" type="radio"/> STOP/slat UP <input type="radio"/> STOP/slat DOWN
Function	Reaction on long operation	<input checked="" type="radio"/> Move UP <input type="radio"/> Move DOWN
Blind sensor		

Enable group object
"Block" 1-bit

Options: No
Yes

- Yes: The 1-bit group object *Block* is enabled. This can be used to disable the input.

Note
If the input is disabled and the option <i>Send cyclically</i> is set, the last state is still sent regardless of the block. The <i>Block</i> option still blocks the physical input; sending continues internally.

Debounce time

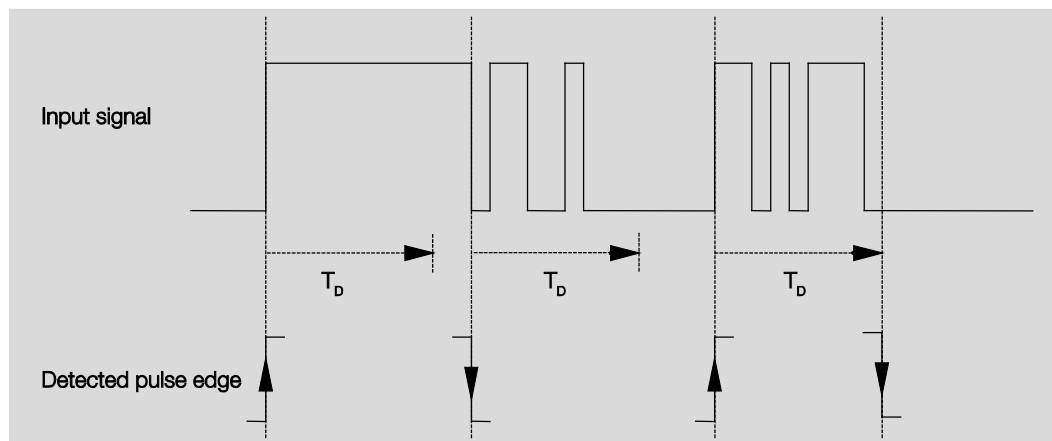
Options: 10/20/30/50/70/100/150 ms

Debouncing prevents unwanted multiple operations of the input, e.g. due to bouncing of the contact.

What is the debounce time?

If an edge is detected at an input, the input will react immediately to this edge, e.g. by sending a telegram. The debounce time T_D starts at the same time. When the pulse edges are detected at the input during the debounce time they are ignored.

The following example makes this clear:



After detection of an edge on the input, further edges are ignored for the debounce time T_D .

Input on operation

Options: Open
 Closed

This determines whether the contact on the input is a normally closed (Closed) contact or normally open (Open) contact.

Internal connection with blind output

Caution: Observe parametrization of outputs!

Options: No
 AB
 CD
 EF
 GH
 IJ
 KL

- *Output X (X = AB, CD, EF, GH, IJ, KL):* The binary output is connected directly with the Output X: Blind. The *Input x: Blind sensor Blind UP/DOWN* (x = a...l) group object acts internally directly on the *Blind output X move UP/DOWN* group object. The *Input x: Blind sensor STOP/Slat adjustment* (x = a...l) group object acts directly internally on the *Blind output X Slat adjustment/STOP UP/DOWN* group object.

This internal connection of the binary input with output A...L guarantees, for example, that pushbuttons for operation of the blinds can be programmed and installed. This enables maximum flexibility in terms of blind operation.

Operating functionality of blind

Options: 1 button op. (short = stepwise, long = move)
 1 button op. (short = move,
 long = stepwise)
 1 button op. (move only - STOP)
 1 switch operation (move only)
 2 button op. (short = stepwise,
 long = move)
 2 switch/button operation (move only)
 2 button operation (move only)
 2 button operation (slat only)

The following list provides an overview of the different blind operating functions:

1 push buttons (short = stepwise, long = move)	
Short operation	STOP/Stepwise Opposite direction to the last movement telegram* To return to slat adjustment, the blind must be moved UP or DOWN briefly.
Long operation	<i>Move UP</i> or <i>Move DOWN</i>
1 push button op. (short = move, long = stepwise)	
Short operation	<i>Move UP</i> or <i>Move DOWN</i>
Long operation	STOP/stepwise (Cyclic sending); Opposite direction to the last movement telegram
1 button op. (move only - STOP)	
On operation	The following telegrams are sent in sequence: ... ► <i>Move UP</i> ► <i>STOP/Stepwise</i> ► <i>Move DOWN</i> ► <i>STOP/Stepwise</i> ► ... *
1 switch operation (move only)	
On operation	<i>Move UP</i> or <i>Move DOWN</i>
End of operation	STOP/Stepwise*
2 button op. (short = stepwise, long = move)	
Short operation	<i>STOP/Slat UP/DOWN</i> (parametrizable)
Long operation	<i>Move UP</i> or <i>Move DOWN</i> (parametrizable)
2 switch/button operation (move only)	
On operation	<i>Move UP</i> or <i>Move DOWN</i> (parametrizable)
End of operation	<i>STOP/Slat UP/DOWN</i> (parametrizable)
2 button operation (move only)	
On operation	<i>Move UP</i> or <i>Move DOWN</i> (parametrizable)
2 button operation (slat only)	
On operation	<i>STOP/Slat UP/DOWN</i> (parametrizable)

* If the actuator indicates the end position, in 1 button operation the *Blind UP/DOWN* group object can be synchronized. If the actuator signals the lower end position (see group object *Upper end position* or *Lower end position*), the direction of travel is defined. In 1 button/switch operation, the last direction of travel is determined via the last update of the *Blind UP/DOWN* group object.

Depending on the selection made in the parameter *Operating functionality of blind*, different parameters will appear.

All parameters are described in the following.

Long operation after...

Options: 0.3/0.4/0.5/0.6/0.8/1/1.2/1.5/2/3/4/5/6/7/8/9/10 s

This defines the time period T_L after which an operation is considered a "long" operation.

Telegram "Slat" is repeated every

Options: 0.3/0.4/0.5/0.6/0.8/1/1.2/1.5/2/3/4/5/6/7/8/9/10 s

This defines the interval at which the *Slat* telegram is repeated.

Reaction on short operation

Options: STOP/Slat UP
STOP/slat DOWN

Reaction on long operation

Options: Move UP
Move DOWN

It can be set whether the input triggers telegrams for movement upwards (UP) or downwards (DOWN).

Reaction on operation

Options: Move UP
Move DOWN

It is possible to set whether the input triggers telegrams for movement upwards (Move UP) or downwards (Move DOWN).

3.3.3.2

a: Switch sensor parameter window

This parameter window is visible if the Blind sensor option is selected in the [Input a Function parameter window](#), p. 64.

General	Debounce time	50 ms
+ Output A,B	Distinction between long and short operation	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output C,D	Opening the contact => Event 0 Closing the contact => Event 1	
+ Output E,F	Activate minimum signal duration	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output G,H	Scan input after download, ETS reset and bus voltage recovery	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output I,J		
+ Output K,L		
- Input a		
Function		
Switch sensor		
- Objects "Switch"		

Debounce time

Options: 10/20/30/50/70/100/150 ms

Debouncing prevents unwanted multiple operations of the input, e.g. due to bouncing of the contact.

For further information, see: [What is the debounce time?](#)

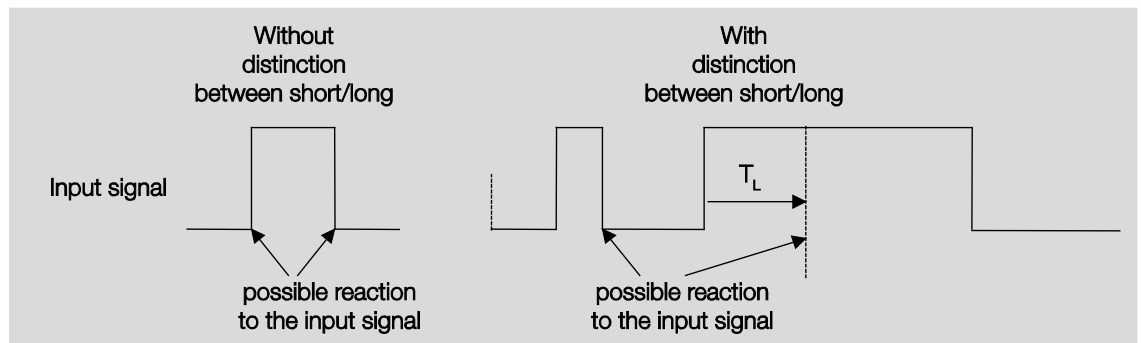
Distinction between long and short operation

Options: No
 Yes

Using this parameter, you set if the input differentiates between short and long operation.

- Yes: After opening/closing the contact, it must first of all be ascertained if a short or long operation has occurred here. Only thereafter will a possible reaction be triggered.

The following table shows the function in detail:



T_L is the time duration from where a long operation is detected.

3.3.3.2.1 Distinction between long and short operation – No

If the parameter *Distinction between long and short operation* is set to *No*, the following parameters appear:

General	Debounce time	50 ms
+ Output A,B	Distinction between long and short operation	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output C,D	Opening the contact => Event 0 Closing the contact => Event 1	
+ Output E,F	Activate minimum signal duration	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output G,H	Scan input after download, ETS reset and bus voltage recovery	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output I,J		
+ Output K,L		
- Input a		
Function		
Switch sensor		
- Objects "Switch"		

Opening the contact => Event 0

Closing the contact => Event 1

Activate minimum signal duration

Options: No
Yes

- Yes: The following parameters appear:

**On closing the contact
in value x 0.1 s [0...65,535]**

Options: 1...10...65,535

**On opening the contact
in value x 0.1 s [0...65,535]**

Options: 1...10...65,535

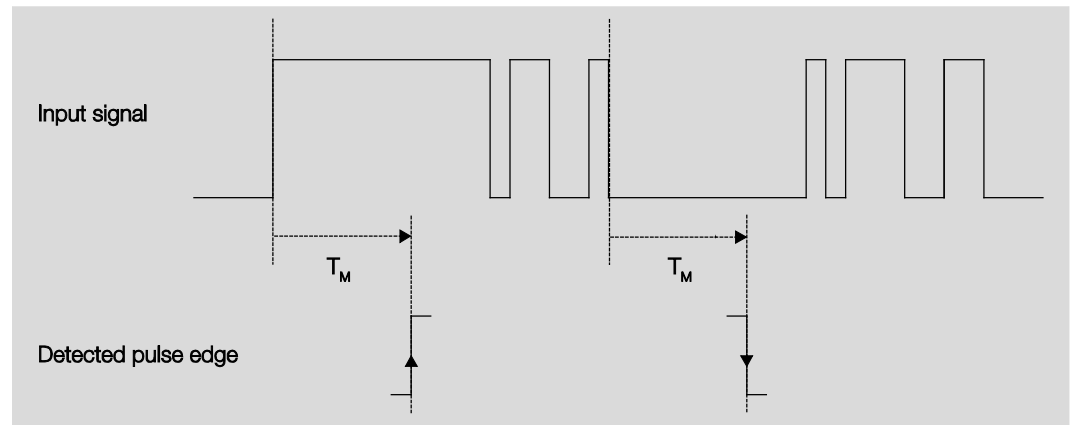
What is the minimum signal duration?

In contrast to the debounce time, a telegram is only sent after the minimum signal duration has elapsed.

The individual functions are:

If an edge is detected on the input, the minimum signal duration will commence. No telegram is sent on the bus at this time. The signal on the input is observed within the minimum signal duration. If a further edge appears at the input during the minimum signal duration, it will be interpreted as a new operation, and the minimum signal duration restarts. If no further edges occur after the start of the minimum signal duration, a telegram is sent on the bus, after the minimum signal duration has timed out.

Example: Minimum signal duration of the input signal for a detected edge:



In only two cases do no further edge changes occur within the minimum signal duration T_M after a change of edge. For this reason, only both of these are detected as valid.

Scan input after download, ETS reset and bus voltage recovery

Options: ☐ No
☐ Yes

- *No*: The object value is not scanned after a download, bus reset or bus voltage recovery.
- *Yes*: The object value is scanned after a download, bus reset or bus voltage recovery. The following parameter appears:

Inactive wait state after bus voltage recovery in s [0...30,000]

Options:

Here the waiting time after a bus voltage recovery is set. After the waiting time has elapsed the state on the input terminals is scanned. The input reacts as if the state on the input terminals has just changed.

Note

The inactive waiting time does not add to the actual, adjustable sending delay time. This can be set separately.

3.3.3.2.2 Distinction between long and short operation – Yes

If the parameter *Distinction between long and short operation* is set to *Yes*, the following parameters appear:

General	Debounce time	50 ms
+ Output A,B	Distinction between long and short operation	<input type="radio"/> No <input checked="" type="radio"/> Yes
+ Output C,D	Short operation => Event 0	
+ Output E,F	Long operation => Event 1	
+ Output G,H	Input on operation	<input type="radio"/> Open <input checked="" type="radio"/> Closed
+ Output I,J	Long operation after...	0.6 s
+ Output K,L		
- Input a		
Function		
Switch sensor		
- Objects "Switch"		

Short operation => Event 0
Long operation => Event 1

Input on operation

Options: Open
 Closed

- *Open*: Operation opens the input.
- *Closed*: Operation closes the input.

If a normally open contact is connected to the input, the option *Closed* should be selected; on a normally closed contact the option *Open* should be selected.

Long operation after ...

Options: 0.3/0.4/0.5/0.6/0.8 s
 1/1.2/1.5 s
 2/3/4/5/6/7/8/9/10 s

Here the time period T_L , after which an operation is considered a “long” operation, is defined.

Note
The remaining parameter descriptions can be found in the <u>Distinction between long and short operation – No, p. 72</u> .

3.3.3.2.3

a: Switch sensor - Objects "Switch" parameter window

Other settings for Input a group objects and their internal connection can be undertaken in this window.

General	"Switch 1" (cyclic sending possible)	<input type="radio"/> No <input checked="" type="radio"/> Yes
+ Output A,B	Reaction on event 0	UM
+ Output C,D	Reaction on event 1	No reaction
+ Output E,F	Internal connection Caution: Observe parameterization of outputs!	No
+ Output G,H	Cyclic sending	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output I,J	"Switch 2"	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output K,L	"Switch 3"	<input checked="" type="radio"/> No <input type="radio"/> Yes
- Input a	"Block" 1 Bit	<input checked="" type="radio"/> No <input type="radio"/> Yes
Function	"Start event 0/1" 1 bit	<input checked="" type="radio"/> No <input type="radio"/> Yes
Switch sensor		
- Objects "Switch"		

"Switch 1" (cyclic sending possible)

Options: No
 Yes

- Yes: The group object *Switch 1* appears along with the following parameters:

Reaction on event 0

Options: ON
 OFF
 TOGGLE
 No reaction
 Terminate cyclic transmission

Reaction on event 1

Options: ON
 OFF
 UM
 No reaction
 Terminate cyclic transmission

The reaction of the communication object is determined here. If the option *Yes* has been selected with the parameter *Distinction between long and short operation*, the reaction occurs with a short or long operation. With the option *No*, it occurs with each edge change.

Important

If the option *Terminate cyclic transmission* is set, it is important to note that this is only effective if the option *Yes* has been selected in the *Send cyclically* parameter.

Internal connection

Caution: Observe parametrization of outputs!

Options: No
 Output A (6 A)
 Output C (6 A)
 Output E (6 A)
 Output G (6 A)
 Output I (6 A)
 Output K (6 A)

This parameter establishes a direct connection of the binary input with an output. With this connection, no assignment of the group address is necessary.

- *Output x*: The *Switch* group object for the output is updated together with the *Switch 1* group object for the input.

Caution

If an internal connection with an output is selected, and at the same time the reaction to an event is parametrized with TOGGLE, the binary input's *Switch 1* group object is updated with the inverted value of the output's *Status Switch* group object.

Ensure that the output's *Status Switch* group object is enabled. The *N/C* / *N/O* settings should be parametrized so that TOGGLE is possible.

Note

The binary input cannot be connected to blind outputs A...L. This internal connection is only available when *Blind sensor* is selected.

Cyclic sending

Options: No
Yes

What is cyclic sending?

