KNX Manual
Blinds actuators
GBA-4K KNX
GBA-4K KNX 24V
GBA-8K KNX
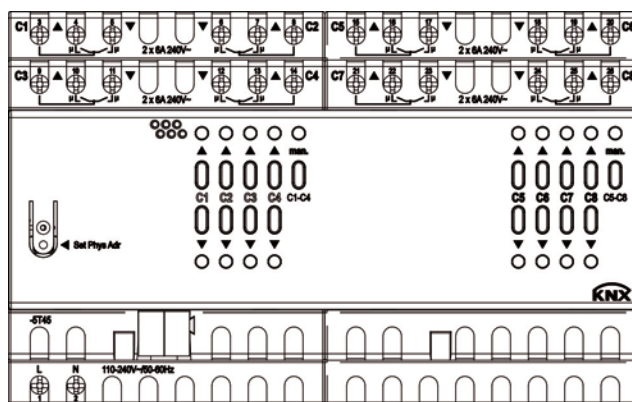
GBA-4K KNX	108398
GBA-8K KNX	108399
GBA-4K KNX 24V	108400

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1 Functional characteristics

- 4-/8-way blinds actuator
- LED direction of movement display for every channel.
- Manual operation on device (even without bus voltage).
- Configurable features: e.g. type of motor, reaction when power is cut then returns…
- Participation in central commands such as up/down and save/call up scene.
- 8 individual, configurable positions that can, for example, be called up via scenes.
- 5 safety objects: 3x wind, rain and frost.
- Correction of improper drive connection via parameters.
- Start-up mode for electronic motors
- Teaching of runtime possible

1.1 Operation

Every channel can be controlled by the buttons at the device (if enabled).
A status LED shows the current direction of movement.

All bus telegrams are ignored with manual operation switched on (manual button) and the channels are exclusively to be operated via the buttons.

Mains voltage is required for the functioning of the buttons and LEDs, bus voltage or bus module are not required.

2 Technical data

KNX operating voltage	Bus voltage, bus current < 4 mA
Operating voltage	110–240 V AC
Standby output	0.3 W / 0.5 W[1]
Frequency	50 – 60 Hz
Number of channels	4 / 8[2]
Width	4 TE / 8 TE[3]
Type of installation	DIN-rail
Connection type	KNX bus terminal
Max. cable cross-section	Solid: 0.5 mm² (Ø 0.8) to 4 mm² | strand with crimp terminal: 0.5 mm² to 2.5 mm²
Type of contact	NO contact, 6 A
Switch output	Floating
Suitable for SELV	Yes, if all channels switch SELV
Ambient temperature	-5 °C–+45 °C
Protection rating	IP 20
Protection class	II in accordance with EN 60 730-1

[1] GBA-8K KNX
[2] GBA-8K KNX
[3] GBA-8K KNX

3 The application programme "GBA-8K KNX"

3.1 Selection in the product database

Manufacturer	GARO AB
Product family	Blinds/roller blinds actuators
Product type	GBA-4K KNX, GBA-4K24 KNX, GBA-8K KNX
Program name	GBA-8K KNX

Table 1

Number of communication objects	150
Number of group addresses	254
Number of associations	255

3.2 Communication objects

The objects are divided into channel-related and common objects:

3.2.1 Channel-related objects:

Table 2:

No.	Object name	Function	Type DPT	C	R	W	T
0	*Channel C1*	*UP/DOWN*	1 bit 1.008	✓	✓	✓	-
1	*Channel C1*	*Step/stop*	1 bit 1.010	✓	✓	✓	-
2	*Channel C1*	*% Height*	1 byte 5.001	✓	✓	✓	-
3	*Channel C1*	*% Slat*	1 byte 5.001	✓	✓	✓	-
4	*Channel C1*	*Block comfort/automatic*	1 bit 1.003	✓	✓	✓	-
5	*Channel C1*	*1 = Block* / *1 = Release*	1 bit 1.003	✓	✓	✓	-
6	*Channel C1*	*Call up/save scenes*	1 byte 18.001	✓	✓	✓	-
7	*Channel C1*	*Enable scenes = 1* / *Block scenes = 1*	1 bit 1.003	✓	✓	✓	-
8	*Channel C1*	*Priority on safety*	2 bit 2.003	✓	✓	✓	-
9	*Channel C1*	*Position A*	1 bit 1.003	✓	✓	✓	-
		Presence	1 bit 1.018	✓	✓	✓	-
10	*Channel C1*	*Position B*	1 bit 1.003	✓	✓	✓	-
		Heating support	1 bit 1.003	✓	✓	✓	-
11	*Channel C1*	*Position C*	1 bit 1.003	✓	✓	✓	-
		Cooling support	1 bit 1.003	✓	✓	✓	-
12	*Channel C1*	*Room temperature*	2 byte 9.001	✓	✓	✓	-
13	*Channel C1*	*Height feedback %*	1 byte 5.001	✓	✓	-	✓
		Height feedback 1 bit	1 bit 1.009	✓	✓	-	✓

Continuation:

No.	Object name	Function	Type DPT	Flags C	R	W	T
14	*Channel C1*	*Slat feedback %*	1 byte 5.001	✓	✓	-	✓
15	*not used*						
16	*Channel C1*	*Start-up mode*	1 bit 1.003	✓	✓	✓	-
17	*Channel C1*	*Receive runtime*	2 byte 7.005	✓	✓	✓	-
		Send runtime	2 byte 7.005	✓	✓	-	✓

3.2.2 Common objects:

No.	Object name	Function	Type DPT	C	R	W	T
				Flags			
78	*C1 – C4*	*Manual*	1 bit 1.003	✓	✓	✓	✓
158	*C5 – C8*	*Manual*	1 bit 1.003	✓	✓	✓	✓
243	*Call up/save central scenes*	*Receive*	1 byte 18.001	✓	✓	✓	✓
244	*Central safety 1*	*Receive*	1 bit 1.002	✓	✓	✓	-
245	*Central safety 2*	*Receive*	1 bit 1.002	✓	✓	✓	-
246	*Central safety 3*	*Receive*	1 bit 1.002	✓	✓	✓	-
247	*Central up/down*	*Receive*	1 bit 1.008	✓	✓	✓	-
248	*Central safety rain*	*Receive*	1 bit 1.002	✓	✓	✓	-
249	*Central safety frost*	*Receive*	1 bit 1.002	✓	✓	✓	-
250	*Version of bus coupling unit*	*Send*	14 byte 16.001	✓	✓	-	✓
251	*Firmware version 1*	*Send*	14 byte 16.001	✓	✓	-	✓
252	*Firmware version 2*	*Send*	14 byte 16.001	✓	✓	-	✓

3.2.3 Description of objects

- **Object 0 "***UP/DOWN***"**

Raise the roller blinds/blinds with "0" and lower with "1".