Cyclic transmission enables the communication object *Switch* to send automatically at a fixed interval. If cyclic transmission is only carried out for a specific object value (ON or OFF), this condition refers to the value of the communication object. It is therefore possible in principle to start cyclic transmission by sending a value to the communication object *Switch*. As this behavior is unwanted, the flags *Write* and *Update* of the communication object are deleted in the preliminary setting, so that they cannot be changed via the bus. If this functionality is required irrespectively, these flags should be set accordingly. When the communication object *Switch* changes and after bus recovery (after the sending delay time has elapsed), the communication object value is sent immediately on the bus, and the sending cycle time restarts.

- Yes: The following parameters appear:

Telegram repeated every ... in s [1...65,535]

Options: 1...60...65,535

The sending cycle time describes the time used between two cyclically sent telegrams.

On object value

Options: 1
0
0 or 1

- 1: The communication object value is sent cyclically with 1.
- 0: The communication object value is sent cyclically with 0.
- 0 or 1: The group object values 0 and 1 are sent cyclically.

"Switch 2"

Options: No
Yes

- Yes: The group object *Switch 2/3* becomes visible. The following parameters appear:

Reaction on event 0

Options: ON
OFF
UM
No reaction

Reaction on event 1

Options: ON
OFF
UM
No reaction

The reaction of the group object is determined here. If the parameter *Distinction between long and short operation* is set to *Yes*, the reaction occurs with a short or long operation. If it is set to *No*, it occurs with each edge change.

Internal connection

Caution: Observe parametrization of outputs!

Options: No
Output A (6 A)
Output C (6 A)
Output E (6 A)
Output G (6 A)
Output I (6 A)
Output K (6 A)

This parameter establishes a direct connection of the binary input with an output. With this connection, no assignment of the group address is necessary.

- *Output x*: The *Switch* group object for the output is updated together with the *Switch 2/3* group object for the input.

Caution

If an internal connection with an output is selected, and at the same time the reaction to an event is parametrized with TOGGLE, the binary input's *Switch 2/3* group object is updated with the inverted value of the output's *Status Switch* group object.

Ensure that the output's *Status Switch* group object is enabled. The *N/C* / *N/O* settings should be parametrized so that TOGGLE is possible.

Note

The binary input cannot be connected to blind outputs A...L. This internal connection is only available when *Blind sensor* is selected.

"Switch 3"

Notes
The parameter descriptions for "Switch 3" are the same as for "Switch 2".

"Block" 1 Bit

Options: No
Yes

- Yes: The 1-bit group object *Block* is enabled. This can be used to disable the input.

Notes
If the input is disabled and the option <i>Send cyclically</i> is set, the last state is still sent regardless of the block. The <i>Block</i> option still blocks the physical input, sending continues internally.

"Start event 0/1" 1 bit

Options: No
Yes

- Yes: The 1-bit group object *Start event 0/1* is enabled. As a result, the same events, such as those of the button/switch connected to the binary input, can also be triggered by receipt of a telegram on the *Start event 0/1* group object.

3.3.3.3 Input a: Dim sensor parameter window

The operation mode allows the operation of dimmable lighting. This parameter window is visible if the *Switch/Dimming sensor* option is selected in the *Input a Function* parameter window, p. 64.

General	Enable communication object "Block" 1-bit	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output A,B	Debounce time	50 ms
+ Output C,D	Input on operation	<input type="radio"/> Open <input checked="" type="radio"/> Closed
+ Output E,F	Function Dimming	<input checked="" type="radio"/> Dimming and switching <input type="radio"/> Only dimming
+ Output G,H	On short operation: Switch	UM
+ Output I,J	On long operation: Dimming direction	Alternating, DARKER after switching ON
+ Output K,L	Long operation after...	0.6 s
- Input a	Dimming mode	<input checked="" type="radio"/> START/STOP dimming <input type="radio"/> Dimming steps
Function		
Dim sensor		

Enable group object "Block" 1-bit

Options: No
Yes

- Yes: The 1-bit group object *Block* is enabled. This can be used to disable the input.

Note
If the input is disabled and the option <i>Send cyclically</i> is set, the last state is still sent regardless of the block. The option <i>Block</i> still blocks the physical input, sending continues internally.

Debounce time

Options: 10/20/30/50/70/100/150 ms

Debouncing prevents unwanted multiple operations of the input, e.g. due to bouncing of the contact.

For further information, see: What is the debounce time?

Input on operation

Options: Open
Closed

This determines whether the contact on the input is a normally closed (Closed) contact or normally open (Open) contact.

Function Dimming

Options: Dimming and switching
Only dimming

This parameter defines whether the lighting can only be dimmed (*Only dimming*) or if additional switching is also permitted (*Dimming and switching*). In this case, a long operation dims and a short operation switches.

How does 1 button dimming function?

Switch and dim functions can be controlled completely using a single push button. With each long operation alternate BRIGHTER or DARKER dimming occurs, or with short operation alternate switch on or off occurs.

If the *Switch* group object = 0, a BRIGHTER telegram is sent at all times. In order to evaluate the switch feedback of the actuator, the Write flag of the *Switch* group object is set.

The following table shows the function in detail:

Switch group object value	Value of the last dimming telegram	Reaction of the dimming actuation (sends dimming telegram)
OFF	DARKER	BRIGHTER
OFF	BRIGHTER	BRIGHTER
ON	DARKER	BRIGHTER
ON	BRIGHTER	DARKER

The advantage of the *Only dimming* function is that no distinction is made between short and long operation. Thus, the Dim telegram is initiated immediately after operation. It is not necessary to wait for a long operation.

How does 2 button dimming function?

If 2 button dimming is required, the functions of the individual buttons should be set with the parameters *Reaction on short operation* or *Reaction on long operation*, e.g. ON or BRIGHTER.

The user thus has the choice of the buttons to be combined with one another, e.g. to dim a lighting group or the function that the individual buttons should perform in this case.

Furthermore, two inputs are required for 2 button dimming, e.g. *Input a* with short operation for ON and long operation for BRIGHTER. *Input b* with short operation for OFF and long operation for DARKER.

Selecting the *Dimming and switching* option in the *Function Dimming* parameter unhides the parameters *Long operation after...*, *On short operation: Switch* and *On long operation: Dimming direction* in the *a: Dimming sensor* parameter window:

Long operation after...

Options: 0.3/0.4/0.5/0.6/0.8/1/1.2/1.5/2/3/4/5/6/7/8/9/10 s

This defines the time period T_L after which an operation is considered a "long" operation.

On short operation: Switch

Options: ON
 OFF
 TOGGLE
 No reaction

This parameter defines whether the group object *Telegram Switch TOGGLEs* on short operation (typically: 1 button dimming) or only switches *OFF* or *ON* (typically: 2 button dimming).

- *ON*: The value 1 is sent on short operation.
- *OFF*: The value 0 is sent on short operation.
- *TOGGLE*: A short operation changes the value of the *Telegram Switch* group object.

On long operation: Dimming direction

Options: BRIGHTER
 DARKER
 Alternating
 Alternating, BRIGHTER after
 switching ON
 Alternating, DARKER after switching ON

This parameter sets what the *Dimming* group object should send on the bus on a long operation. A long operation changes the value of the group object *Telegr. dimming*. With 1 button dimming, the *Dimming* parameter should be set to *Alternating*. In this case, the Dim telegram sent is the one opposite of the last.

- *BRIGHTER*: The group object sends a BRIGHTER telegram.
- *DARKER*: The group object sends a DARKER telegram.
- *Alternating*: The group object alternately sends a BRIGHTER and a DARKER telegram.
- *Alternating, BRIGHTER after switching ON*: The group object initially sends a BRIGHTER telegram after an ON telegram; thereafter it alternately sends BRIGHTER and DARKER telegrams.
- *Alternating, DARKER after switching ON*: The group object initially sends a DARKER telegram after an ON telegram; thereafter it alternately sends BRIGHTER and DARKER telegrams.

Note

Selecting the *Only dimming* option in the *Function Dimming* parameter unhides only the parameter *On operation: Dimming direction*.

Dimming mode

Options: START/STOP dimming
Dimming steps

- *START/STOP dimming*: The dimming process starts with a BRIGHTER or DARKER telegram and ends with a STOP telegram.

4 bit dimming telegram:

Decimal	Hexadecimal	Binary	Dim telegram
0	0	0000	STOP
1	1	0001	100 % DARKER
8	8	1000	STOP
9	9	1001	100 % BRIGHTER

For further information see: 4-bit Dim telegram input, p. 144

- *Dimming steps*: Dim telegrams are sent cyclically during a long operation. Cyclic sending is terminated when the operation ends.

Both of the next parameters only appear if in the parameter *Dimming mode* is set to *Dimming steps*.

Brightness change on every sent telegram

Options: 100/50/25/12.5/6.25/3.13/1.56 %

Using this parameter, you set the brightness change in percent which is cyclically sent with every dim telegram.

Sending cycle time: Telegram is repeated every ...

Options: 0.3/0.4/0.5/0.6/0.8/1/1.2/1.5/2/3/4/5/6/7/8/9/10 s

The Dim telegram is sent cyclically during a long operation. The cycle time for sending corresponds with the time interval between two telegrams during cyclical sending.

Caution

With dimming steps, ensure that the set sending cycle time is set to the same value on the dimming actuator for smooth dimming.

3.3.3.4 **Input a: Value/forced operation parameter window**

This operation mode allows values of any data type to be sent.
This parameter window is visible if the *Function* parameter is set to *Value/forced operation*.

General	Enable communication object "Block" 1-bit	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output A,B	Debounce time	50 ms
+ Output C,D	Distinction between long and short operation	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output E,F	Activate minimum signal duration	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output G,H	Scan input after download, ETS reset and bus voltage recovery	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output I,J	Value 1 (rising edge/ short operation)	1-byte value [0...255]
+ Output K,L	Sent value [0...255]	0
- Input a	Value 2 (falling edge/ long operation)	1-byte value [0...255]
Function	Sent value [0...255]	0
Value/forced operation		

Enable communication object "Block" 1-bit

Options: No
Yes

- Yes: The 1-bit group object *Block* is enabled. This can be used to disable the input.

Note
If the input is disabled and the option <i>Send cyclically</i> is set, the last state is still sent regardless of the block. The option <i>Block</i> still blocks the physical input, sending continues internally.

Debounce time

Options: 10/20/30/50/70/100/150 ms

Debouncing prevents unwanted multiple operations of the input, e.g. due to bouncing of the contact.

For further information, see: [What is the debounce time?](#)

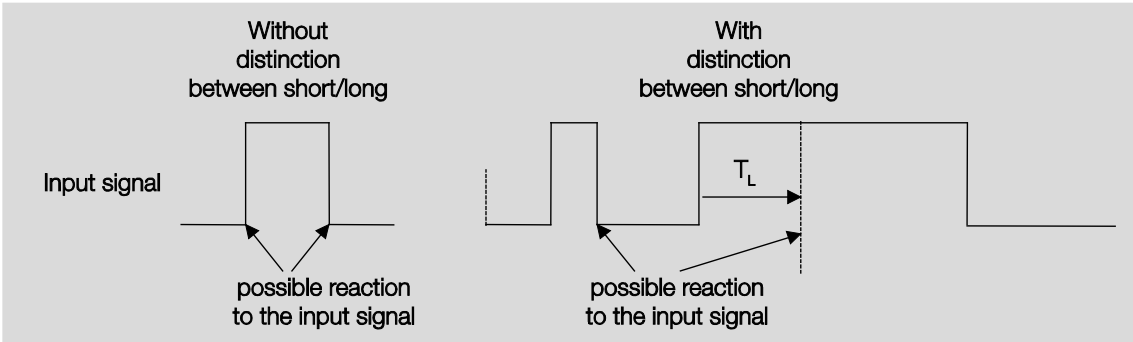
Distinction between long and short operation

Options: No
 Yes

This parameter determines whether the input differentiates between short and long operation. When set to Yes, after opening/closing the contact the system needs to establish whether a short or long operation has occurred before it is possible to trigger a reaction.

Note
With distinction between long and short operation, two group objects are visible for each input. One communication object only transmits during short operation, the other group object only during a long operation.

The following table shows the function in detail:



T_L is the time duration from where a long operation is detected.

If the parameter *Distinction between long and short operation* is set to *No*, the following parameters appear:

3.3.3.4.1 **Parameter *Distinction between long and short operation* – No**

If the parameter *Distinction between long and short operation* is set to *No*, the following parameters appear in the **Input a: Value/forced operation parameter window, p. 85**:

General	Enable communication object "Block" 1-bit	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output A,B	Debounce time	50 ms
+ Output C,D	Distinction between long and short operation	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output E,F	Activate minimum signal duration	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output G,H	Scan input after download, ETS reset and bus voltage recovery	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Output I,J	Value 1 (rising edge/ short operation)	1-byte value [0...255]
+ Output K,L	Sent value [0...255]	0
- Input a	Value 2 (falling edge/ long operation)	1-byte value [0...255]
Function	Sent value [0...255]	0
Value/forced operation		

Activate minimum signal duration

Options: No
 Yes

- Yes: The following parameters appear:

**For rising edge
in value x 0.1 s [1...65,535]**
Options: 1...10...65,535

Note
A rising edge corresponds to a “normally opened contact function”.

**For falling edge
in value x 0.1 s [1...65,535]**
Options: 1...10...65,535

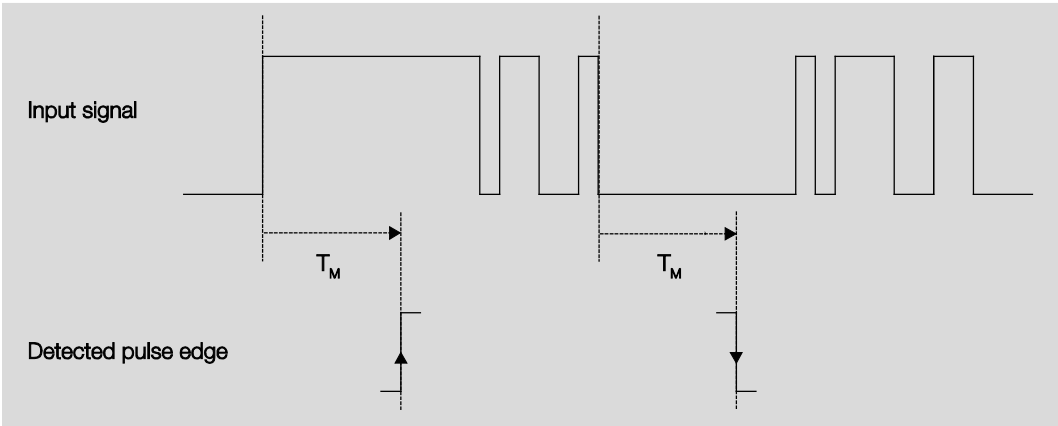
Note
A falling edge corresponds to a normally closed contact function.

What is the minimum signal duration?

In contrast to the debounce time, a telegram is only sent after the minimum signal duration has elapsed. The individual functions are:

If an edge is detected on the input, the minimum signal duration will commence. No telegrams are sent on the bus at this time. The signal on the input is observed within the minimum signal duration. If a further edge appears at the input during the minimum signal duration, it will be interpreted as a new operation, and the minimum signal duration restarts. If no further edges occur after the start of the minimum signal duration, a telegram is sent on the bus after the minimum signal duration has elapsed.

Example: Minimum signal duration of the input signal for a detected edge:



In only two cases do no further edge changes occur within the minimum signal duration T_M after a change of edge. For this reason, only both of these are detected as valid.

**Scan input after download,
ETS reset and bus voltage recovery**

Options: No
Yes

- No: The object value is not scanned after a download, bus reset or bus voltage recovery.
- Yes: The object value is scanned after a download, bus reset or bus voltage recovery. The following parameter appears:

**Inactive wait state after bus
voltage recovery in s [0...30,000]**

Options: 0...30,000

Here the waiting time after a bus voltage recovery is set. After the waiting time has elapsed the state on the input terminals is scanned. The input reacts as if the state on the input terminals has just changed.

Note
The inactive waiting time does <u>not</u> add to the actual, adjustable sending delay time. This can be set separately.

Value 1 (rising edge/ short operation)

Options:

- do not send
- 1-bit value [0/1]
- 2-bit value (forced operation)
- 1-byte value [-128...127]
- 1-byte value [0...255]
- 1-byte value (8-bit scene)
- 2-byte value [-32,768...32,767]
- 2-byte value [0...65,535]
- 2-byte value (floating point)
- 3 byte value [time, weekday]
- 4-byte value [-2147483648...2147483647]
- 4-byte value [0...4294967295]

This parameter serves for defining the data type which is sent when the contact is actuated.

Depending on the selection made in parameter *Value 1 (rising edge / short operation)*, different parameters appear. All of these are described below:

Sent value [X]

Options:

- ON/OFF/TOGGLE
- 0/1
- 128...0...127
- 0...255
- 32,768...0...32,767
- 0...65,535
- 100...20...100
- 2,147,483,648...0...2,147,483,647
- 0...4,294,967,295

This parameter defines the value which is sent on operation. The value range is dependent on the set data type of the value X.

Sent value

Options:

- ON, activate forced position
- OFF, activate forced operation
- Disable forced operation

This parameter defines the value which is sent on operation.

In the following table, the Forced operation function is explained:

Bit 1	Bit 0	Access	Description
0	0	Enabled	The Switch group object of the actuator is enabled by the binary input. The assigned sensor can control the actuator via the Switch object. The binary input does not control the actuator. Bit 0 of the value of the Forced operation group object is not evaluated. The Forced operation group object sends a telegram with the group addresses of the Forced operation group object and the status of the Switch group object every time the latter changes status.
0	1	Enabled	
1	0	Off	The Switch group object of the actuator is disabled by the binary input. The assigned sensor cannot control the actuator via the Switch group object. The binary input controls the actuator via the Forced operation group object. The actuator is switched off. Bit 0 of the value of the Forced operation group object is evaluated.
1	1	On	The Switch group object of the actuator is disabled by the binary input. The assigned sensor cannot control the actuator via the Switch group object. The binary input controls the actuator via the Forced operation group object. The actuator is switched on.

8-bit scene

Options: 1...64

This parameter defines the scene number, which is sent on actuation.

Recall/store scene

Options: Recall
Save

This parameter defines whether the scene is to be recalled or stored.

Hour [0...23]

Options: 0...23

Minute [0...59]

Options: 0...59

Seconds [0...59]

Options: 0...59

These parameters set the hours, minutes and seconds to be sent on operation.

Weekday

- Options:
- 0 = no day
 - 1 = Monday
 - 2 = Tuesday
 - 3 = Wednesday
 - 4 = Thursday
 - 5 = Friday
 - 6 = Saturday
 - 7 = Sunday

Using these parameters, the weekday sent on actuation is set.

**Value 2 (falling edge/
long operation)**

Note
The descriptions for the parameter <i>Value 2 (rising edge/short operation)</i> are the same as those for <i>Value 1 (falling edge/long operation)</i> .

3.3.3.4.2 Parameter *Distinction between long and short operation* – Yes

If the parameter *Distinction between long and short operation*, is set to Yes, the following parameters appear:

General	Enable communication object "Block" 1-bit	<input type="radio"/> No <input checked="" type="radio"/> Yes
+ Output A,B	Debounce time	50 ms
+ Output C,D	Distinction between long and short operation	<input type="radio"/> No <input checked="" type="radio"/> Yes
+ Output E,F	Input on operation	<input type="radio"/> Open <input checked="" type="radio"/> Closed
+ Output G,H	Long operation after...	0.6 s
+ Output I,J	Value 1 (rising edge/ short operation)	2-bit value (forced operation)
+ Output K,L	Sent value	Disable forced operation
- Input a	Value 2 (falling edge/ long operation)	1-byte value [0...255]
Function	Sent value [0...255]	0
Value/forced operation		

Input on operation

Options: Open
 Closed

- *Open*: Operation opens the input.
- *Closed*: Operation closes the input.

Long operation after ...

Options: 0.3/0.4/0.5/0.6/0.8 s
 1/1.2/1.5 s
 2/3/4/5/6/7/8/9/10 s

Here the time period T_L , after which an operation is considered a "long" operation, is defined.

Note
The remaining parameter descriptions can be found in the Parameter Distinction between long and short operation – No, p. 87 .

3.3.4 Commissioning without bus voltage

How is the device switched on and put into operation?

To put the device into operation, apply an auxiliary voltage from the mobile power supply (NTI).

In the supplied state, all outputs are set to Blind mode.

All inputs are set to 2-button blind operation mode, with the first input assigned to "up" and the second to "down".

Input pairs are always assigned to the output with the same letter (e.g. a, b to A, B)

This means that the outputs can be switched as soon as the bus voltage is applied:

Closing the contact at input a closes relay A, raising the connected blind. Closing the contact at input b closes relay B, lowering the connected blind.

3.4 Group objects

Note
As standard, the write flag (with the exception of 1 bit group objects) is deleted with the communication object values. Thus the group object value cannot be changed via the bus. If this function is required, the write flag must be set in ETS.
The communication object value is overwritten with the parameterized value after bus voltage recovery.

3.4.1 Summary of group objects

GO No.	Function	Name	Data Point Type (DPT)	Length	Flags				
					C	L	W	T	R
0	In operation	System	1.002	1 bit	x			x	
1	Request status values	General	1.017	1 bit	x		x		
2...9	Not assigned								

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GO No.	Function	Name	Data Point Type (DPT)	Length	Flags				
					C	L	W	T	R
10	Block	Input a: Switch sensor	1.003	1 bit	x		x		
		Input a: Switch/dimming sensor	1.003	1 bit	x		x		
		Input a: Blind sensor	1.003	1 bit	x		x		
		Input a: Value/forced operation	1.003	1 bit	x		x		
11	Switch 1	Input a: Switch sensor	1.001	1 bit	x		x	x	
	Switch	Input a: Switch/dimming sensor	1.001	1 bit	x		x	x	
	Blind UP/DOWN	Input a: Blind sensor	1.008	1 bit	x		x	x	
	Value 1, unsigned	Input a: Value/forced operation	8.xxx	2 byte	x			x	
	Value 1, floating point	Input a: Value/forced operation	9.001	2 byte	x			x	
	Value 1, forced operation	Input a: Value/forced operation	2.xxx	2 bit	x			x	
	Value 1, signed	Input a: Value/forced operation	13.xxx	4 byte	x			x	
	Value 1, signed	Input a: Value/forced operation	6.001/ 6.010	1 byte	x			x	
	Value 1, unsigned	Input a: Value/forced operation	5.xxx	1 byte	x			x	
	Value 1, scene number	Input a: Value/forced operation	17.001/ 18.001	1 byte	x			x	
	Value 1	Input a: Value/forced operation	1.xxx	1 bit	x			x	
	Value 1, time, weekday	Input a: Value/forced operation	10.001	3 byte	x			x	
	Value 1, signed	Input a: Value/forced operation	7.xxx	2 byte	x			x	
	Value 1, unsigned	Input a: Value/forced operation	12.xxx	4 byte	x		x	x	
12	Switch 2	Input a: Switch sensor	1.001	1 bit	x		x	x	
	Dimming	Input a: Switch/dimming sensor	3.007	4 bit	x			x	
	STOP/slat adjustment	Input a: Blind sensor	1.007	1 bit	x			x	
	Value 2, unsigned	Input a: Value/forced operation	8.001	2 byte	x			x	
	Value 2, floating point	Input a: Value/forced operation	9.001	2 byte	x			x	
	Value 2, forced operation	Input a: Value/forced operation	2.001	2 bit	x			x	
	Value 2, signed	Input a: Value/forced operation	13.001	4 byte	x			x	
	Value 2, signed	Input a: Value/forced operation	6.010	1 byte	x			x	
	Value 2, unsigned	Input a: Value/forced operation	5.010	1 byte	x			x	
	Value 2, scene number	Input a: Value/forced operation	18.001	1 byte	x			x	
	Value 2	Input a: Value/forced operation	1.001	1 bit	x			x	
	Value 2, time, weekday	Input a: Value/forced operation	10.001	3 byte	x			x	
	Value 2, signed	Input a: Value/forced operation	7.001	2 byte	x			x	
	Value 2, unsigned	Input a: Value/forced operation	12.001	4 byte	x			x	

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GO No.	Function	Name	Data Point Type (DPT)	Length	Flags				
					C	L	W	T	R
13	Switch 3	Input a: Switch sensor	1.001	1 bit	x		x	x	
	Upper end position	Input a: Blind sensor	1.002	1 bit	x		x		
14	Start event 0/1	Input a: Switch sensor	1.001	1 bit	x		x		
	Lower end position	Input a: Blind sensor	1.002	1 bit	x		x		
15...69	Same GO as input a	Input b...l							
75	Switch	Output A	1.001	1 bit	x		x		
	Move UP/DOWN	Blind output A	1.008	1 bit	x		x		
	Move UP/DOWN	Shutter output A	1.008	1 bit	x		x		
76	Permanent on	Output A	1.003	1 bit	x		x		
	Slat adj. OPEN/CLOSE	Blind output A	1.007	1 byte	x		x		
	STOP UP/DOWN	Shutter output A	1.007	1 byte	x		x		
77	Disable function Time	Output A	1.003	1 bit	x		x		
	Move to position	Blind output A	5.001	1 byte	x		x	x	
	Move to position	Shutter output A	5.001	1 byte	x		x	x	
78	Scene	Output A	18.001	1 byte	x		x		
	Adjust slat	Blind output A	5.001	1 byte	x		x	x	
79	Forced operation	Output A	2.001	2 bit	x		x		
	Forced operation	Output A	1.003	1 bit	x		x		
	Reference movement	Blind output A	1.008	1 bit	x		x		
	Reference movement	Blind output A	1.008	1 bit	x		x		
	Reference movement	Shutter output A	1.008	1 bit	x		x		
	Reference movement	Shutter output A	1.008	1 bit	x		x		
80	Status switch	Output	1.001	1 bit	x	x		x	
	Scene	Blind output A	18.001	1 byte	x		x		
	Scene	Shutter output A	18.001	1 byte	x		x		

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GO No.	Function	Name	Data Point Type (DPT)	Length	Flags				
					C	L	W	T	R
81	Logical connection 1	Output A	1.002	1 bit	x		x		
	Activation of autom. control	Blind output A	1.003	1 bit	x		x	x	
	Activation of autom. control	Shutter output A	1.003	1 bit	x		x	x	
82	Logical connection 2	Output A	1.002	1 bit	x		x		
	Sun	Blind output A	1.001	1 bit	x		x		
	Sun	Shutter output A	1.001	1 bit	x		x		
83	Move to pos. for sun	Blind output A	5.001	1 byte	x		x		
	Move to pos. for sun	Shutter output A	5.001	1 byte	x		x		
84	Sun slat adjust.	Blind output A	5.001	1 byte	x		x		
85	Safety A	Blind output A	1.005	1 bit	x		x		
	Safety A	Shutter output A	1.005	1 bit	x		x		
86	Safety B	Blind output A	1.005	1 bit	x		x		
	Safety B	Shutter output A	1.005	1 bit	x		x		
87	Status byte	Blind output A	-	1 byte	x	x		x	
	Status Upper end position	Blind output A	1.002	1 bit	x	x		x	
	Status byte	Shutter output A	-	1 byte	x	x		x	
	Status Upper end position	Shutter output A	1.002	1 bit	x	x		x	
88	Status Lower end position	Blind output A	1.002	1 byte	x	x		x	
	Status Lower end position	Shutter output A	1.002	1 byte	x	x		x	
89	Not assigned								
90...157	Same GO as output A	Output C, E, G, I, K							
	Same GO as blind output A	Blind output C, E, G, I, K							
	Same GO as shutter output A	Shutter output C, E, G, I, K							

3.4.2

General group objects

No.	Function	Object name	Data type	Flags
0	In operation	System	1 bit DPT 1.002	C, T
<p>The group object is enabled if the <i>Send group object "In operation"</i> is set to <i>Yes</i> in the <i>General</i> parameter window.</p> <p>In order to regularly monitor the presence of the device on the KNX, an in operation monitoring telegram can be sent cyclically on the bus.</p> <p>As long as the group object is activated, it sends a parametrizable In operation telegram.</p> <p>Telegram value 1 = system in operation with option <i>Send value 1 cyclically</i> 0 = System in operation with option <i>Send value 0 cyclically</i></p>				
1	Request status values	General	1 bit DPT 1.017	C, W
<p>The group object is enabled if the parameter <i>Enable group object "Request status values" 1 bit</i> is set to <i>Yes</i> in the <i>General</i> parameter window.</p> <p>If this group object receives a telegram with the value x (x = 0; 1; 0 or 1), all status objects are sent on the bus, provided they are set to <i>On change</i> or <i>After request</i> or <i>After a change or request</i>.</p> <p>Option x = 1 produces the following function:</p> <p>Telegram value: 1 = all status messages are sent. 0 = No status messages are sent.</p>				

3.4.3 ***Input a...l* group objects**

The group objects are the same for all inputs and are therefore explained using *Input a*.

The descriptions of the parameter setting options for *Inputs a...l* are described in the [Input a Function parameter window p. 64](#).

The *Input a* group objects are nos. 10...14.

The *Input b* group objects are nos. 15...19.

The *Input c* group object are nos. 20...24.

The *Input d* group objects are nos. 25...29.

The *Input e* group objects are nos. 30...34.

The *Input f* group objects are nos. 35...39.

The *Input g* group objects are nos. 40...44.

The *Input h* group objects are nos. 45...49.

The *Input i* group objects are nos. 50...54.

The *Input j* group objects are nos. 55...59.

The *Input k* group objects are nos. 60...64.

The *Input l* group objects are nos. 65...69.

3.4.3.1

group objects *Switch sensor*

No.	Function	Object name	Data type	Flags
10	Block	Input a: Switch sensor	1 bit DPT 1.003	C, W
<p>This group object is enabled if the <i>Enable group object "Block"</i> 1 bit parameter is set to <i>Yes</i> in the <i>Input a: Switch sensor</i> parameter window.</p> <p>Using the communication object <i>Block</i>, the input can be blocked or enabled. With activated communication object <i>Block</i> the inputs are blocked.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>When the input is blocked there is fundamentally no reaction to a signal change on the input, but:</p> <ul style="list-style-type: none"> – Waiting for a long button operation or a minimum signal duration is suspended. – Parametrized <i>Cyclic sending</i> is not interrupted. – It is still possible to write the <i>Switch x</i> group object. <p>If the input state changed during the blocked phase, this leads to immediate sending of the new communication object value after enabling. If the input state remains the same during the blocking phase, the communication object value is not sent.</p> </div> <p>Telegram value: 0 = enable input a 1 = Block input a</p>				
11	Switch 1	Input a: Switch sensor	1 bit DPT 1.001	C, W, T
<p>This group object is enabled if the <i>Function</i> parameter is set to <i>Switch sensor</i> in the <i>Input a: Function</i> parameter window and the "<i>Switch 1</i>" parameter is set to <i>Yes</i> in the <i>Input a: Objects "Switch"</i> parameter window.</p> <p>In accordance with the parameter setting, this group object can be switched by actuating the input to <i>ON</i>, <i>OFF</i> or <i>TOGGLE</i> or can be set to <i>No reaction</i>. With toggle the previous value, e.g. 1, is toggled directly to the value 0. The group object can be sent cyclically, e.g. for sensor lifespan monitoring.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>The communication object can be written to externally. Thus cyclic sending is interrupted or may not be possible depending on the parameter setting.</p> <p>No further group objects are visible with the setting.</p> </div> <p>Telegram value: 0 = OFF 1 = ON</p>				
12	Switch 2			
13	Switch 3			
See communication object 46.				
14	Start event 0/1	Input a: Switch sensor	1 bit DPT 1.001	C, W
<p>This group object is enabled if the "<i>Start event 0/1</i>" 1 bit parameter is set to <i>Yes</i> in the <i>Input a: Switch sensor</i> parameter window.</p> <p>The 1-bit communication object <i>Start event 0/1</i> is enabled. As a result, the same events, except those of the push button/switch connected to the binary input, can also be triggered by the receipt of a telegram on the communication object <i>Start event 0/1</i>.</p> <p>Telegram value: 0 = start event 0 1 = Start event 1</p>				