- **Object 1 "***Step/Stop***"**

If the drive moves, it will be stopped when a Step/Stop telegram is received.
If the drive is stationary at this moment, then a short slat turning (step) is performed on blinds.
With the other drive types, the current position is adjusted up or down depending on the specified step direction.

The direction of the step is determined from whether a "0" or "1" is sent to the object.
No step is performed if the configured number of steps for a complete turn has already been reached.

- **Object 2 "***% Height***"**

This raises/lowers the roller blinds/blinds to a certain height.
The set point value is expressed in %.
0% ... 3% = upper end position
100% = lower end position
This function can be disabled by the comfort automatic object (see below).

- **Object 3 "***% Slat***"**

Specification of a particular slat turning in %
This function can be disabled by the comfort automatic object (see below).

- **Object 4 "***Block Comfort/Automatic***"**

A "1" on this object locks the functions Drive 1 Height and Drive 1 Slat.
This function is used to prevent the blind from being adjusted due to external influences, and to thus maintain a preferred slat position of the blinds.
The Up/Down function (obj. 0) is maintained.

- **Object 5 "***Block/Release***"**

Locks the channel function.
Responses to setting and cancelling the block can be configured if the block function has been activated (configuration options parameter page).

- **Object 6 "***Call up/save scenes***"**

Only available if the scene function has been activated (Configuration options parameter page).
This object can be used to save and subsequently call up scenes.
Saving stores the channel status.
It does not matter how this status is produced (whether via switch commands, central objects or the buttons on the device). The saved status is re-established when it is called up.
All scene numbers from 1 to 63 are supported.
Each channel can participate in up to 8 scenes.

The scene that is currently active can be ended with the value 63 (= scene 64).
See appendix: The scenes

- **Object 7 "***Block scenes/enable scenes***"**

Blocks the scene function with a 1 or a 0 depending on the configuration.
As long as it is locked, scenes cannot be saved or called up

- **Object 8 "***Priority on safety***"**

Priority on safety will be used when the roller blinds or sun protection devices must remain stationary in an end position for a certain time, e.g. for window cleaning.

This operating mode has the highest priority level.
While priority on safety is active, all operating commands (*UP/DOWN, % Height, Step/Stop, Slat %*), the other safety objects and the manual operation will be ignored.

Value obj. 8	Priority on safety
0	inactive
1	
2	UP
3	DOWN

Priority on safety is ended with a 1 or a 0.

- **Object 9 "***Position A***" or** *"Presence"*

The function of the object depends on whether or not the sun protection counter function has been activated (configuration options parameter page).

Activate sun protection mode	Function	Use
no	*Position A*	With a 1, the drive is brought to the predefined position A (preset or final position). See parameter page *Positions via 1 bit*.
yes	*Presence*	Presence status for the heating or cooling support. See parameter page *Sun protection*.

- **Object 10 "***Position B***" or** *"Heat support"*

The function of the object depends on whether or not the sun protection counter function has been activated (configuration options parameter page).

Activate sun protection mode	Function	Use
no	*Position B*	With a 1, the drive is brought to the predefined position B (preset or final position). See parameter page *Positions via 1 bit*.
yes	*Heating support*	Activate heating support See parameter page *Sun protection*.

- **Object 11 "***Position C***",** *"Cooling support"*

The function of the object depends on whether or not the sun protection counter function has been activated (configuration options parameter page).

Activate sun protection mode	Function	Use
no	*Position C*	With a 1, the drive is brought to the predefined position C (preset or final position). See parameter page *Positions via 1 bit*.
yes	*Cooling support*	Activate cooling support See parameter page *Sun protection*.

- **Object 12 "***Room temperature***"**

Receives the current room temperature in °C for the sun protection function.

- **Object 13** *"Height feedback %", "Height feedback 1 bit"*

Current drive height feedback in %.
Can also be configured as a 1-bit telegram DPT1.009. See parameter: *Format of height feedback*.

- **Object 14 "***Slat feedback***"**

Current slat position feedback in %.

- **Object 15**

Not used.

- **Object 16 "***Start-up mode"***

0 = Normal mode (no start-up)
1 = Activate start-up mode

- **Object 17** *"Send runtime", "Receive runtime"*

The function of the object is dependent on the selected *Drive runtime setting*:

Setting the drive runtime	Function	Use
Teach in in start-up mode (send)	Only in start-up mode: Sends the runtime that is determined for the channel to all channels that are also in start-up mode.	With the first DOWN command after selection of the start-up mode (obj. 16), the teaching-in of the runtime begins by measuring the time to the next Stop command. As soon as the Stop command takes place, the measured runtime will be saved, the value sent and start-up ended.
via object in start-up mode (receive)	Only in start-up mode: Receives the runtime of the sending channel that has been calculated	Runtime will be received, saved, and start-up ended.
via ETS	not used.	

- **Objects 78, 158 "***Manual"***

Puts the device in manual mode or sends the status of the manual operation.

Telegram	Meaning	Explanation
0	Auto	All channels can be operated via the bus as well as via the buttons.
1	Manual	The channels can only be operated via the buttons on the device. Bus telegrams (except Safety) will not work.

The duration of manual mode, i.e. the *function of the manual button* can be configured on the parameter page *General*.

- **Object 243 "***Call up/save central scenes"***

Central object for using scenes.
This object can be used to save and subsequently call up "scenes".

See appendix: The scenes

- **Objects 244, 245 "***Central safety 1, 2, 3***"**

The safety objects allow a specific response of the drives to a particular situation with a high priority. These objects can, for example, be linked with 3 differently placed wind sensors (weather stations).

Example:
A safety object is linked to a wind sensor.
A drive to which a textile sun protection device is connected is configured to react to this safety object.
The operating condition is normal as long as a "0" is present.
In the event of a storm, the wind sensor sends a "1" to the safety object and the sun protection is immediately moved to the configured safety position.