3.4.3.2

Switch/dimming sensor group objects

No.	Function	Object name	Data type	Flags
10	Block	Input a: Switch/dimming sensor	1 bit DPT 1.003	C, W
<p>This group object is enabled if the <i>Enable group object "Block"</i> 1 bit parameter is set to <i>Yes</i> in the <i>Input a: Switch/dimming sensor</i> parameter window.</p> <p>Using the communication object <i>Block</i>, the input can be blocked or enabled. With activated communication object <i>Block</i> the inputs are blocked.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Note</p> <p>When the input is blocked there is fundamentally no reaction to a signal change on the input, but:</p> <ul style="list-style-type: none"> – Waiting for a long button operation or a minimum signal duration is suspended. – Parametrized <i>Cyclic sending</i> is interrupted with dimming steps. – It is still possible to write the <i>Switch</i> group object. <p>When enabling an input, a change of the signal states (as opposed to before the block) leads to immediate processing, e.g.:</p> <ul style="list-style-type: none"> – The minimum actuation or detection of a long/short button push starts. – Group objects send their value if necessary. </div> <p>Telegram value: 0 = enable input a 1 = Block input a</p>				
11	Switch	Input a: Switch/dimming sensor	1 bit DPT 1.001	C, W, T
<p>This group object is enabled if the <i>Function</i> parameter is set to <i>Switch/dim sensor</i> in the <i>Input a: Function</i> parameter window.</p> <p>In accordance with the parameter setting, this group object can be switched by actuating the input to <i>ON</i>, <i>OFF</i> or <i>TOGGLE</i> or can be set to <i>No reaction</i>. With toggle, the previous value, e.g. 1, is toggled directly to the value 0. With the <i>TOGGLE</i> setting, the group object should be linked with the switch feedback of the dimming actuator (updating of the switching state) via a non-sending group address.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Note</p> <p>The communication object can be written to externally. Thus cyclic sending is interrupted or may not be possible depending on the parameter setting.</p> <p>No further group objects are visible with the setting.</p> </div> <p>Telegram value: 0 = OFF 1 = ON</p>				
12	Dimming	Input a: Switch/dimming sensor	4 bit DPT 3.007	C, T
<p>This group object is enabled if the <i>Function</i> parameter is set to <i>Switch/dim sensor</i> in the <i>Input a: Function</i> parameter window.</p> <p>A long operation at the input has the effect that <i>BRIGHTER</i> or <i>DARKER</i> dim telegrams are sent via this communication object on the bus. A <i>STOP</i> telegram is sent and the cyclic sending of dim telegrams is stopped at the end of actuation with <i>START-STOP-DIMMING</i>.</p>				
13, 14				
Not assigned				

3.4.3.3

Blind sensor group objects

No.	Function	Object name	Data type	Flags
10	Block	Input a: Blind sensor	1 bit DPT 1.003	C, W
<p>This group object is enabled if the <i>Enable group object "Block"</i> 1 bit parameter is set to Yes in the <i>Input a: Blind sensor</i> parameter window.</p> <p>Using the communication object <i>Block</i>, the input can be blocked or enabled. With activated communication object <i>Block</i> the inputs are blocked.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Note</p> <p>When the input is blocked there is fundamentally no reaction to a signal change, but:</p> <ul style="list-style-type: none"> – Waiting for a long button operation or a minimum signal duration is suspended. – Parametrized <i>Cyclic sending</i> is interrupted. – Group objects continue to be updated and sent if necessary. <p>When enabling an input, a change of the signal states (as opposed to before the block) leads to immediate processing, e.g.:</p> <ul style="list-style-type: none"> – The minimum actuation or detection of a long/short button push starts. – Group objects send their current value if necessary. </div> <p>Telegram value: 0 = enable input a 1 = Block input a</p>				
11	Blind UP/DOWN	Input a: Blind sensor	1 bit DPT 1.008	C, W, T
<p>This group object is enabled if the <i>Function</i> parameter is set to <i>Blind sensor</i> in the <i>Input a: Function</i> parameter window.</p> <p>This group object sends a blind UP or DOWN Move telegram on the bus. By receiving telegrams, the device also recognizes Move telegrams from another sensor, e.g. parallel operation.</p> <p>Telegram value 0 = UP 1 = DOWN</p>				
12	STOP/slat adjustment	Input a: Blind sensor	1 bit DPT 1.007	C, T
<p>This group object is enabled if the <i>Function</i> parameter is set to <i>Blind sensor</i> in the <i>Input a: Function</i> parameter window.</p> <p>This communication object sends a STOP telegram or slat adjustment.</p> <p>Telegram value 0 = STOP/slat adjustment UP 1 = STOP/slat adjustment DOWN</p>				

No.	Function	Object name	Data type	Flags
13	Upper end position	Input a: Blind sensor	1 bit DPT 1.002	C, W
<p>This group object is enabled if the <i>Function</i> parameter is set to <i>Blind sensor</i> in the <i>Input a: Function</i> parameter window. With this communication object, the feedback of a blind actuator, which indicates whether the blind is located in the upper end position, can be integrated.</p> <div> <div>Note</div> <div>The communication object is important for 1-button operation (synchronisation).</div> </div> <p>Telegram value: 0 = blind is not in upper end position. 1 = blind has reached the upper end position.</p>				
14	Lower end position	Input a: Blind sensor	1 bit DPT 1.002	C, W
<p>This group object is enabled if the <i>Function</i> parameter is set to <i>Blind sensor</i> in the <i>Input a: Function</i> parameter window. With this communication object, the feedback of a blind actuator which indicates whether the blind is located in the lower end position can be integrated.</p> <div> <div>Note</div> <div>The communication object is important for 1-button operation (synchronisation).</div> </div> <p>Telegram value: 0 = blind is not in lower end position. 1 = blind has reached the lower end position.</p>				

3.4.3.4

Value/forced operation group objects

No.	Function	Object name	Data type	Flags																						
10	Block	Input a: Value / forced operation	1 bit DPT 1.003	C, W																						
<p>This group object is enabled if the <i>Enable group object "Block" 1 bit</i> parameter is set to <i>Yes</i> in the <i>Input a: Value/forced operation</i> parameter window.</p> <p>Using the communication object <i>Block</i>, the input can be blocked or enabled. With activated communication object <i>Block</i> the inputs are blocked.</p> <div><div>Note</div><div><p>When the input is blocked there is fundamentally no reaction to a signal change, but:</p><ul style="list-style-type: none">– Waiting for a long button operation or a minimum signal duration is suspended.– Parameter setting <i>8 bit scene</i> terminates saving.– Group objects continue to be updated and sent if necessary.<p>When enabling an input, a change of the signal states (as opposed to before the block) leads to immediate processing, e.g.:</p><ul style="list-style-type: none">– The minimum actuation or detection of a long/short button push starts.– Group objects send their current value if necessary.</div></div> <p>Telegram value: 0 = enable input a 1 = Block input a</p>																										
11	Value 1	Input a: Value / forced operation	DPT variable	C, T																						
<p>This group object is enabled if the <i>Function</i> parameter is set to <i>Value/forced operation</i> in the <i>Input a: Function</i> parameter window.</p> <p>This communication object sends a value on the bus with short operation when opening or closing the contact. The value and data type can be freely set in the parameters.</p> <table><tr><td>1 bit value [0/1]</td><td>DPT 1.xxx Switch telegram</td></tr><tr><td>2 bit value [0...3]</td><td>DPT 2.xxx Forced operation</td></tr><tr><td>1-byte value [-128...127]</td><td>DPT 6.001/6.010 value</td></tr><tr><td>1-byte value [0...255]</td><td>DPT 5.xxx value</td></tr><tr><td>1-byte value (8-bit scene)</td><td>DPT 17.001 scene number 18.001 scene control</td></tr><tr><td>2-byte value [-32,768...32,767]</td><td>DPT 7.xxx value</td></tr><tr><td>2-byte value [0...65,535]</td><td>DPT 8.xxx value</td></tr><tr><td>2-byte value (floating point)</td><td>DPT 9.001 temperature</td></tr><tr><td>3 byte value [time, weekday]</td><td>DPT 10.001 time, weekday</td></tr><tr><td>4-byte value [0...4294967295]</td><td>DPT 12.xxx value</td></tr><tr><td>4-byte value [-2,147,483,648...2,147,483,647]</td><td>DPT 13.xxx value</td></tr></table>					1 bit value [0/1]	DPT 1.xxx Switch telegram	2 bit value [0...3]	DPT 2.xxx Forced operation	1-byte value [-128...127]	DPT 6.001/6.010 value	1-byte value [0...255]	DPT 5.xxx value	1-byte value (8-bit scene)	DPT 17.001 scene number 18.001 scene control	2-byte value [-32,768...32,767]	DPT 7.xxx value	2-byte value [0...65,535]	DPT 8.xxx value	2-byte value (floating point)	DPT 9.001 temperature	3 byte value [time, weekday]	DPT 10.001 time, weekday	4-byte value [0...4294967295]	DPT 12.xxx value	4-byte value [-2,147,483,648...2,147,483,647]	DPT 13.xxx value
1 bit value [0/1]	DPT 1.xxx Switch telegram																									
2 bit value [0...3]	DPT 2.xxx Forced operation																									
1-byte value [-128...127]	DPT 6.001/6.010 value																									
1-byte value [0...255]	DPT 5.xxx value																									
1-byte value (8-bit scene)	DPT 17.001 scene number 18.001 scene control																									
2-byte value [-32,768...32,767]	DPT 7.xxx value																									
2-byte value [0...65,535]	DPT 8.xxx value																									
2-byte value (floating point)	DPT 9.001 temperature																									
3 byte value [time, weekday]	DPT 10.001 time, weekday																									
4-byte value [0...4294967295]	DPT 12.xxx value																									
4-byte value [-2,147,483,648...2,147,483,647]	DPT 13.xxx value																									
12	Value 2																									
See communication object 11.																										
13, 14																										
Not assigned																										

3.4.4 **Output group objects**

The group objects for all outputs are the same except for the *Logical connection 1* and *Logical connection 2* objects. They are therefore explained using *Output A*.

3.4.4.1 **The parameter setting options for Outputs A, C, E, G, I and K are described in the Output A,B Operation mode parameter window, p. 21.**

The *Output A* group objects are nos. 75...82.

The *Output C* group objects are nos. 90...97.

The *Output E* group objects are nos. 105...112.

The *Output G* group objects are nos. 120...127.

The *Output I* group objects are nos. 135...142.

The *Output K* group objects are nos. 150...157.

3.4.4.2

Output A group objects

No.	Function	Object name	Data type	Flags
75	Switch	Output A	1 bit DPT 1.001	C, W
<p>This group object is enabled if the <i>Mode Output</i> parameter is set to <i>Switch actuator</i> in the <i>Output A, B: Mode</i> parameter window.</p> <p>This group object switches the output ON/OFF. The device receives a Switch telegram via the Switch group object.</p> <p>N/O:</p> <p>Telegram value 1 = switch ON 0 = Switch OFF</p> <p>N/C:</p> <p>Telegram value 1 = switch OFF 0 = Switch ON</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>With logical connections or forced operations, a change in the <i>Switch</i> group object does not necessarily result in a changed contact position.</p> <p>For further information see: Function diagram, p. 126</p> </div>				
76	Permanent on	Output A	1 bit DPT 1.003	C, W
<p>This group object is enabled if the <i>Enable function Time</i> parameter is set to <i>Yes</i> in the <i>Output A,B: Switch actuator</i> parameter window.</p> <p>If the communication object is assigned with the value 1, the output is switched on irrespective of the value of the communication object <i>Switch</i> and remains switched on until the communication object <i>Permanent ON</i> has the value 0. When the Permanent ON state ends, the state of the communication object <i>Switch</i> is used.</p> <p>Permanent ON only switches ON and "masks" the other functions. This means that the other functions, e.g. Staircase lighting, continue to run in the background but do not initiate a switching action. When permanent ON ends, the contact position which would result without the permanent ON function becomes active. For the <i>Staircase lighting</i> function the reaction after Permanent ON is parametrized in <i>Output A,B: Switch actuator - Time</i> parameter window, p. 42.</p> <p>This communication object can be used, for example, to allow service or maintenance and cleaning personnel to initiate a permanent ON. The device receives a switch telegram via the switch object.</p> <p>Permanent ON becomes inactive after a download or bus voltage recovery.</p> <p>Telegram value 1 = activates permanent ON mode 0 = Deactivates permanent ON mode</p>				

No.	Function	Object name	Data type	Flags																																			
77	Disable function Time	Output A	1 bit DPT 1.003	C, W																																			
<p>This group object is enabled if the <i>Enable function Time</i> parameter is set to <i>Yes</i> in the <i>Output A,B: Switch actuator</i> parameter window.</p> <p>The group object value on bus voltage recovery can be set using the <i>Object value "Disable function Time" on bus voltage recovery</i> parameter in the - <i>Time</i> parameter window.</p> <p>With the Time function disabled, the output can only be switched on or off; the <i>Staircase lighting</i> function is not triggered.</p> <p>Telegram value 1 = staircase lighting disabled 0 = staircase lighting enabled</p> <p>The contact position at the time of disabling and enabling is retained and will only be changed with the next switch telegram to communication object <i>Switch</i>.</p>																																							
78	Scene	Output A	1 byte DPT 18.001	C, W																																			
<p>This group object is enabled if the <i>Enable function Scene</i> parameter is set to <i>Yes</i> in the <i>Output A,B: Switch actuator</i> parameter window.</p> <p>Using this 8-bit group object, a Scene telegram can be sent using a coded telegram. The telegram contains the number of the scene concerned as well as the information on whether the scene is to be recalled or if the current contact position is to be assigned to the scene.</p> <p>Telegram format (1 byte): MXSSSSSS (MSB) (LSB) M: 0 – scene is recalled 1 – scene is stored (if allowed) X: not used S: scene number (1-64: 00000000...00111111)</p> <table><thead><tr><th colspan="2">KNX 1 byte telegram value</th><th rowspan="2">Meaning</th></tr><tr><th>Decimal</th><th>Hexadecimal</th></tr></thead><tbody><tr><td>00 or 64</td><td>00h or 40h</td><td>Recall scene 1</td></tr><tr><td>01 or 65</td><td>01h or 41h</td><td>Recall scene 2</td></tr><tr><td>02 or 66</td><td>02h or 42h</td><td>Recall scene 3</td></tr><tr><td>...</td><td>...</td><td>...</td></tr><tr><td>63 or 127</td><td>3Fh or 7Fh</td><td>Recall scene 64</td></tr><tr><td>128 or 192</td><td>80h or B0h</td><td>Store scene 1</td></tr><tr><td>129 or 193</td><td>81h or B1h</td><td>Store scene 2</td></tr><tr><td>130 or 194</td><td>82h or B2h</td><td>Store scene 3</td></tr><tr><td>...</td><td>...</td><td>...</td></tr><tr><td>191 or 255</td><td>AFh or FFh</td><td>Store scene 64</td></tr></tbody></table> <p>For further information see: Scene function, p. 133 and Code table, 8 bit scene, p. 142</p>					KNX 1 byte telegram value		Meaning	Decimal	Hexadecimal	00 or 64	00h or 40h	Recall scene 1	01 or 65	01h or 41h	Recall scene 2	02 or 66	02h or 42h	Recall scene 3	63 or 127	3Fh or 7Fh	Recall scene 64	128 or 192	80h or B0h	Store scene 1	129 or 193	81h or B1h	Store scene 2	130 or 194	82h or B2h	Store scene 3	191 or 255	AFh or FFh	Store scene 64
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191 or 255	AFh or FFh	Store scene 64																																					
79	Forced operation	Output A	1 bit DPT 1.003	C, W																																			
<p>This group object is enabled if the <i>Enable function Forced operation</i> parameter is set to <i>Yes</i> and the <i>Object type "Forced operation"</i> parameter is set to <i>1 bit</i> in the <i>Output A,B: Switch actuator</i> parameter window.</p> <p>If this group object receives the value 1, the output is forcibly set to the parametrized switch position set in the <i>Output A</i> parameter window. The forced positioning of the contact continues until forced operation ends, which it does when a 0 is received via the <i>Forced operation</i> group object.</p> <p>Please note that the <i>Forced operation</i> function and a bus voltage failure have a higher priority on the contact position, see Function diagram, p. 126.</p>																																							

No.	Function	Object name	Data type	Flags
79	Forced operation	Output A	2 bit DPT 2.001	C, W
<p>This group object is enabled if the <i>Enable function Forced operation</i> parameter is set to <i>Yes</i> and the <i>Object type "Forced operation"</i> is set to <i>2 bit</i> in the <i>Output A,B: Switch actuator</i> parameter window.</p> <p>The output can be forcibly operated via this group object, e.g. by a higher-level control. The object value directly defines the forced position of the contact:</p> <p style="margin-left: 40px;">0 or 1 = The output is not forcibly operated. 2 = The output is forcibly switched off 3 = The output is forcibly switched on</p>				
80	Status switch	Output A	1 bit DPT 1.001	C, R, T
<p>This communication object is enabled if the <i>Enable group object "Status Switch" 1 bit</i> parameter is set to <i>Yes</i> in the <i>Output A,B: Switch actuator</i> parameter window.</p> <p>It is possible to parametrize whether the group object value <i>No</i>, <i>update only</i>, <i>On change</i>, <i>On request</i> or <i>After a change or request</i> is sent on the bus. The group object value directly indicates the current contact position of the switching relay.</p> <p>The status value can be inverted.</p> <p>Telegram value 1 = relay ON or OFF depending on the parameterization 0 = Relay OFF or ON depending on the parameterization</p>				
81	Logical connection 1	Output A	1 bit DPT 1.002	C, W
<p>This group object is enabled if the <i>Logical connection 1</i> parameter is set to <i>Yes</i> in the - <i>Logic</i> parameter window. The - <i>Logic</i> parameter window is enabled in the <i>Output A,B: Switch actuator</i> parameter window.</p> <p>This group object assigns the first of two logic group objects to the output. The logical connection is defined in the - <i>Logic</i> parameter window.</p> <p>Initially, the switch group object is connected with the <i>Logical connection 1</i> group object. The result of this is then connected with the <i>Logical connection 2</i> group object.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>The values of group objects <i>Logical connection 1/2</i> are stored on bus voltage failure. The values are restored on bus voltage recovery.</p> <p>If values are not assigned for these group objects <i>Logical Connection 1/2</i> they will be deactivated.</p> <p>On reset via the bus, the values of group objects <i>Logical Connection 1/2</i> remain unchanged.</p> </div> <p>For further information see: Connection/logic, p. 131</p>				
82	Logical connection 2	Output A	1 bit DPT 1.002	C, W
See group object 81.				

3.4.5 Output A,B: Blind and Shutter group objects

This section explains the Output A,B: Blind and Shutter group objects using the Blind option. If the blind option has a special function or if the function is not available, e.g. slat adjustment, this is clearly indicated. Otherwise, the explanations apply for both operation modes.

No.	Function	Object name	Data type	Flags
75	Move UP/DOWN	Blind Output A,B Shutter Output A,B	1 bit DPT 1.008	C, W
<p>This group object is enabled if the <i>Mode Output</i> parameter is set to <i>Blind</i> in the <i>Output A,B: Mode</i> parameter window.</p> <p>If this group object receives a telegram with the value 0, the blind moves UP. If it receives a telegram with the value 1, it moves DOWN. The output contact returns to the neutral middle position after the <i>Total travel time</i> has elapsed.</p> <p>Telegram value 0 = UP 1 = DOWN</p>				
76	STOP/Slat adj. OPEN/CLOSE and/or STOP UP/DOWN	Blind Output A,B Shutter Output A,B	1 bit DPT 1.007	C, W
<p>This group object is enabled if the <i>Mode Output</i> parameter is set to <i>Blind</i> in the <i>Output A,B: Mode</i> parameter window.</p> <p>This group object stops the shutter or blind during movement. When the shutter is stopped, the group object is used for slat adjustment, one step UP (0) or DOWN (1).</p> <p>If the blind is moving, the movement stops if a telegram is received on this group object, regardless of whether a 0 or a 1 is received.</p> <p>Blind mode: If the blind is at a standstill when this group object receives a telegram the blind is moved UP (0) or DOWN (1) for the duration of slat adjustment and then stops.</p> <p>Shutter mode: If the shutter is at a standstill when this group object receives a telegram, no action is undertaken.</p> <p>Telegram value 0 = STOP/slat adjustment UP 1 = STOP/slat adjustment DOWN</p>				
77	Move to position	Blind Output A,B Shutter Output A,B	1 byte DPT 5.001	C, W, T
<p>This group object is enabled if the <i>Mode Output</i> parameter is set to <i>Blind</i> in the <i>Output A,B: Mode</i> parameter window.</p> <p>This group object is used for movement to and feedback of a determined position (0 = top, 255 = bottom).</p> <p>If this group object receives a telegram the blind is moved to the position corresponding to the received value.</p> <p>After the target position is reached, the slats will assume the same position as before the movement started. If an <i>Adjust slat 0...255</i> telegram is received during movement, the slats move to the received target position.</p> <p>Telegram value: 0 = upper ... = Intermediate position 255 = lower</p>				

No.	Function	Object name	Data type	Flags
78	Adjust slat	Blind Output A,B	1 byte DPT 5.001	C, W, T
<p>This group object is enabled if the <i>Mode Output</i> parameter is set to <i>Blind</i> in the <i>Output A,B: Mode</i> parameter window.</p> <p>This group object is used for movement to and feedback of a defined slat position and is therefore only available in Blind mode.</p> <p>If this group object receives a telegram, the slats are positioned in accordance with the received value. If the blind is currently moving, the movement will continue to the target position before the slats are positioned.</p> <p>Telegram value: 0 = slats fully OPEN ... = Intermediate position 255 = slats CLOSED</p>				
79	Reference movement	Blind Output A,B Shutter Output A,B	1 bit DPT 1.008	C, W
<p>This group object is enabled if the <i>Mode Output</i> parameter is set to <i>Blind</i> in the <i>Output A,B: Mode</i> parameter window.</p> <p>This group object is used to compensate for position deviations, e.g. after frequent UP/DOWN movements to intermediate positions. The blinds are moved to the end position (0 = upper, 1 = lower) and back.</p> <p>If this group object receives a telegram the blind is moved fully upwards or downwards.</p> <p>The current position is stored in order to move the blind to the parametrized position after the reference movement.</p> <p>If the option <i>Back to stored position</i> is set and the <i>Automatic</i> function was set for the blind before the reference movement, it is reactivated after the stored position is reached.</p> <p>Telegram value: 0 = reference movement fully upwards 1 = reference movement fully downwards</p>				

No.	Function	Object name	Data type	Flags																																			
80	Scene	Blind Output A,B Shutter Output A,B	1 byte DPT 18.001	C, W																																			
<p>This group object is enabled if the <i>Enable function Scene</i> parameter is set to <i>Yes</i> in the <i>A, B: Blind</i> parameter window.</p> <p>This group object is used to recall or store a scene (shutter and slat position). The object value contains a scene number (1-64) as well as the instruction as to whether a scene should be recalled or stored. Scene values are stored by the device.</p> <p>Using this 8-bit group object, a Scene telegram can be sent using a coded telegram. The telegram contains the number of the scene concerned as well as the information as to whether the scene is to be recalled or if the current contact position is to be assigned to the scene.</p> <p>Telegram format (1 byte): MXSSSSSS (MSB) (LSB)</p> <p>M: 0 – Recalls the scene 1 – scene is stored (if allowed) X: not used S: scene number (1...64: 00000000...00111111)</p> <table><tr><th colspan="2">KNX 1 byte telegram value</th><th rowspan="2">Meaning</th></tr><tr><th>Decimal</th><th>Hexadecimal</th></tr><tr><td>00 or 64</td><td>00h or 40h</td><td>Recall scene 1</td></tr><tr><td>01 or 65</td><td>01h or 41h</td><td>Recall scene 2</td></tr><tr><td>02 or 66</td><td>02h or 42h</td><td>Recall scene 3</td></tr><tr><td>...</td><td>...</td><td>...</td></tr><tr><td>63 or 127</td><td>3Fh or 7Fh</td><td>Recall scene 64</td></tr><tr><td>128 or 192</td><td>80h or B0h</td><td>Store scene 1</td></tr><tr><td>129 or 193</td><td>81h or B1h</td><td>Store scene 2</td></tr><tr><td>130 or 194</td><td>82h or B2h</td><td>Store scene 3</td></tr><tr><td>...</td><td>...</td><td>...</td></tr><tr><td>191 or 255</td><td>AFh or FFh</td><td>Store scene 64</td></tr></table> <p>For further information see: <u>Scene function, p. 133</u> and <u>Code table, 8 bit scene, p. 142</u></p>					KNX 1 byte telegram value		Meaning	Decimal	Hexadecimal	00 or 64	00h or 40h	Recall scene 1	01 or 65	01h or 41h	Recall scene 2	02 or 66	02h or 42h	Recall scene 3	63 or 127	3Fh or 7Fh	Recall scene 64	128 or 192	80h or B0h	Store scene 1	129 or 193	81h or B1h	Store scene 2	130 or 194	82h or B2h	Store scene 3	191 or 255	AFh or FFh	Store scene 64
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81	Activation of autom. control	Blind Output A,B Shutter Output A,B	1 bit DPT 1.003	C, W																																			
<p>This group object is enabled if the <i>Enable function Automatic</i> parameter is set to <i>Yes</i> in the <i>A, B: Blind</i> parameter window.</p> <p>This group object activates and deactivates the Automatic function.</p> <p>If this group object receives a telegram with the value 1, automatic control is activated for the output concerned and the blind moves to the automatic position. This can be defined via the group objects <i>Sun</i>, <i>Move to pos. for sun [0...255]</i> and <i>Adjust slat for sun [0...255]</i>.</p> <p>If a telegram with the value 0 is received, the blind remains in the current position and no longer reacts to incoming telegrams on the Automatic group objects. If the blind is currently in motion, it will not be interrupted.</p> <p>Telegram value: 0 = automatic control deactivated 1 = automatic control activated</p>																																							

No.	Function	Object name	Data type	Flags
82	Sun	Blind Output A,B Shutter Output A,B	1 bit DPT 1.001	C, W
<p>This group object is enabled if the <i>Enable function Automatic</i> parameter is set to <i>Yes</i> in the <i>A, B: Blind</i> parameter window.</p> <p>This group object activates sun protection: The blind moves to the sun screening position.</p> <p>Incoming telegrams on this group object are only considered if the group object <i>Activation of autom. control</i> has the value 1.</p> <p>If the <i>Sun</i> group object receives a telegram with the value 1, the blind moves to the parametrized position for Sun = 1. If the object receives a telegram with the value 0, the blind moves to the parametrized position for sun = 0.</p> <p>The execution of a reaction to incoming telegrams can be delayed via the parameter <i>Delay for sun = 1</i> and <i>Delay for sun = 0</i>, in order to prevent the shutters/blinds continuously moving up and down in changeable weather. If a telegram with the opposing value is received within the delay time, Position for sun = 1 is not executed and the blind remains in the Position for sun = 0 position or vice versa.</p> <p>If Position for sun = 1 is set to <i>Receive position via 8-bit values</i>, then once the delay has elapsed, the output moves to the last position received on the group objects <i>Move to pos. for sun [0..255]</i> (blinds and shutters) and <i>Adjust slat for sun [0...255]</i> (blinds only).</p> <p>Telegram value: 0 = no sun 1 = sun</p>				
83	Move to pos. for sun	Blind Output A,B Shutter Output A,B	1 byte DPT 5.001	C, W
<p>This group object is enabled if the <i>Enable function Automatic</i> parameter is set to <i>Yes</i> in the <i>A, B: Blind</i> parameter window.</p> <p>This group object sets the position during active sun protection.</p> <p>Incoming telegrams on this group object are only executed immediately if automatic control is activated (<i>Activation of autom. control</i> = 1) and the sun is shining (sun = 1). The blind is then positioned according to the received value.</p> <p>Telegram value: 0 = upper ... = Intermediate position 255 = lower</p>				
84	Sun slat adjust.	Blind Output A,B	1 byte DPT 5.001	C, W
<p>This group object is enabled if the <i>Enable function Automatic</i> parameter is set to <i>Yes</i> in the <i>A, B: Blind</i> parameter window.</p> <p>This group object sets the slat position during active sun protection and is thus only available with blind operation.</p> <p>Incoming telegrams on this group object are only executed immediately if automatic control is activated (<i>Activation of autom. control</i> = 1) and the sun is shining (sun = 1). The slats are then positioned according to the received value.</p> <p>The Move telegram <i>Move to pos. for sun [0..255]</i> is always moved to the target position before the positioning of the slats is executed.</p> <p>Telegram value: 0 = slats fully OPEN ... = Intermediate position 255 = slats CLOSED</p>				

No.	Function	Object name	Data type	Flags
85	Safety A	Blind Output A,B Shutter Output A,B	1 bit DPT 1.005	C, W
This group object is enabled if the <i>Enable function Safety</i> parameter is set to <i>Yes</i> in the <i>A, B: Blind</i> parameter window. This group object enables movement to a fixed position and inhibits normal operation.				
86	Safety B	Blind Output A,B Shutter Output A,B	1 bit DPT 1.005	C, W
See communication object 85.				
87	Status Upper end position	Blind Output A,B Shutter Output A,B	1 bit DPT 1.002	C, R, T
<p>This group object is enabled if the <i>Extra feedback</i> parameter is set to <i>End positions</i> in the <i>A, B: Blind</i> parameter window. This group object defines whether the blind is or is not in the upper end position. The object value is sent about five seconds after completion of a movement.</p> <p>Telegram value: 1 = blind in upper end position. 0 = blind not in upper end position</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>After a download or ETS reset, the blind/shutter position is unknown and a 1 is sent to the <i>Status Upper end position</i> and <i>Status Lower end position</i> objects.</p> </div>				

No.	Function	Object name	Data type	Flags
87	Status byte	Blind Output A,B Shutter Output A,B	1-byte	C, R, T
<p>This group object is enabled if the <i>Extra feedback</i> parameter is set to <i>Status byte</i> in the <i>A, B: Blind</i> parameter window.</p> <p>This group object provides information about the state of the output and the operation. The information is provided in coded format in a 1 byte value.</p> <p>The Blind/Roller Shutter Actuator uses this group object to send information concerning the mode in which the output is currently operating. Only one mode can be activated at any time.</p> <p>The status byte is sent after a change.</p> <p>Bit sequence: 76543210</p> <p>Bit 7: not used Always: 0</p> <p>Bit 6: not used Always: 0</p> <p>Bit 5: Safety A Telegram value: 0: inactive 1: active</p> <p>Bit 4: Safety B Telegram value: 0: inactive 1: active</p> <p>Bit 3: Automatic Telegram value: 0: inactive 1: active</p> <p>Bit 2: Sun Telegram value: 0: inactive 1: active</p> <p>Bit 1: Upper end position Telegram value: 0: inactive 1: active</p> <p>Bit 0: Lower end position Telegram value: 0: inactive 1: active</p> <p>Special coding for bit 0 and bit 1:</p> <p>Bit sequence 00: Blind between upper and lower end position Bit sequence 01: Lower end position Bit sequence 10: Upper end position Bit sequence 11: Undefined blind position</p> <p>For further information see: <u>Blind/shutter status byte, p. 142</u></p>				
88	Status Lower end position	Blind Output A,B Shutter Output A,B	1 bit DPT 1.002	C, R, T
<p>This group object is enabled if the <i>Extra feedback</i> parameter is set to <i>End positions</i> in the <i>A, B: Blind/Shutter</i> parameter window respectively.</p> <p>This group object defines whether the blind is or is not in the lower end position. The group object value is sent about five seconds after completion of a movement.</p> <p>Telegram value: 1 = blind in lower end position. 0 = blind not in lower end position</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note</p> <p>After a download or ETS reset, the blind/shutter position is unknown and a 1 is sent to the <i>Status Upper end position</i> and <i>Status Lower end position</i> objects.</p> </div>				

4 Planning and application

In this chapter you will find some tips and application examples for practical use of the device.

4.1 Output A,B

This chapter explains the drive types and application examples for Output A,B.

4.1.1 Drive types

Output A,B can control two drive types – blind or shutter:

1. Blind

The drive moves the blind UP/DOWN and OPENS/CLOSEs slat adjustment.

2. Shutter

The drive moves the shutter UP and DOWN. In contrast to the blind drive type, there are no group objects available for slat control.

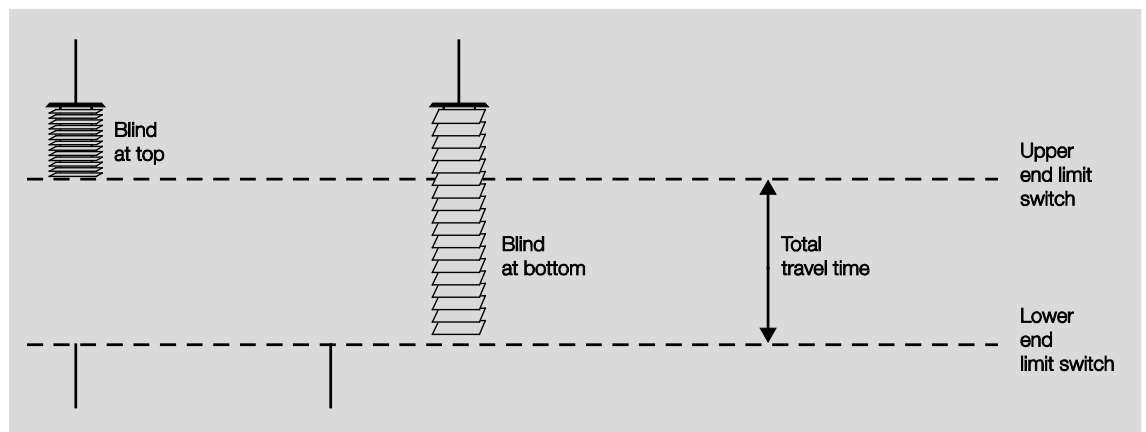
4.1.2 General functions

The general functions of the blind and shutter are the same. Therefore they are explained below based on the blind settings.