Comments:
1. A safety object must only be actuated by one device, as otherwise conflicting commands could cancel each other out.
2. With a request for safety objects e.g. via the ETS function "Read value":
   If the "Safety on" status arises through cyclical monitoring, the object value remains at 0.
3. The safety statuses must be reinitialized after download.

- **Object 247 "***Central Up/Down***"**

This object can be used to centrally control all drives which are configured for it.
For example, all of the roller blinds on one facade can be raised or lowered at the same time with one push button
0 = raise
1 = lower

- **Object 248** *"Central safety rain"*

This object can be used to move all drives which are configured for it into a defined position when there is a central rain alarm.

- **Object 249** *"Central safety frost"*

This object can be used to move all drives which are configured for it into a defined position when there is a central frost alarm.

- **Object 250 "***Version of bus coupling unit***"**

For diagnostic purposes only.

Sends the bus coupling unit software version after reset or download.
Can also be read out via the ETS.

Format: **A**xx **H**yy **V**zzz

Code	Meaning
xx	00 .. FF = Version of application without dividing point (10 = V1.0, 11 = V1.1, etc.).
yy	Hardware version 00..99
zzz	Firmware version 000..999

EXAMPLE: A13 H00 V09
- ETS Application Version 1.3
- Hardware version $00
- Firmware version $09

- **Objects 251, 252 "***Firmware version 1.2***"**

For diagnostic purposes only.

Sends the firmware versions after reset or download.
Can also be read out via the ETS.

The version is issued as an ASCII character string.
Format: **M**xx **H**yy **V**zzz

Code	Meaning
xx	01 .. FF = Module code (hexadecimal).
yy	Hardware version 00..99
zzz	Firmware version 000..999

EXAMPLE: M14 **H**00 **V**013
- Module $14 = GBA-8K KNX
- Hardware version V00
- Firmware version V13

3.3 Parameter

3.3.1 Parameter pages

Table 3

Function	Description
General	General parameters for the basic module: Relay switching delay.
Channel Cx Configuration options	Characteristics of channel and activation of additional functions (scenes, sun protection, block, etc.).
Drive settings	Direction of movement, runtimes, etc.
Sun protection	Heating and cooling support settings.
Block function	Type of block telegram and response to blocking.
Safety wind/rain/frost	Priority and participation in the safety objects for wind, rain and frost.
Presets	8 preset heights and slat positions that can be called up via scenes or 1-bit objects
Scenarios	Selection of scene numbers relevant to the channel.
Positions over 1 bit	Behaviour when calling up or leaving the 1-bit positions
Power failure and restoration	Behaviour during mains or bus failure and restoration.

3.3.2 Parameter description

Settings that lead to the display of other pages or functions are identified by .. .
Example: *Pulse function..*

3.3.2.1 The "*General*" parameter page

Designation	Values	Description
Device type	***GBA-4K KNX..*** *GBA-8K KNX..*	Select device type.
Function of the manual button	*applies for 24 hours or until reset via object* *blocked* ***applies until reset via object*** *applies for 30 minutes or until reset via object* *applies for 1 hour or until reset via object* *applies for 2 hours or until reset via object* *applies for 4 hours or until reset via object* *applies for 8 hours or until reset via object* *applies for 12 hours or until reset via object*	Determines how long the device works manually and how this is ended. In manual mode, the channels can only be switched on and off via the buttons on the device. See also: Object_78
Manual operation of the channels	***enabled*** *blocked*	The channels can be operated via the buttons on the device. No manual operation, the buttons on the device are blocked…

Continuation:

Designation	Values	Description
C1 – C4		
Relay switch delay		This parameter sets the minimum delay between switching on 2 relays if several are activated at the same time. The shortest delay is achieved by using the central UP/DOWN object (Obj. 247).
		When switching via individual telegrams (1 telegram per channel), the bus running time and the sequential processing of commands causes an additional delay.
		This can help avoid high current peaks when devices are switched on simultaneously
	None	There is no added delay.
	60 ms *100 ms* *200 ms*	When a relay has switched on, the next one (within the module) can only switch on after the set delay is completed. The switch-on delay between the first and last relay is calculated according to the following formula: (Number of channels – 1) x delay **Example:** RM4 T and 60 ms: = (4 channels – 1) * 60 ms = 180 ms → Channel C4 switches 180 ms after C1.
C5 – C8		
Relay switch delay	*See above*	

3.3.2.2 The "*Channel Cx: Configuration options*" parameter page

Table 4

Designation	Values	Description
Copy main parameters from channel C1		For channels C2..C4 only. The copy function simplifies the configuration of identical channels by many settings only having to be entered on the 1st channel.
	Yes	The following parameter settings are taken directly from channel C1: - Type of motor - Type of curtain - Safety wind / rain / frost - Loss of power and restoration
	no	No settings are taken from C1.
Type of motor	*electromechanical*	For standard drives without electronic control
	electronic	Only use motors with fitted control electronics: In this setting in support mode the buttons for both directions can be pressed at the same time (configure or reset drive). See appendix: Support mode for the commissioning of electronic motors
Type of curtain	*Blinds* *Roller blinds/awning/general drive...*	The type of curtain which is to be actuated
Setting the drive runtime	*via ETS*	Runtime is set on the parameter page *Drive settings*.
	Teach in in start-up mode (send)	In Start-up mode this channel should send the taught-in runtime to the other channels.
	via object in start-up mode (receive)	In Start-up mode this channel should receive and apply the taught-in runtime from another channel.

Continuation:

Designation	Values	Description
Response after download		Not available with *Drive runtime setting = via ETS*.
	Maintain runtime	Download has no influence on the taught-in runtime
	Delete runtime	Taught-in runtime is deleted during download.
Activate sun protection mode	*yes*	Activate sun protection function with heating or cooling support. In this setting, the function *Positions via 1 Bit* is not available
	no	Page with *Positions via 1-bit* is available.
Activate block function	*Yes..* *no*	Should the block function be used?
Activate scenes	*Yes..* *no*	Should scenes be used?
Direction of drive run	*normal*	Standard setting: Hanging moves from top to bottom.
	inverted	For special applications or quick fix for wrongly wired devices (up/down directions mixed up).
Block Comfort/Auto on UP/DOWN/STOP command		Suppression of the Comfort/Auto function by manual positioning via On, Off or Stop telegrams.
	no, only via object Comfort/Automatic	No suppression: *Comfort/Auto* remains active after manual positioning.
	yes, and via object Comfort/Automatic OFF	*Comfort/Auto* can be ended both by manual positioning and via the object *Comfort/Automatic*
	yes, and after 0.5hrs OFF *yes, and after 1hr OFF* *...* *yes, and after 2hrs OFF* *...* *yes, and after 48hrs OFF*	The *Comfort/Auto* function is locked for the set time via manual positioning. Once this time has lapsed, *Comfort/Auto* is active once again and the drive reacts to height telegrams. The block can be ended at any time via the object *Comfort / Automatic* (=1).