4.1.2.1 Travel times

Total travel time

The total travel time is the time that a blind requires to move from fully upwards to fully downwards. Should the Blind/Roller Shutter Actuator receive an UP or DOWN Move telegram, the corresponding output is switched and the blind is moved in the appropriate direction.



The blind is moved in this direction until the Blind/Roller Shutter Actuator receives a STOP telegram or the upper or lower end positions are reached and the motor is switched off by the limit switch.

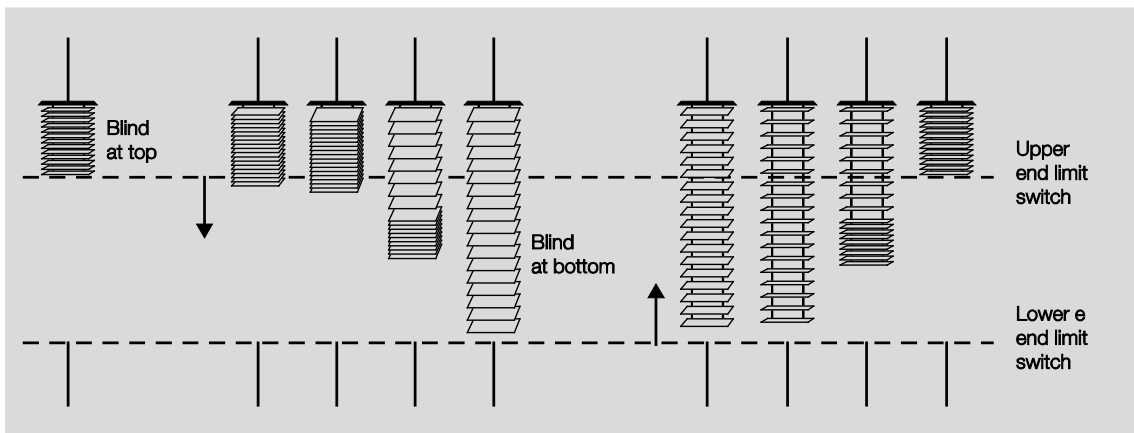
When the motor is switched off by a limit switch, the corresponding contact on the blind/shutter actuator remains closed until the parametrized total travel time has elapsed, including any programmed "overrun" time. A voltage remains applied to the output up until this point.

Note

Total travel time also determines the current position of the blind in ongoing operation. Therefore it should be measured and parametrized as accurately as possible, particularly if the functions *Move to position* or *Automatic control* are used. This is the only way to accurately calculate the blind position.

Slat adjustment switch on duration

After the blind moves upwards, the slats are open (horizontal slat position). When the blind is lowered, the slats are initially closed (vertical slat position) and the blind moves downwards. If the blind is now raised again, the slats will be re-opened (horizontal slat position) and will then be moved upwards.



To adjust the slat angle more precisely, the Blind/Roller Shutter Actuator can be used to execute short movements. These move the blind for a brief parametrized time – the so-called *Slat adjustment switch on duration* – in the required direction, thus adjusting the slats (STEP telegram). The shorter this duration, the more accurately the slat angle can be adjusted.

Measuring slat adjustment total travel time

The total travel time of the slats from opened (horizontal slat position) to closed (vertical slat position) is easy to determine: Fully open the slats. Then count how many slat adjustments are necessary to fully close them. The slat adjustment total travel time is the number of slat adjustments multiplied by the switch on duration. Enter this value as a parameter.

Reversing time, pause between two movements

To ensure that the blind drive is not damaged by a sudden change in direction, the output contacts are electrically disconnected for the duration of the parametrized reversing time and only switched for the required direction of movement once this time has elapsed.

Important

Observe the drive manufacturer's technical data when parametrizing the reversing time!

Note

The output contacts for UP and DOWN travel are configured to be electrically mutually exclusive, ensuring that voltage cannot be applied simultaneously to both contacts, which would damage or destroy the drive.

4.1.2.2

Safety

Activating the Safety on the Blind/Roller Shutter Actuator determines whether the blind should move UP, DOWN, STOP or remain unchanged.

When the Safety is rescinded, the blind is moved to the parametrized position.

The *Block* function is suitable, for example, to raise blinds and shutters when windows have to be cleaned.



Danger

Please note that the Safety alone is not sufficient to protect cleaning personnel from the blinds descending. Adequate protection should be guaranteed by another means.

4.1.2.3 Determining the current position

Reference movement

The Blind/Roller Shutter Actuator continuously determines the current position of the blind and the slat angle based on the duration of the individual movements. For various reasons, over extended periods slight inaccuracies can occur in the determination of the position. Therefore, the Blind/Roller Shutter Actuator uses the upper and lower end positions to unequivocally determine the current position of the blind. Every time the blind is in the upper end position, the position is updated in the blind/shutter actuator memory.

If the end positions are not reached in normal operation, a telegram can be used to trigger a reference movement all the way up or down. After a reference movement, the blind remains in the reference position or moves back to the stored position – whichever is specified in the parameters.

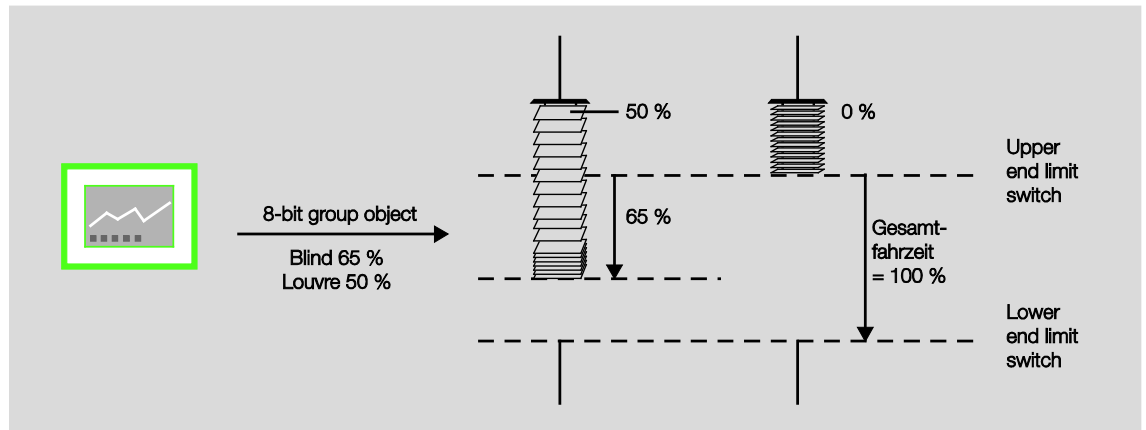
Direct and indirect movement to the position

The *Move to position* parameter determines whether a *Move to position* telegram moves the blind from its current position either directly to the target position, or alternatively triggers a reference movement indirectly via a start position (upper end position or lower end position) to a defined target position.

4.1.2.4 Move to position in % [0...100]

The blind can be moved to any position via an 8-bit value. In Blind operation mode, the slats can also be positioned at any angle via an 8-bit value.

This means you can determine which position the blind should move to each and every time a new Move telegram is received. For example, it is possible to set the position direct from a display or visualization terminal using a value.



4.1.3 Automatic control

Using automatic control makes it possible to provide a convenient automatic sun protection system as well as to feed back the status of the blind.

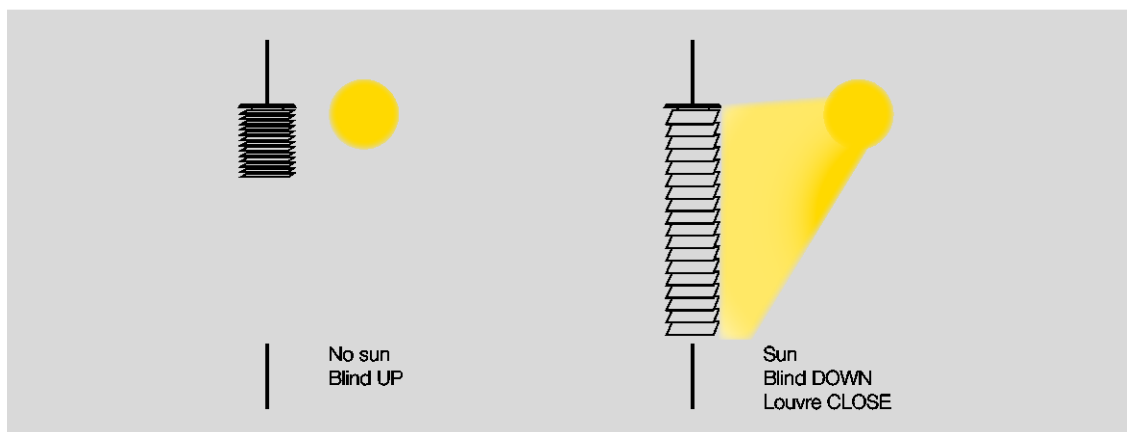
4.1.3.1

Automatic sun protection

Function

Together with other KNX components, e.g. JSB/S, the JRA/S 6.230.3.1 can provide convenient sun protection control.

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. The residual opening in the blinds lets a sufficient level of diffuse light into the room.



When using special directional slats, the direct daylight into the room is guided so that no uncomfortable direct light penetrates the room, but at the same time optimum use is made of the existing natural light.

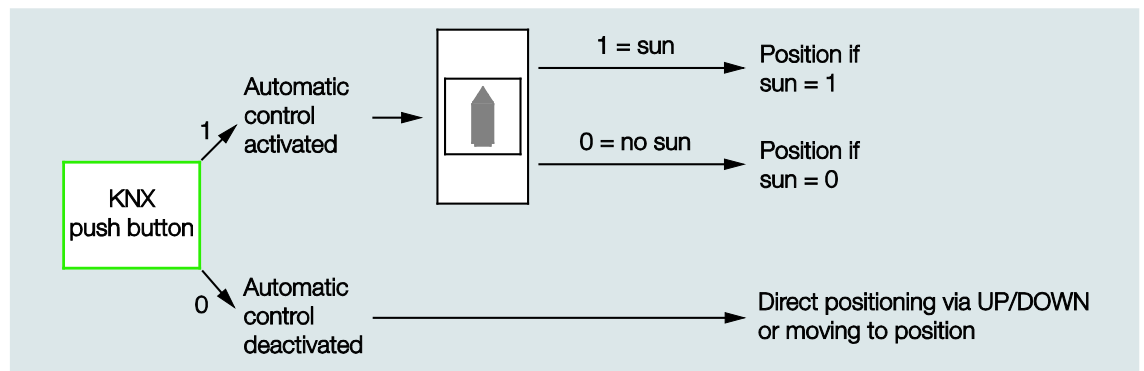


Setting up a simple automatic sun protection system

Two further components are required in addition to the Blind/Roller Shutter Actuator and the touch sensor in order to set up a simple automatic sun protection system: an activation option for the user, e.g. a further switch sensor or the second rocker of the UP/DOWN touch sensor, and a brightness sensor.

Room users can use the second switch sensor to specify whether they wish to use the automatic sun protection or would rather control the shutters manually. If the automatic sun protection is activated via a switch sensor, the shutter moves automatically until either the automatic sun protection is deactivated via the same switch sensor or the user issues a direct Move telegram, e.g. UP/DOWN or Move to position, and the automatic function is thus also deactivated.

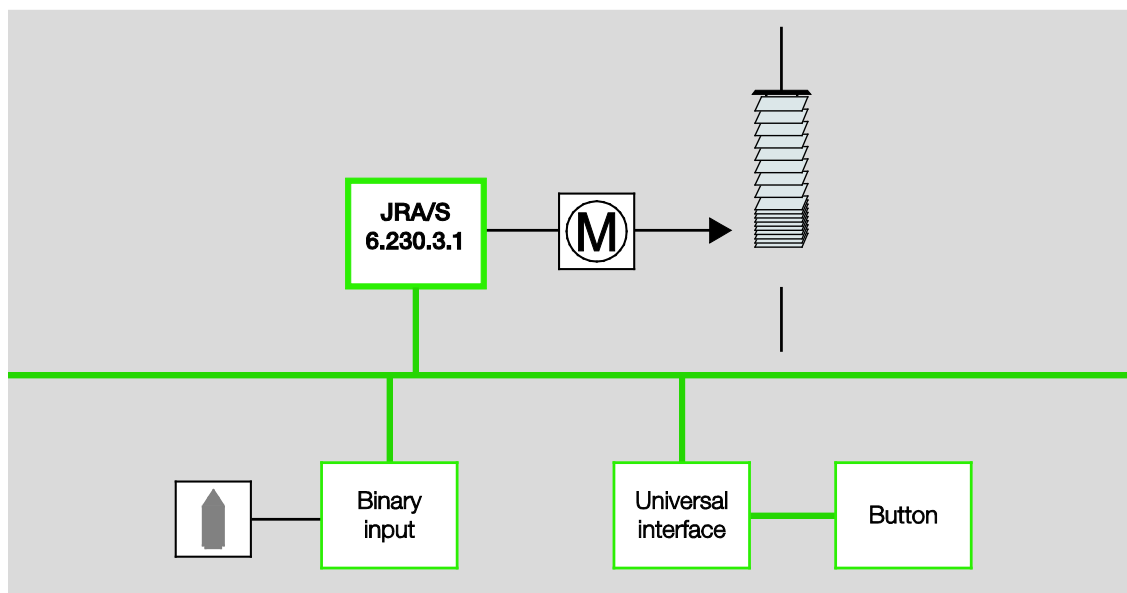
The brightness sensor sends the Blind/Roller Shutter Actuator information as to whether there is direct sunlight on the window or the façade. Once the adjustable delay period has elapsed, the actuator positions the blind according to the set *Position for sun = 1 (sun)* or *Position for sun = 0 (no sun)*.



Planning a simple automatic sun protection system

To set up an automatic sun protection system that tracks the sun's position, the following KNX components are required:

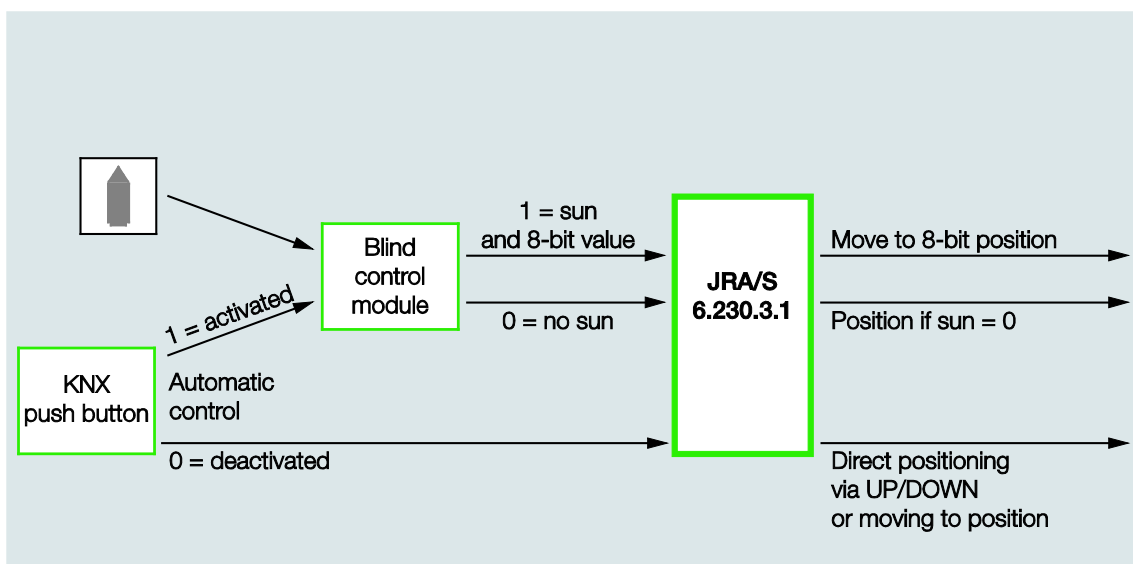
- Blind/Roller Shutter Actuator with Binary Inputs
- KNX switch sensors or universal interface with push button or direct via the binary inputs of the blind/shutter actuator
- Brightness sensor



Design of an automatic sun protection system that tracks the sun's position

To set up an automatic sun protection system that tracks the sun's position, an additional Shutter Control Unit JSB/S 1.1 is required.

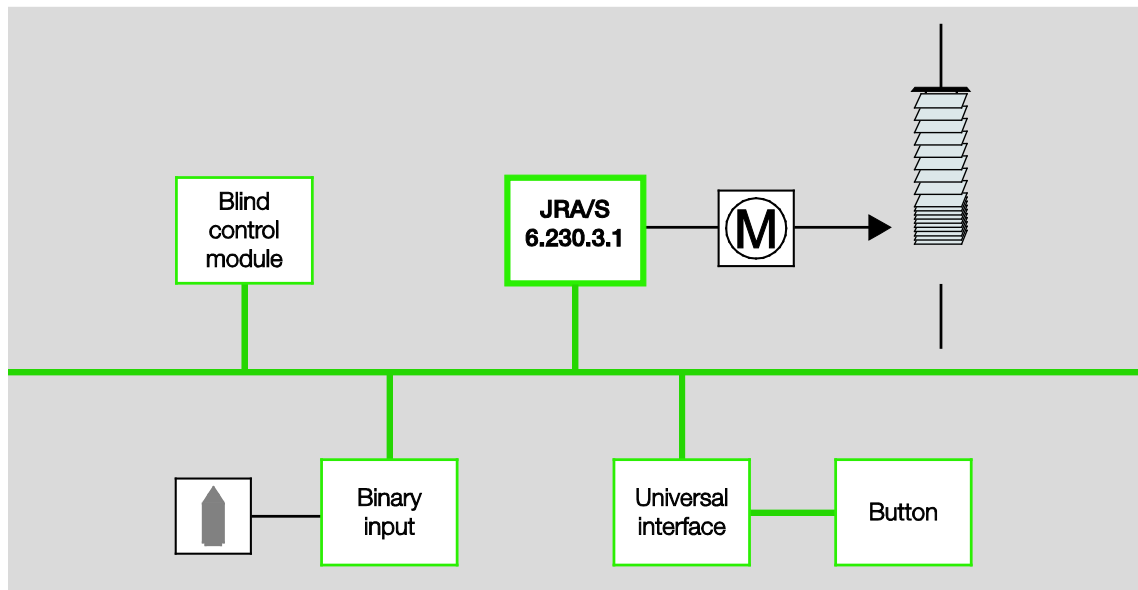
The current position of the sun is continually calculated in the Shutter Control Unit. The blind is moved via an 8-bit value into the optimum position to deflect direct sunlight while letting through as much diffuse light as possible. The influence of shadows, e.g. the buildings opposite, can also be taken into account in the Shutter Control Unit.



Planning an automatic sun protection system that tracks the sun's position

The following KNX components are required for setting up an automatic sun protection system that tracks the sun's position:

- Blind/Roller Shutter Actuator with Binary Inputs
- KNX switch sensors or universal interface with push button or direct via the binary inputs of the blind/shutter actuator brightness sensor
- Blind Control Unit



The current position of the sun is calculated based on the time of day. The Blind Control Unit can be operated as an independent clock, a master clock or a slave clock on the KNX. Several Shutter Control Units can also be synchronized together. If the Shutter Control Unit is operated as an independent or master clock, no further time switches are required.

The Shutter Control Unit can likewise be operated as a slave clock, if for example there is a master clock in the installation. A time switch which can send the time and date on the KNX must be used as a master clock.

4.1.3.2

Status feedback

Position in [0...100]

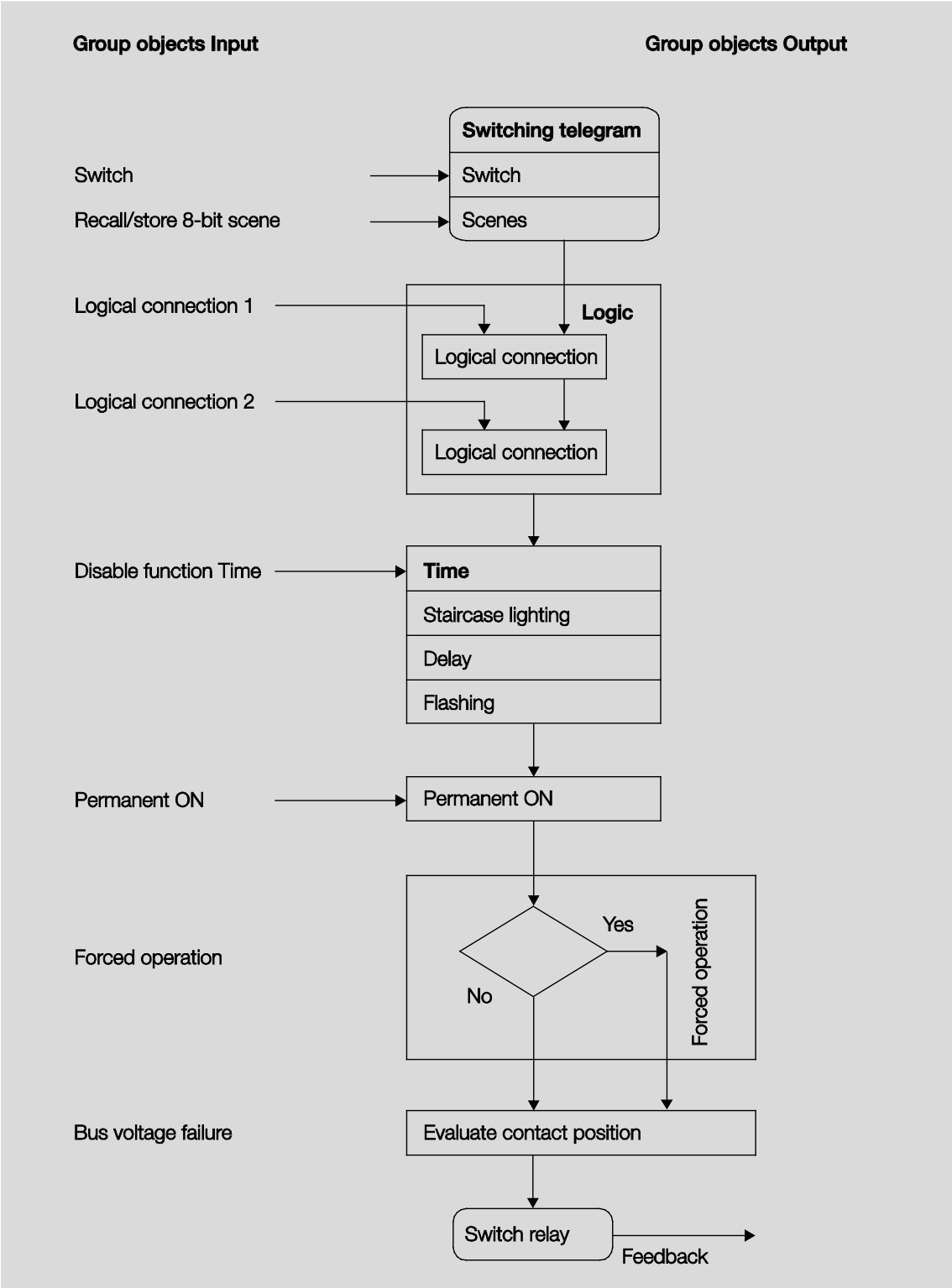
The Blind/Roller Shutter Actuator can feedback the position of the blind on the bus as an 8-bit value via the same group object used to call the position. The corresponding group address should be defined in ETS as the "sending group address".

4.2 Output

This chapter explains the function diagrams and application examples for the outputs.

4.2.1 Function diagram

The following illustration indicates the sequence in which the functions are processed. Group objects which lead to the same box have the same priority and are processed in the sequence in which the telegrams are received.



Note

If a telegram is received via the *Switch* group object, this is connected to both Logic objects if they are activated. The result of this action serves as the input signal for the *Time* function. If this is not disabled, a corresponding switch signal is generated, e.g. delay or flashing. Before the Switch telegram reaches the relay, the forced operation is checked and executed as a priority if applicable. Subsequently, the switching action is only dependent on the state of the bus voltage. If this permits a switching action, the relay is switched.

4.2.2

Time function

The *Time* function can be enabled (value 0) and disabled (value 1) via the bus (1-bit group object *Disable function Time*). The output operates without a delay as long as the *Time* function is disabled.

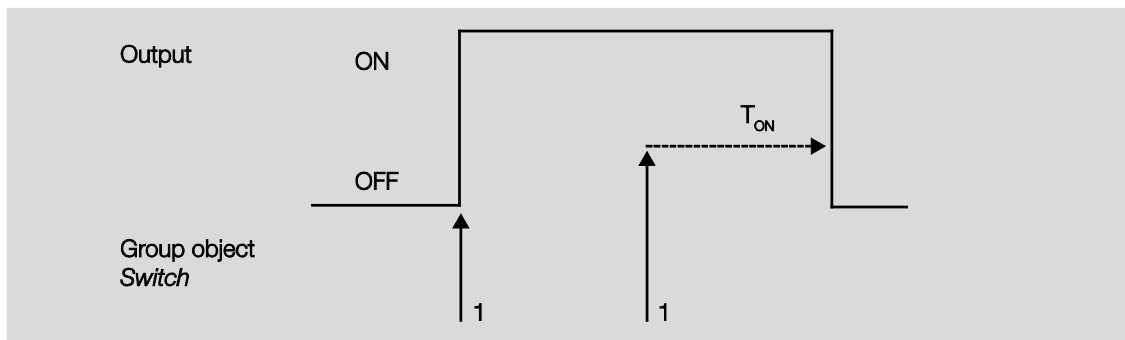
Various functions can be undertaken using the *Time* function:

- Staircase lighting
- Switching ON/OFF delay
- Flashing

You can switch, for example, between functions, e.g. function *Staircase lighting* (night time operation) and normal ON/OFF switch function (daytime operation).

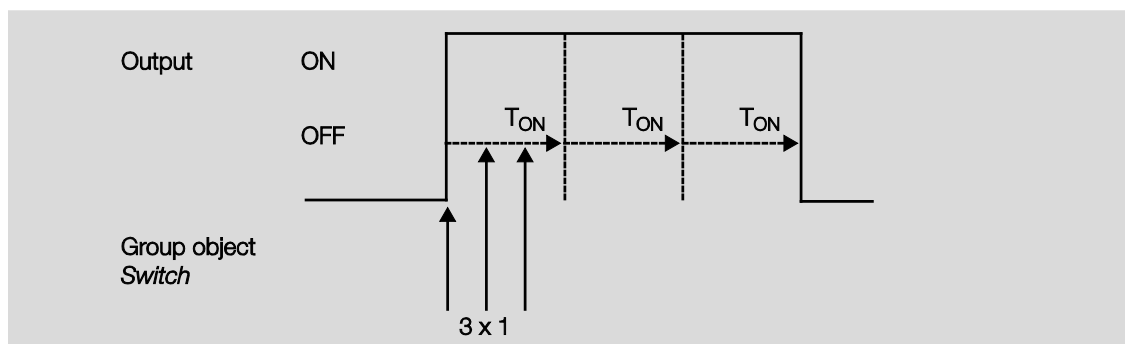
4.2.2.1 Staircase lighting

After the staircase lighting time T_{ON} has elapsed, the output switches off automatically. For every telegram with the value 1 the time restarts (*Retrigger* function) unless the parameter *Extending staircase lighting by multiple switch on ("Pumping up")* in the Output A,B: Switch actuator - Time parameter window, p. 42 is set to *No (not retriggerable)*.



This reaction is the basic reaction of the *Staircase lighting* function.

Via "pumping up" – operation of the push button several times in succession – users can adapt the staircase lighting to current needs. The maximum duration of the staircase lighting time can be set in the parameters.

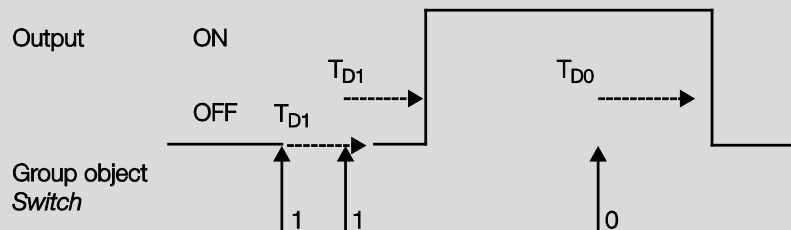


If the device receives a further ON telegram while the staircase lighting is switched on, the staircase lighting time is added to the remaining period.

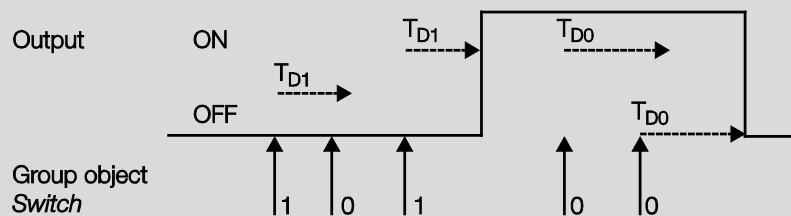
4.2.2.2 Switching ON/OFF delay

The ON/OFF delay delays output switch-on or switch-off.

Example 1:



Example 2:



The delay time T_{D1} or T_{D0} starts after a Switch telegram; once it has elapsed, the output executes the telegram.

If a new ON telegram with the value 1 is received during the switching ON delay, the delay time starts again. The same applies to the switching OFF delay if a new OFF telegram with the value 0 is received.

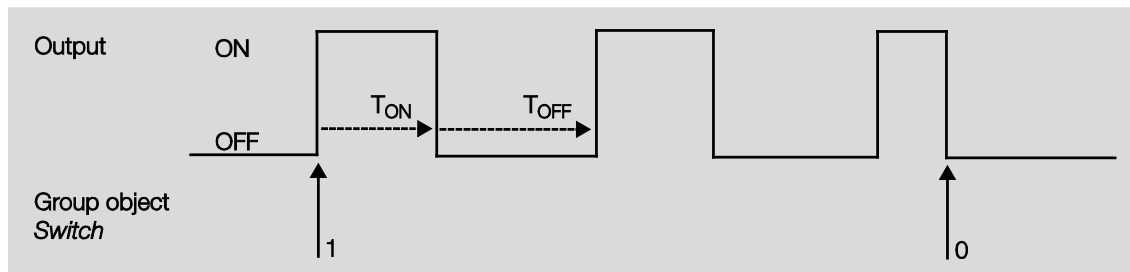
Note

If the device receives an OFF telegram during the switching on delay T_{D1} , ON telegrams are disregarded.

4.2.2.3

Flashing

The output can flash, i.e. switch on and off periodically.



The switch on time (T_{ON}) and switch off time (T_{OFF}) during flashing can be parametrized.

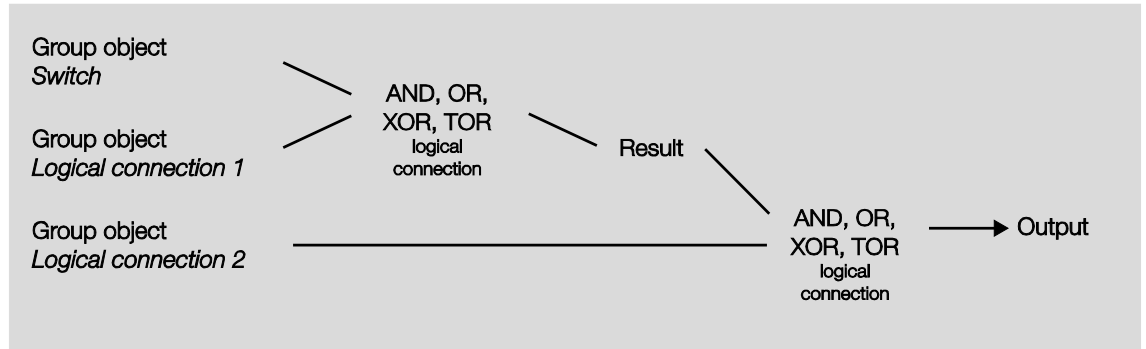
Note

The contact life of the contacts should be considered and can be found in the technical data. Limiting the number of switching operations with the parameter *Number of ON impulses* may be useful. Furthermore, a delay in the switching sequence may possibly be caused by the limited availability of switching energy with very frequent switching. The possible number of switching operations should be considered.