Continuation:

Designation	Values	Description
Format of height feedback	*%*	Standard.
	1 bit	New: The location is sent as a 1-bit telegram (DPT1.009). 0%, open = 0 > 0%, closed = 1

3.3.2.3 The "*Drive settings*" parameter page

Table 5

Designation	Values	Description
Complete runtime Down (s)	Manual input 5 .. 500	Only available when *Drive runtime setting = via ETS*. Enter the measured runtime for descending (in seconds).
Runtime adjustment for ascent (s)	Manual input -15 .. +15	Enter difference between runtime when ascending and runtime (in seconds) when descending. Correction value = $t_{Up} - t_{Down}$
Step duration of Step/Stop object	*No steps* *250 ms* *500 ms* ***1 s*** *2 s* *3 s* *4 s* *5 s* *6 s* *7 s* *10 s*	Only for *roller blinds/awning/general drive*. This specifies whether or not it should be possible to adjust the drive in small steps, and it also specifies the duration of a single step.
Complete slat turning 4 ... 250 [x100 ms]	*4 .. 250*	Enter the measured turn time of the slats in increments of 100 ms. 10 = 10 x 100 ms = 1s
No. of steps for a complete turn	*3 Steps* *4 Steps* ***7 Steps*** *…* *12 Steps*	This specifies the number of individual steps a complete slat turn is to be divided into (3 to 12).
On receipt of a step/stop command	***Process immediately (recommended)*** *Wait 0.3 s to see if an UP/DOWN command follows* *Wait 0.4 s to see if an UP/DOWN command follows* *Wait 0.5 s to see if an UP/DOWN command follows*	Every received step command is carried out immediately. Step commands are only executed if no operating command is received within the set time. These settings apply to push buttons which, when pressed and held, first send a step command and then an operating command.

Continuation:

Designation	Values	Description
Tighten fabric (awning)	*yes*	Only for *roller blinds/awning/general drive.* At values above 70%, the curtain, awning or shutters will be retightened afterwards by moving back briefly. On roller blinds it is guaranteed that the vent slots will remain open.
	no	No tensioning.
Pause time before reversal of direction	*0.5 s* *1 s* *2 s* *3 s*	Pause introduced to protect the drive motor against conflicting commands (e.g. if a descend command is received while ascending). This setting depends on the information supplied by the manufacturer of the drive
Automatic execution of the slat object value [%] after the height object [%]	*yes* *no*	Selection whether or not the slat position (according to the slat object *% slat*) is to be resumed after the height adjustment via the height object *% Height*.
Assignment of the 0% position to the slat objects [%]	*0% corresponds to slat position on lowering* *0% corresponds to slat position on ascending*	Input of the starting position for the calculations of the slat turn.
Participation in central Up/Down object	*yes* *no*	Should the drive respond to the central object?
Transmission of feedback	*only at change* *cyclically and at change*	When should feedback (Obj. *Slat feedback* and *Height feedback*) be sent?
Time for cyclical transmission of feedback	*2 minutes, 3 minutes, 5 minutes, 10 minutes, 15 minutes, 20 minutes, 30 minutes, 45 minutes 60 Minutes*	If cyclically, at what interval?

3.3.2.4 The parameter page "*Sun protection*"

This page can be activated on the Configuration options parameter page.

Table 6

Designation	Values	Description
Desired room temperature during sun protection mode	*15 °C, 16 °C, 17 °C, 18 °C 19 °C, 20 °C, 21 °C, 22 °C 23 °C, 24 °C, 25 °C, 26 °C 27 °C, 28 °C, 29 °C, 30 °C*	Set point value for the Heating or cooling support (see below).
Response to presence in sun protection mode (presence object = 1)	*Preset 1, Preset 2 Preset 3, Preset 4 Preset 5, Preset 6 Preset 7, Preset 8*	Approach a preset position. See parameter page Presets.
	Top end position Lower end position	Approach an end position.
	no reaction, unchanged	Do not react.
	Update (height/slat)	Approach the last received position.
Response to heating support		If the conditions for heating support are fulfilled, i.e.: - Obj. 10 = 1 (heating support) - Obj. 9 = 0 (room not occupied) - Room temperature < *Desired room temperature during sun protection mode* Then heating by solar radiation should be **favoured** with the following setting.
	Preset 1, Preset 2 Preset 3, Preset 4 Preset 5, Preset 6 Preset 7, Preset 8	Approach a preset position. Recommended for blinds as the height and the lamella inclination can be set. See parameter page Presets.
	Top end position	**Recommended.**
	Lower end position	only for special applications.

Continuation:

Designation	Values	Description
Response when heating support is no longer needed	*Preset 1, Preset 2* *Preset 3, Preset 4* *Preset 5, Preset 6* *Preset 7, Preset 8*	Approach a preset position. See parameter page Presets.
	Top end position *Lower end position*	Approach an end position.
	no reaction, unchanged	Do not react.
	Update (height/slat)	Approach the last received position.
Response to cooling support		The conditions for cooling support are fulfilled when, i.e.: - Obj. 11 = 1 (cooling support) - Room temperature > *Desired room temperature during sun protection mode* Then heating by solar radiation should be **prevented** with the following setting.
	Preset 1, Preset 2 *Preset 3, Preset 4* *Preset 5, Preset 6* *Preset 7, Preset 8*	Approach a preset position. Recommended for blinds as the height and the lamella inclination can be set. See parameter page Presets.
	Top end position	only for special applications.
	Lower end position	Recommended for roller blinds and textile sun protection.
Response when cooling support is no longer needed	*Preset 1, Preset 2* *Preset 3, Preset 4* *Preset 5, Preset 6* *Preset 7, Preset 8*	Approach a preset position. See parameter page Presets.
	Top end position *Lower end position*	Approach an end position.
	no reaction, unchanged	Do not react.
	Update (height/slat)	Approach the last received position.

3.3.2.5 The "*Block function*" parameter page

This page can be activated on the Configuration options parameter page.

Table 7

Designation	Values	Description
Block telegram	***Block with ON telegram***	0 = Cancel block 1 = Block
	Block with OFF telegram	0 = Block 1 = Cancel block **Note:** The block is always deactivated after reset.
Response when setting the block	*Preset 1* *Preset 2* *Preset 3* *Preset 4* *Preset 5* *Preset 6* *Preset 7* *Preset 8*	Approach a preset position. See parameter page Presets.
	Top end position *Lower end position*	Approach an end position.
	unchanged (stopped upon operating command)	Do not react. The drive should stop when a block command is received during a movement.
Response when cancelling the block	*Preset 1* *Preset 2* *Preset 3* *Preset 4* *Preset 5* *Preset 6* *Preset 7* *Preset 8*	Approach a preset position. See parameter page Presets.
	Top end position *Lower end position*	Approach an end position.
	unchanged (stopped upon operating command)	Do not react. The drive should stop when a block command is received during a movement.
	Update (height/slat)	Approach last received position.

3.3.2.6 The "*Safety Wind/Rain/Frost*" parameter page

Table 8

Designation	Values	Description
Priority of safety objects	***1. Wind 2. Rain, 3. Frost*** *1. Wind, 2. Frost, 3. Rain* *1. Rain, 2. Wind, 3. Frost* *1. Rain, 2. Frost, 3. Wind* *1. Frost, 2. Wind, 3. Rain* *1. Frost, 2. Rain, 3. Wind*	If wind, rain and frost alarm occur together, the parameters of the object with the highest priority will be implemented. Example: 1. Rain, 2. Frost, 3. Wind The parameters with priority 1 apply, i.e. *Start* and *End* of *Safety rain.* If the rain alarm (Priority 1) is cancelled, the parameters for the object with priority 2 apply, here *Frost - Start*. If the object with priority 2 is also cancelled, the one with priority 3 applies.
Monitor safety objects cyclically	*no*	No monitoring. After mains failure the safety object will be reset to 0.
	every 10 min *every 20 min* *every 60 min*	Safety objects that do not receive any telegrams within the time set here will be handled as if they had received an ON telegram and trigger an alarm (e.g. WIND, etc.). The sender of the safety telegrams (e.g. weather station) must transmit them cyclically. *Max. cycle time = Monitoring time/2* Example: Monitoring time = every 20 minutes, cyclical transmission time = 10 min or less.

Continuation:

Designation	Values	Description
Participation in safety WIND	*yes* **no**	Should channel react to wind alarm?
Source(s)	*Safety object 1 wind* *Safety object 2 wind* *Safety object 3 wind* *Safety object 1 + 2 (OR linked)* *Safety object 1 + 3 (OR linked)* *Safety object 2 + 3 (OR linked)* ***Safety object 1 + 2 + 3 (OR linked)***	Which safety objects are used for wind alarm?
Start	*Preset 1* *Preset 2* *Preset 3* *Preset 4* *Preset 5* *Preset 6* *Preset 7* *Preset 8* ***Top end position*** *Lower end position* *unchanged (stopped upon operating command)*	Start on wind alarm: Approach a preset position. See parameter page Presets. Approach an end position. Do not react. The drive should stop upon safety start during a movement.
End	***same as before safety*** *Preset 1* *Preset 2* *Preset 3* *Preset 4* *Preset 5* *Preset 6* *Preset 7* *Preset 8* *Top end position* *Lower end position* *Update (height/slat)* *no response*	End on wind alarm: move back to the previous position. Approach a preset position. See parameter page Presets. Approach an end position. Approach last received position. Do not react.

Continuation:

Designation	Values	Description
Participation in safety RAIN	*yes*	Should channel react to rain alarm?
	no	
Start		Start on rain alarm:
	Preset 1	Approach a preset position.
	Preset 2	See parameter page Presets.
	Preset 3	
	Preset 4	
	Preset 5	
	Preset 6	
	Preset 7	
	Preset 8	
	Top end position	Approach an end position.
	Lower end position	
	unchanged (stopped upon	Do not react. The drive should stop upon
	operating command)	safety start during a movement.
End		End on rain alarm:
	same as before safety	move back to the previous position.
	Preset 1	Approach a preset position.
	Preset 2	See parameter page Presets.
	Preset 3	
	Preset 4	
	Preset 5	
	Preset 6	
	Preset 7	
	Preset 8	
	Top end position	Approach an end position.
	Lower end position	
	Update (height/slat)	Approach last received position.
	no response	Do not react.
Participation in safety FROST	*yes*	Should channel react to frost alarm?
	no	
Start		Start on frost alarm:
	Preset 1	Approach a preset position.
	Preset 2	See parameter page Presets.
	Preset 3	
	Preset 4	
	Preset 5	
	Preset 6	
	Preset 7	
	Preset 8	
	Top end position	Approach an end position.
	Lower end position	
	unchanged (stopped upon	Do not react. The drive should stop upon
	operating command)	safety start during a movement.

Continuation:

Designation	Values	Description
End		End on frost alarm:
	same as before safety	move back to the previous position.
	Preset 1	Approach a preset position.
	Preset 2	See parameter page Presets.
	Preset 3	
	Preset 4	
	Preset 5	
	Preset 6	
	Preset 7	
	Preset 8	
	Top end position	Approach an end position.
	Lower end position	
	Update (height/slat)	Approach last received position.
	no response	Do not react.
Response after priority on safety		Priority on safety will be used when the roller blinds or sun protection devices must remain stationary in an end position for a certain time, e.g. for window cleaning.
		See Object 8.
		This operating mode has the highest priority level.
	Preset 1	Approach a preset position.
	Preset 2	See parameter page Presets.
	Preset 3	
	Preset 4	
	Preset 5	
	Preset 6	
	Preset 7	
	Preset 8	
	Top end position	Approach an end position.
	Lower end position	
	no reaction, unchanged	Do not react.
	Update (height/slat)	Approach last received position.

3.3.2.7 The "*Presets*" parameter page

The user can freely configure the presets for drive height and lamella position.
These can, for example, be called up with *Safety* with Set or cancel the block or when a scene is cancelled.