4.2.3

Connection/logic

With the Logic function it is possible to connect the switching of the output with certain conditions. Two connection group objects are available:



Initially the *Switch* group object is evaluated by the *Logical connection 1* group object. The result of this is then connected with the *Logical connection 2* group object.

The following Logic functions are possible:

Communication object values						Explanations
Logical function	Switch	Logical connection 1	Output	Logical connection 2	Output	
AND	0	0	0	0	0	The result is 1 if both input values are 1. The output is 1 if both input values are 1.
	0	1	0	1	0	
	1	0	0	0	0	
	1	1	1	1	1	
OR	0	0	0	0	0	The result is 1 if one of the input values is 1.
	0	1	1	1	1	
	1	0	1	0	1	
	1	1	1	1	1	
XOR	0	0	0	0	0	The result is 1 if the two input values have a different value.
	0	1	1	1	0	
	1	0	1	0	1	
	1	1	0	1	1	
GATE	0	closed		closed		The <i>Switch</i> group object is only allowed through if the GATE (connection) is open. Otherwise receipt of the <i>Switch</i> group object is ignored.
	0	open	0	open	0	
	1	closed		closed		
	1	open	1	open	1	

The Logic function is always re-calculated when a group object value is received.

Gate function example

- The GATE connection is set to disable as soon as the communication object *Logical connection x* receives a 0.
- The output of the logical connection is 0.
- The communication object *Logical connection 1* receives a 0, i.e. the GATE is disabled.
- The communication object *Switch* receives 0, 1, 0, 1. The output of the logic operation always remains 0.
- The *Logical connection x* group object receives a 1, i.e. the GATE is enabled if it is set in the parameters.
- The output of the logical connection is recalculated.

Note

The values of group objects *Logical connection 1/2* are stored on bus voltage failure. The values are set again after bus voltage recovery
If values are not assigned for these group objects *Logical Connection 1/2* they will be deactivated.
On reset via the bus, the values of group objects *Logical Connection 1/2* remain unchanged.

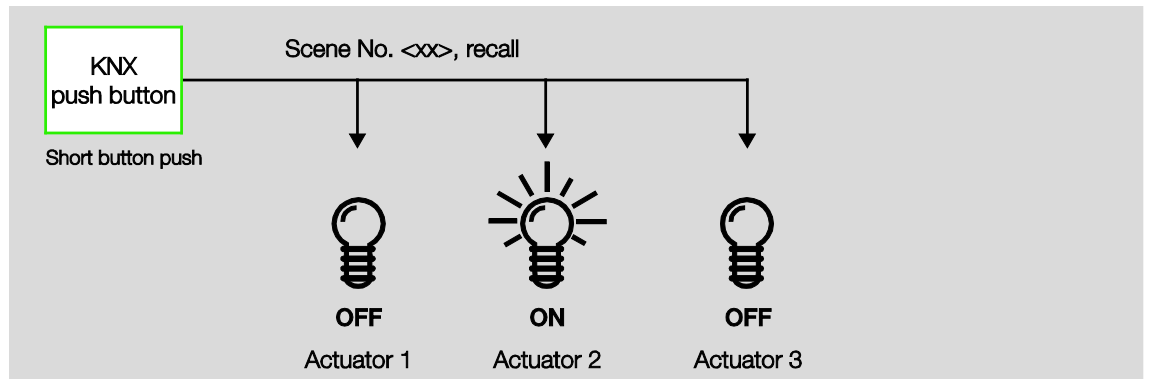
Note

If telegrams are received on the *Switch* group object during the block, they will not be stored.
For this reason, the output or the event remain unchanged when the GATE is enabled.
The output switches if the GATE is enabled and a telegram is received on the *Switch* group object.

4.2.4

Scene function

With the 8 bit scene, the push button gives the Blind/Roller Shutter Actuator an instruction to recall a scene. Scenes are not stored in the button but in the actuator.



Along with the telegram value a scene number is sent which must match the scene number in the parameters of the blind/shutter actuator.

Up to 64 different scenes are managed via a single group address. The Scene telegram contains the recall or store functions of a scene.

The scene function which controls multiple KNX devices is described below.

With Scene it is possible to retrieve one of 64 scenes or to connect multiple KNX devices in a scene. The scene can be retrieved or stored using a single telegram. It is a prerequisite that all the operating devices are parameterized with the same scene number.

Each KNX device involved receives the Scene telegram and independently controls the scene values. Using the Blind/Roller Shutter Actuator, for example, the outputs are switched on or off, the blind moves to a defined position.

Up to 64 different scenes can be managed via a single KNX group address. The following information is contained in a Scene telegram:

- Number of the scene (1...64)
- Recall scene / store scene

For further information see: Code table, 8 bit scene, p. 143

ABB i-bus® KNX

Planning and application

Advantage

The *Scene* function on ABB i-bus® devices has the following decisive advantage:

All settings to be undertaken in a scene are stored in the device. Therefore, they must not be sent via the KNX when a scene is recalled, and only a figure value, which has been assigned to this scene, is necessary. This considerably reduces the load on the bus and prevents unnecessary telegram traffic via KNX.

Note

The scene numbering 1 to 64 is retrieved via KNX with a telegram number 0 to 63. For corresponding scene coding see [Code table, 8 bit scene, p. 143](#).

4.3 Reaction on ...

4.3.1 Bus voltage recovery

General

- On bus voltage recovery, the group object values can be parametrized; if not they are set to the value 0.
- Timers are out of operation and should be restarted.
- Status group objects are sent as long as the option *On change* is set.
- The contact position is not known with 100% certainty after bus voltage recovery. It is assumed that the contact position has not changed during the bus failure (i.e. that there were no manual operations). Receipt of a new Switch event is required in order to establish the contact position of the Blind/Roller Shutter Actuator.
- The sending delay is only active on bus voltage recovery!

Switch contact output

- The *Staircase lighting time* group object value remains the same as before bus voltage failure.
- The *Disable function Time* group object value is dependent on the selected option.
- The *Permanent ON* group object value remains the same as before bus voltage failure.
- The switch contact output switches as follows:
 - Based on the value set for the *Switch* group object value on bus voltage recovery.
 - If the *Object value "Switch" on bus voltage recovery* parameter is not parametrized, the reaction on bus voltage failure is decisive.
 - If neither of the two above options is selected, the last position before bus voltage failure is retained.

Note

If a staircase lighting time was active at bus voltage failure, it will restart.

Note

The values of group objects *Logical connection 1/2* are stored on bus voltage failure. The values are set again after bus voltage recovery
 If values are not assigned for these group objects *Logical Connection 1/2* they will be deactivated.
 On reset via the bus, the values of group objects *Logical Connection 1/2* remain unchanged.

Inputs

- The inactive waiting time is only active on bus voltage recovery.

Blind

The reaction of the blind/shutter output is parametrizable. The output can assume any state or remain unchanged.

Note
<p>The position of the blind or shutter is also stored in the event of bus voltage failure if the <i>Automatic</i> function is activated. The blind or shutter remains in the same position.</p> <p>On bus voltage recovery, the position is retained and the group object value is undefined. The value is not updated until the next Move telegram.</p> <p>If the <i>Activation of autom. control</i> group object has not been assigned a group address, the <i>Automatic</i> function is deactivated when there is a download.</p> <p>If Automatic is active, it remains on after a download until the next manual override or until it is deactivated by the <i>Activation of autom. control</i> group object.</p>

4.3.2

ETS reset

What is an ETS reset?

Generally an ETS reset is defined as a reset of the device via ETS. In ETS3, reset is initialized in the Commissioning menu with the function *Reset device*. This stops and restarts the application.

Note

For all resets after delivery including the first download, the response will comply with that of a reset via the bus. A send and switch delay is not executed. All states are reset.

Switch contact output

- The *Staircase lighting time* group object value receives its parametrized value.
- The *Disable function Time* group object value is 0, i.e. the *Time* function is not disabled.
- The object value *Permanent ON* is 0, i.e. permanent ON is not active.
- The switch contact output goes to the safely opened state.

Note

The values of group objects *Logical connection 1/2* are stored on bus voltage failure. The values are set again after bus voltage recovery
If values are not assigned for these group objects *Logical Connection 1/2* they will be deactivated.
On reset via the bus, the values of group objects *Logical Connection 1/2* remain unchanged.

Blind/shutter

Note

The position of the blind or shutter is also stored in the event of bus voltage failure if the *Automatic* function is activated. The blind or shutter remains in the same position.
On bus voltage recovery, the position is retained and the group object value is undefined. The value is not updated until the next Move telegram.
If the *Activation of autom. control* group object has not been assigned a group address, the *Automatic* function is deactivated when there is a download.
If Automatic is active, it remains on after a download until the next manual override or until it is deactivated by the *Activation of autom. control* group object.

4.3.3

Download

Note
After a download with a change, the application complies in behaviour to a reset of the device in the ETS.

Switch contact output

The *Staircase lighting time* group object value remains unchanged.

The *Disable function Time* group object value remains unchanged.

Exception: The group object value is set to 0 if nothing is assigned to the object.

Note
Otherwise, the block for the <i>Time</i> function is removed if the <i>Disable function Time</i> group object is not available. The switch contact output will otherwise use the new parameters.

The *Permanent ON* group object value remains unchanged.

The switch contact output remains unchanged.

Blind/shutter

Note
If the <i>Activation of autom. control</i> group object has not been assigned a group address, the <i>Automatic</i> function is deactivated when there is a download.

4.3.4 Bus voltage failure

After the contact positions have set when the bus voltage fails, the device remains functional until the bus voltage recovers.

Note

The values of group objects *Logical connection 1/2* are stored on bus voltage failure. The values are set again after bus voltage recovery.
If values are not assigned for these group objects *Logical Connection 1/2* they will be deactivated.
On reset via the bus, the values of group objects *Logical Connection 1/2* remain unchanged.

Only the energy for an instant switching action for each output is available should the bus voltage fail.

Blind

The reaction of the blind/shutter output is parametrizable. The output can assume any state or remain unchanged.

Note

The position of the blind or shutter is also stored in the event of bus voltage failure if the *Automatic* function is activated. The blind or shutter remains in the same position.
On bus voltage recovery, the position is retained and the group object value is undefined. The value is not updated until the next Move telegram.
If the *Activation of autom. control* group object has not been assigned a group address, the *Automatic* function is deactivated when there is a download.
If Automatic is active, it remains on after a download until the next manual override or until it is deactivated by the *Activation of autom. control* group object.

A Appendix

A.1 Scope of delivery

The Blind/Roller Shutter Actuator with Binary Inputs is supplied with the following parts. The delivered items should be checked against the list below.

- 1x JRA/S 6.230.3.1, Blind/Roller Shutter Actuator with Binary Inputs, MDRC
- 1 set of installation and operating instructions
- 1x bus connection terminal (red/black)

A.2 Blind/shutter status byte

Bit No.		7	6	5	4	3	2	1	0
8-bit value	Hexadecimal	Not assigned	Not assigned	Safety A	Safety B	Automatic	Sun	Upper end position	Lower end position
0	00								
1	01								
2	02								
3	03								
4	04								
5	05								
6	06								
7	07								
8	08								
9	09								
10	0A								
11	0B								
12	0C								
13	0D								
14	0E								
15	0F								
16	10								
17	11								
18	12								
19	13								
20	14								
21	15								
22	16								
23	17								
24	18								
25	19								
26	1A								
27	1B								
28	1C								
29	1D								
30	1E								
31	1F								
32	20								
33	21								
34	22								
35	23								
36	24								
37	25								
38	26								
39	27								
40	28								
41	29								
42	2A								
43	2B								
44	2C								
45	2D								
46	2E								
47	2F								
48	30								
49	31								
50	32								
51	33								
52	34								
53	35								
54	36								
55	37								
56	38								
57	39								
58	3A								
59	3B								
60	3C								
61	3D								
62	3E								
63	3F								

Empty = Value 0
■ = Value 1, applicable

Note
All combinations not listed or indicated are invalid.

A.3 Code table, 8 bit scene

Bit No.	7	6	5	4	3	2	1	0		
8-bit value	Hexadecimal	Recall	Not defined	Scene number	Scene number	Scene number	Scene number	Scene number	Scene number	Recall (R)
0	00								1	R
1	01								2	R
2	02								3	R
3	03								4	R
4	04								5	R
5	05								6	R
6	06								7	R
7	07								8	R
8	08								9	R
9	09								10	R
10	0A								11	R
11	0B								12	R
12	0C								13	R
13	0D								14	R
14	0E								15	R
15	0F								16	R
16	10								17	R
17	11								18	R
18	12								19	R
19	13								20	R
20	14								21	R
21	15								22	R
22	16								23	R
23	17								24	R
24	18								25	R
25	19								26	R
26	1A								27	R
27	1B								28	R
28	1C								29	R
29	1D								30	R
30	1E								31	R
31	1F								32	R
32	20								33	R
33	21								34	R
34	22								35	R
35	23								36	R
36	24								37	R
37	25								38	R
38	26								39	R
39	27								40	R
40	28								41	R
41	29								42	R
42	2A								43	R
43	2B								44	R
44	2C								45	R
45	2D								46	R
46	2E								47	R
47	2F								48	R
48	30								49	R
49	31								50	R
50	32								51	R
51	33								52	R
52	34								53	R
53	35								54	R
54	36								55	R
55	37								56	R
56	38								57	R
57	39								58	R
58	3A								59	R
59	3B								60	R
60	3C								61	R
61	3D								62	R
62	3E								63	R
63	3F								64	R

Empty = Value 0

■ = Value 1, applicable

Bit No.	7	6	5	4	3	2	1	0		
8-bit value	Hexadecimal	Store	Not defined	Scene number	Scene number	Scene number	Scene number	Scene number	Scene number	Save (S)
128	80								1	W
129	81								2	W
130	82								3	W
131	83								4	W
132	84								5	W
133	85								6	W
134	86								7	W
135	87								8	W
136	88								9	W
137	89								10	W
138	8A								11	W
139	8B								12	W
140	8C								13	W
141	8D								14	W
142	8E								15	W
143	8F								16	W
144	90								17	W
145	91								18	W
146	92								19	W
147	93								20	W
148	94								21	W
149	95								22	W
150	96								23	W
151	97								24	W
152	98								25	W
153	99								26	W
154	9A								27	W
155	9B								28	W
156	9C								29	W
157	9D								30	W
158	9E								31	W
159	9F								32	W
160	00								33	W
161	01								34	W
162	02								35	W
163	03								36	W
164	04								37	W
165	05								38	W
166	06								39	W
167	07								40	W
168	08								41	W
169	09								42	W
170	0A								43	W
171	0B								44	W
172	0C								45	W
173	0D								46	W
174	0E								47	W
175	0F								48	W
176	10								49	W
177	11								50	W
178	12								51	W
179	13								52	W
180	14								53	W
181	15								54	W
182	16								55	W
183	17								56	W
184	18								57	W
185	19								58	W
186	1A								59	W
187	1B								60	W
188	1C								61	W
189	1D								62	W
190	1E								63	W
191	1F								64	W

Note

All combinations not listed or indicated are invalid.

A.4 4-bit Dim telegram input

The following table describes the 4 bit dim telegram:

Dec.	Hex.	Binary	Dim telegram
0	0	0000	STOP
1	1	0001	100 % DARKER
2	2	0010	50 % DARKER
3	3	0011	25 % DARKER
4	4	0100	12.5 % DARKER
5	5	0101	6.25 % DARKER
6	6	0110	3.13 % DARKER
7	7	0111	1.56 % DARKER
8	8	1000	STOP
9	9	1001	100 % BRIGHTER
10	R	1010	50 % BRIGHTER
11	B	1011	25 % BRIGHTER
12	C	1100	12.5% BRIGHTER
13	D	1101	6.25% BRIGHTER
14	I	1110	3.13% BRIGHTER
15	E	1111	1.56% BRIGHTER

A.5 Ordering details

Short description	Description	Order No.	bbn 40 11395 EAN	Weight 1 pcs. [kg]	Packaging [pcs.]
JRA/S 6.230.3.1	Blind/Roller Shutter Actuator with Binary Inputs, MDRC	2CDG110208R0011	25226 0	0.55	1

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Contact us

ABB STOTZ-KONTAKT GmbH

Eppelheimer Straße 82

69123 Heidelberg, Germany

Phone: +49 (0)6221 701 607

Fax: +49 (0)6221 701 724

E-mail: knx.marketing@de.abb.com

Further information and local contacts:

www.abb.com/knx

Note

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