Table 9

Designation	Values	Description
Preset 1		
Position	*0%, 10%, 20% 30%, 40%, 50% 60%, 70%, 80% 90%, 100%, no change*	Desired drive height and slat position for preset 1
Slat	*0%, 10%, 20% 30%, 40%, 50% 60%, 70%, 80% 90%, 100%, no change*	
Preset 2		
Position	*See above*	Desired drive height and slat position for preset 2
Slat	*See above*	
Preset 3		
Position	*See above*	Desired drive height and slat position for preset 3
Slat	*See above*	
Preset 4		
Position	*See above*	Desired drive height and slat position for preset 4
Slat	*See above*	
Preset 5		
Position	*See above*	Desired drive height and slat position for preset 5
Slat	*See above*	
Preset 6		
Position	*See above*	Desired drive height and slat position for preset 6
Slat	*See above*	
Preset7		
Position	*See above*	Desired drive height and slat position for preset 7
Slat	*See above*	
Preset 8		
Position	*See above*	Desired drive height and slat position for preset 8
Slat	*See above*	

3.3.2.8 The "*Scenes*" parameter page

This page appears when the *Scenes* are activated on the *Configuration options* parameter page.
Each channel can participate in up to 8 scenes.
Each of these 8 scenes reacts to a specific, freely configurable scene number.
When the associated number is called up, the taught in position will be approached.

Each of the 8 scenes is preconfigured with a position from the preset page.
When a scene number that has not been taught in is received, this preset position will be called up.

Table 10

Designation	Values	Description
Block telegram for scenes	***Block with ON telegram***	0 = Cancel block 1 = Block
	Block with OFF telegram	0 = Block 1 = Cancel block **Note:** With this setting the scenes are always locked immediately after reset or download.
All channel scene statuses	***Overwrite on download***	A download deletes all scene memories in a channel, i.e. all previously taught-in scenes. When a scene number is called, the channel assumes the configured *Status after download* (see below). See appendix: Teach-in scenes without telegrams
	Unchanged after download	All previously taught-in scenes are saved. However, the scene numbers the channel should react to can be changed (see below: *Channel reacts to*).
Participation in central scene object	*No* *yes*	Should the device react to the central scene object?

Continuation:

Designation	Values	Description
Response when unlocking the scene (with scene value 63)		Behaviour when object 6 receives the value 63 ($3F) and thus the current scene is cancelled.
	Preset 1	Approach a preset position.
	Preset 2	See parameter page Presets.
	Preset 3	
	Preset 4	
	Preset 5	
	Preset 6	
	Preset 7	
	Preset 8	
	Top end position	Approach an end position.
	Lower end position	
	no response	Do not react.
	Update (height/slat)	Approach last received position.
1st scene - Preallocated preset 1		
Channel reacts to	*No scene number* **Scene number 1 (value = 0)** *...* *Scene number 63 (value = 62)*	First of the 8 possible scene numbers the channel is to react to.
Comment for this scene number	*(Enter name)*	Description or comment for this scene number.
Block comfort/automatic during this scene	***no***	During this scene the channel continues to react to height and slat telegrams
	yes	During this scene the channel no longer reacts to height and slat telegrams. The Up/Down function is maintained.
Permit teach in	*No*	Scenes can only be called up.
	Yes	The user can both call up and teach in or amend scenes.
2nd scene - Preallocated preset 2		
Channel reacts to	*No scene number* *Scene number 1 (value = 0)* **Scene number 2 (value = 1)** *...* *Scene number 63 (value = 62)*	Second of the 8 possible scene numbers
Comment for this scene number	*(Enter name)*	See above.
Block comfort/automatic during this scene	***no*** *yes*	See above.
Permit teach in	*No* ***Yes***	See above.

Continuation:

Designation	Values	Description
3rd scene - Preallocated preset 3		
Channel reacts to	*No scene number* *Scene number 1 (value = 0)* *…* ***Scene number 3 (value = 2)*** *…* *Scene number 63 (value = 62)*	Third of the 8 possible scene numbers
Comment for this scene number	*(Enter name)*	See above.
Block comfort/automatic during this scene	***no*** *yes*	See above.
Permit teach in	*No* ***Yes***	See above.
4th scene - Preallocated preset 4		
Channel reacts to	*No scene number* *Scene number 1 (value = 0)* *…* ***Scene number 4 (value = 3)*** *…* *Scene number 63 (value = 62)*	Fourth of the 8 possible scene numbers
Comment for this scene number	*(Enter name)*	See above.
Block comfort/automatic during this scene	***no*** *yes*	See above.
Permit teach in	*No* ***Yes***	See above.
5th scene - Preallocated preset 5		
Channel reacts to	*No scene number* *Scene number 1 (value = 0)* *…* ***Scene number 5 (value = 4)*** *…* *Scene number 63 (value = 62)*	Fifth of the 8 possible scene numbers
Comment for this scene number	*(Enter name)*	See above.
Block comfort/automatic during this scene	***no*** *yes*	See above.
Permit teach in	*No* ***Yes***	See above.
6th scene - Preallocated preset 6		
Channel reacts to	*No scene number* *Scene number 1 (value = 0)* *…* ***Scene number 6 (value = 5)*** *…* *Scene number 63 (value = 62)*	Sixth of the 8 possible scene numbers

Continuation:

Designation	Values	Description
Comment for this scene number	*(Enter name)*	See above.
Block comfort/automatic during this scene	***no*** *yes*	See above.
Permit teach in	*No* ***Yes***	See above.
7th scene - Preallocated preset 7		
Channel reacts to	*No scene number* *Scene number 1 (value = 0)* *...* ***Scene number 7 (value = 6)*** *...* *Scene number 63 (value = 62)*	Seventh of the 8 possible scene numbers
Comment for this scene number	*(Enter name)*	See above.
Block comfort/automatic during this scene	***no*** *yes*	See above.
Permit teach in	*No* ***Yes***	See above.
8th scene - Preallocated preset 8		
Channel reacts to	*No scene number* *Scene number 1 (value = 0)* *...* ***Scene number 8 (value = 7)*** *...* *Scene number 63 (value = 62)*	Last of the 8 possible scene numbers
Comment for this scene number	*(Enter name)*	See above.
Block comfort/automatic during this scene	***no*** *yes*	See above.
Permit teach in	*No* ***Yes***	See above.

3.3.2.9 The "*Positions via 1 bit*" parameter page

This page will only be shown when the *Sun protection* function is **not** activated on the *Configuration options* parameter page.
3 individual preallocated positions can be called up using 1-bit objects (Obj. 9, 10, 11).

Table 11

Designation	Values	Description
Position A		
Response when receiving a 1	*Preset 1*	Approach a preset position.
	Preset 2	See parameter page Presets.
	Preset 3	
	Preset 4	
	Preset 5	
	Preset 6	
	Preset 7	
	Preset 8	
	Top end position	Approach an end position.
	Lower end position	
Response when receiving a 0	*Preset 1*	Approach a preset position.
	Preset 2	See parameter page Presets.
	Preset 3	
	Preset 4	
	Preset 5	
	Preset 6	
	Preset 7	
	Preset 8	
	Top end position	Approach an end position.
	Lower end position	
	no response	Do not react.
	Update (height/slat)	Approach last received position.
Position B		
Response when receiving a 1	*See above*	Desired drive height or slat position for position B
Response when receiving a 0	*See above*	
Position C		
Response when receiving a 1	*See above*	Desired drive height or slat position for position C
Response when receiving a 0	*See above*	

3.3.2.10 The "*Power failure and restoration*" parameter page

Table 12

Designation	Values	Description
Response in the event of download and bus failure		After download or with loss of bus voltage…
	Preset 1	Approach a preset position.
	Preset 2	See parameter page Presets.
	Preset 3	
	Preset 4	
	Preset 5	
	Preset 6	
	Preset 7	
	Preset 8	
	Top end position	Approach an end position.
	Lower end position	
	no response	Do not react.
Behaviour after restoration of the mains supply or bus supply		After return of mains or bus voltage…
	Preset 1	Approach a preset position.
	Preset 2	See parameter page Presets.
	Preset 3	
	Preset 4	
	Preset 5	
	Preset 6	
	Preset 7	
	Preset 8	
	Top end position	Approach an end position.
	Lower end position	
	no response	Do not react.

4 Appendix

4.1 Manual mode

This mode can be set or reset with the manual button or via the manual object.
The object can be locked on the General parameter page.
Whether manual mode should be ended after the expiry of a set time can also be defined.

The positions of the curtains will be frozen.
All non-safety related bus telegrams are disabled, i.e. only the safety commands (on objects 8, 244, 245, 246, 248, 249) can still be executed.

Any current operating commands will be terminated when the specified position or the end position is reached. The condition will be reported to the associated object.

After cancelling manual mode, the bus telegrams work again. Bus events already received will not be obtained later.
Manual mode will be reset after power returns.

4.2 The start-up mode

The start-up mode enables runtime to be determined automatically.

The runtime of the drives can be defined in 3 ways, of which the start-up mode only concerns 1 and 2.
  1. *Teach in in start-up mode* (through operating commands).
  2. *via object in start-up mode* (runtime received via an object).
  3. Manual *input of the runtime via ETS.* → No start-up mode

Note:
After being set once, the runtime is saved and is preserved even after a reset.
If the runtime has still not been determined, a replacement runtime of 50 s will be assumed.

4.2.1 *Teach in in start-up mode*:

The runtime of a drive will be determined by a manual movement, saved and sent to
all other channels.
A rapid and effective teaching-in method for facades with identical drives
(i.e. identical runtimes).

Initially a (reference) channel is selected with which the runtime should be determined
(Parameter: *Setting of the runtime of the drives = Teach in in start-up mode*).
All other channels (channels to be taught in) will be set to "*via object in start-up mode*" and thus
receive the runtime of the reference channel.

4.2.1.1 Sequence

For all channels, i.e. reference channel and channels to be taught in, the following applies:
- All start-up mode objects (obj. 16 etc.) receive a common group address (e.g. 1/1/1).
- All runtime objects (*Send runtime + receive runtime*) also receive a common group address (e.g. 1/1/2).

All *start-up mode* objects (obj. 16, etc.) will be set to 1 via bus command.
Then both reference channel LEDs flash briefly every second.

With the first DOWN command after selection of the start-up mode, the teaching-in of the runtime begins by measuring the time to the next Stop command.

The channel reacts to Up/Down, Step Stop and to the Up/Down buttons on the device.
During a movement, the corresponding LED lights up permanently. The other LED continues to flash.

If the device received UP commands, or Stop commands, they will be carried out.
So, for example, if it has not yet been done, the curtain can be brought into the end position.

As soon as the stop command is given:
- the measured runtime is saved
- the value is sent
- the start-up is ended.

After 10 minutes without operation, the start-up mode is ended automatically.
No start-up is possible during safety or safety with priority.

4.3 Sun protection with heating and cooling support

If the sun protection function is active, the parameter page "*Positions via 1-bit*" is not shown.

The heating or cooling support enables a reduction in energy costs through the targeted use or avoidance of solar radiation in unoccupied rooms.

For this purpose the sun protection function uses the information of the input objects:
- Presence
- Room temperature
- Heating support
- Cooling support

The *cooling support* and *heating support* information is generated in either the Meteodata 139 weather data receiver or in a weather station.

The Meteodata 139 weather receiver already contains all objects and parameters required for optimal heating and cooling support.

In a weather station, the following data will be involved:
- The sun shines (high lux value)
- The external temperature has a specific value (cooling support).

The behaviour of the curtain, when someone is present during sun protection, can be configured. "*During sun protection*" means that heating or cooling support is active.

In manual mode the objects for sun protection are received and analysed, however only implemented after the return to automatic mode.

4.3.1 Heating support

4.3.1.1 Principle

In the cool season, solar radiation through the window can make a significant contribution to heating up a room.
The goal of the heating support is the optimal use of this additional energy source in unoccupied rooms.
This is accomplished by always moving up sun protection equipment fully automatically when conditions are favourable.
However it is possible to individually select the position of the sun protection device when there is heating support.

4.3.1.2 Conditions

The conditions for heating support are fulfilled when:

- A room is not occupied. (Presence = 0) [4] **and**
- The room temperature falls below the configured *Desired room temperature during sun protection* **and**
- Heating support is requested via the corresponding object (Obj. 10).

    If all conditions are fulfilled, the position configured for this purpose will be approached.

The heating support is no longer needed
- The room temperature is above the configured temperature +2K **or**
- The heating support is cancelled (obj. 10 = 0).

    If the heating support is no longer needed, the position configured for this case will be approached.

---

[4] The presence detector delay should be selected in such a way that the room is not notified as clear straightaway when it has only been left for a short time, as otherwise sun protection equipment will be moved up and down unnecessarily.

4.3.2 Cooling support

4.3.2.1 Principle

In the warm season, the situation is reversed and additional heating of the room by solar radiation must be avoided.
This is achieved by completely closing the sun protection devices automatically when there is strong solar radiation in empty rooms.
However it is possible to individually select the position of the sun protection device when there is cooling support.

4.3.2.2 Conditions

The conditions for cooling support are fulfilled when:

- A room is not occupied (presence = 0) [5] **and**
- The room temperature exceeds a configured value **and**
- cooling support is requested via the corresponding object (obj. 11).

If all conditions are fulfilled, the position configured for this purpose will be approached.

The cooling support is no longer needed when
- The room temperature falls below the configured *Desired room temperature during sun protection* by 2 K **or**
- The cooling support is cancelled (obj. 11 = 0).

If the cooling support is no longer needed, the position configured for this case will be approached.

---

[5] The presence detector delay should be selected in such a way that the room is not notified as clear straightaway when it has only been left for a short time, as otherwise sun protection equipment will be moved up and down unnecessarily.

4.4 Support mode for the commissioning of electronic motors

For start-up or reset, electronic drives must be actuated in both directions (Up + Down) at the same time.
This function is possible, but should **only** be carried out with an electronic drive.[6]

1. Activate manual mode via manual button or obj. 78/158
2. Manual LED lights up.
3. Press and hold the channel's UP and DOWN buttons at the same time
4. Continue to hold UP and DOWN buttons, press manual button and keep holding for 2 s.
5. Manual LED flashes quickly (5 Hz)
6. Buttons can be released → The **support mode** is active for this channel.
7. Now the drive can be configured
8. Every button press (up/down buttons on the device) leads to the activation of the relay and both can be activated at the same time.
9. The support mode is **ended** if no button is pressed for 2 minutes long or the manual button is pressed again.
10. The manual LED expires.

This procedure always applies only for one channel and must be repeated for every additional channel with electronic drive.

---

[6] With a conventional motor (electromechanical) this action leads to a short circuit.

4.5 The scenes

4.5.1 Principle

The current status of a channel can be stored and retrieved later via the scene function.

That applies to switching, blinds and dimming channels.
Each channel can participate simultaneously in up to 8 scenes.

This requires permission to access scenes for the relevant channel via parameter.
See parameter Activate scenes and parameter page Scenarios.

The current status is allocated to the appropriate scene number when a scene is saved.
The previously saved status is restored when a scene number is called up.

This allows a system to be easily associated with any user scene.
Permissible scene numbers: 1…64

The scenes are permanently stored and remain intact even after the application has been downloaded again.
See parameter All channel scene statuses on the parameter page Scenarios.

4.5.2 Calling up or saving scenes:

To call up or store a scene, the relevant code is sent to the scene object
(e.g. obj. 6, 243).

Table 13

Scene	Call up Hex.	Call up Dec.	Save Hex.	Save Dec.
1	$00	0	$80	128
2	$01	1	$81	129
3	$02	2	$82	130
4	$03	3	$83	131
5	$04	4	$84	132
6	$05	5	$85	133
7	$06	6	$86	134
8	$07	7	$87	135
9	$08	8	$88	136
10	$09	9	$89	137
11	$0A	10	$8A	138
12	$0B	11	$8B	139
13	$0C	12	$8C	140
14	$0D	13	$8D	141
15	$0E	14	$8E	142
16	$0F	15	$8F	143
17	$10	16	$90	144
18	$11	17	$91	145
19	$12	18	$92	146
20	$13	19	$93	147
21	$14	20	$94	148
22	$15	21	$95	149
23	$16	22	$96	150
24	$17	23	$97	151
25	$18	24	$98	152
26	$19	25	$99	153
27	$1A	26	$9A	154
28	$1B	27	$9B	155
29	$1C	28	$9C	156
30	$1D	29	$9D	157
31	$1E	30	$9E	158
32	$1F	31	$9F	159

Continuation:

Scene	Call up		Save	
	Hex	**Dec.**	**Hex**	**Dec.**
33	$20	32	$A0	160
34	$21	33	$A1	161
35	$22	34	$A2	162
36	$23	35	$A3	163
37	$24	36	$A4	164
38	$25	37	$A5	165
39	$26	38	$A6	166
40	$27	39	$A7	167
41	$28	40	$A8	168
42	$29	41	$A9	169
43	$2A	42	$AA	170
44	$2B	43	$AB	171
45	$2C	44	$AC	172
46	$2D	45	$AD	173
47	$2E	46	$AE	174
48	$2F	47	$AF	175
49	$30	48	$B0	176
50	$31	49	$B1	177
51	$32	50	$B2	178
52	$33	51	$B3	179
53	$34	52	$B4	180
54	$35	53	$B5	181
55	$36	54	$B6	182
56	$37	55	$B7	183
57	$38	56	$B8	184
58	$39	57	$B9	185
59	$3A	58	$BA	186
60	$3B	59	$BB	187
61	$3C	60	$BC	188
62	$3D	61	$BD	189
63	$3E	62	$BE	190

Examples (central or channel-related)**:**

Select status of scene 5:
→ Send $04 to the relevant scene object.

Save current status with scene 5:
→ Send $84 to the relevant scene object.

The scene that has just been active can be ended with the value 63 ($3F).
See parameter *Response when cancelling the scene (with scene value 63)*
on the parameter page *Scenarios.*

4.5.3 Teach in scenes without telegrams

Instead of defining scenes individually by telegram, this can be done in advance in the ETS.
This merely requires the setting of the *All channel scene statuses* parameter (*Scenes* parameter page) to *overwrite at download*.

Accordingly, the required status can be selected for each of the 8 possible scene numbers in a channel (= *Status after download* parameter).
The scenes are programmed into the device after the download has been completed.

Later changes via teach in telegrams are possible if required and they can be permitted or blocked via parameter.

4.6 Conversion of percentages to hexadecimal and decimal values

Percentage value	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Hexadecimal	00	1a	33	4D	66	80	99	B3	CC	E6	FF
Decimal	00	26	51	77	102	128	153	179	204	230	255

All values from 00 to FF hex. (0 to 255 dec.) are valid.