

## Shutter.Blind.Safety.Position 5703/1.0

### ● General information

This software application allows you to program series REG K/4x/6 blind actuators, which in turn allows you to control connected blind or roller shutter drives. The ETS allows you to individually set the type of connected load, as well as the functions available to it, for each of the blind actuator's output channels.

All the settings described refer to ETS version 3, but you can use all the settings and functions with ETS version 2 as well.

Maximum number of group addresses: 252

Associations: 252



#### **Caution!**

If you switch back to the preset values in either ETS 2 or ETS 3 (by clicking "Standard"), then all the values that you have changed so far will be deleted!



**Note:** Due to the fact that various functions depend on other functions, these dependant functions are only visible and selectable in the ETS when the preceding function has been enabled. If you de-select functions or parameters, group addresses that have already been connected may be deleted.



**Note:** Due to the fact that the output relays of a channel are locked against each other, you cannot switch on both outputs of the channel in question at the same time.



**Note:** The application files (vd2 and vd3) are configured in such a way that the application loading time is considerably reduced. When you convert a ETS 2 project to ETS 3, you lose this time saving. It therefore makes sense to load the vd3 file when using ETS 3.

### ● Application functions

The software application for the blind actuator provides you with numerous functions, which can be broken down into three groups. The description of the functions specifies and explains the parameters that are relevant for these functions. You will find an overview of all the parameters of the ETS application for the blind actuator in the last section "Parameters and settings".

#### **Basic functions**

These functions allow you to commission the device and equip it with simple functionality.

- Move height positions and slat opening angle manually

#### **Advanced functions**

- Move height position and slat opening angle using absolute position commands
- Automatic control
- Calibration/Reference movement
- Locking function for manual operating options
- Preset function
- Scene function

#### **Higher-level functions**

Higher-level functions are executed before the basic function and advanced functions. There are four higher-level functions:

- Weather alarm
- Alarm function
- Locking function
- Limit travel range

You can select the priorities freely:

Tab	Parameter
General	Set the order of priority for higher-level functions

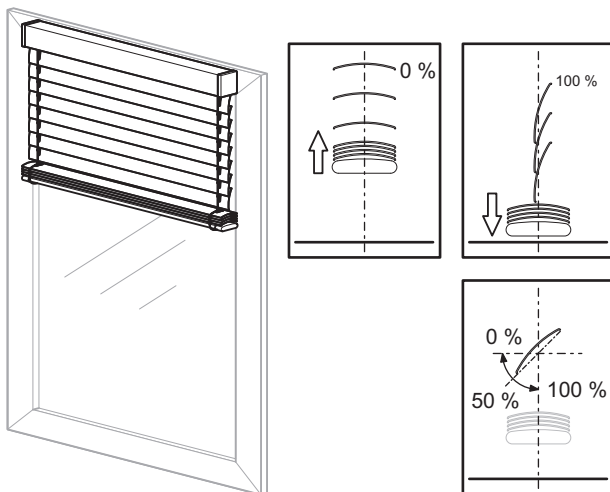
A higher-level function only becomes active if there is no other higher-level function active at the same time. If a higher-level function is reset and there is another higher-level function of lower priority active at the same time, then the actions of the lower priority function are then carried out.

## ● Defining blind type

If you want to define parameters for a blind, you need to specify the type of your blind before you start programming.

The application differentiates between four types of blind. You can determine the blind type from the position of its slats during movement. Two of these types have a mechanically-determined operating position. You can recognise these by the tilted position of the slats when moving downwards. The operating position restricts the possible opening angle of the slats, as long as the blind has not reached its lower end position.

### Blind type 1 (without operating position)

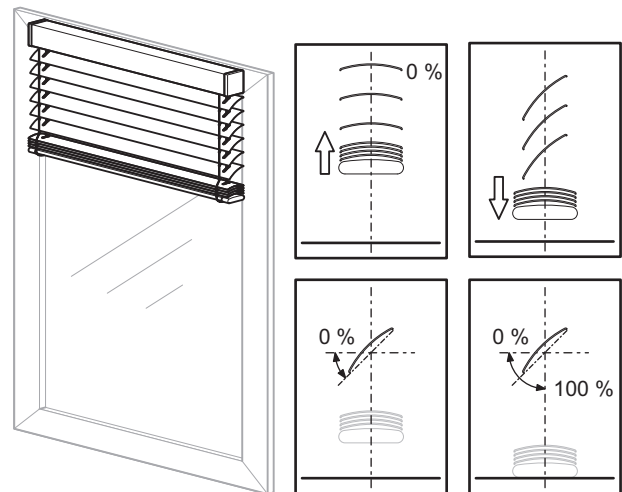


- Upward movement: Slats are in a level, opened position (slat position 0 %)
- Downward movement: Slats are closed downwards (slat position 100 %)
- Possible regulating range for the opening angle of the slats: 0–100 %

For each channel, you can use the "Slat position after movement" parameter to specify the behaviour of the slats following a movement. If you set the parameter to "operating position", you can configure the opening angle that you want the slats to assume after each downward movement. The preset value of 50 % corresponds to a slat opening of approximately 45°. Due to the fact that this position is time-controlled, please note the section "Running times of the drives".

**i Note:** Unless stated otherwise, the examples in the following set of instructions refer to this type of blind.

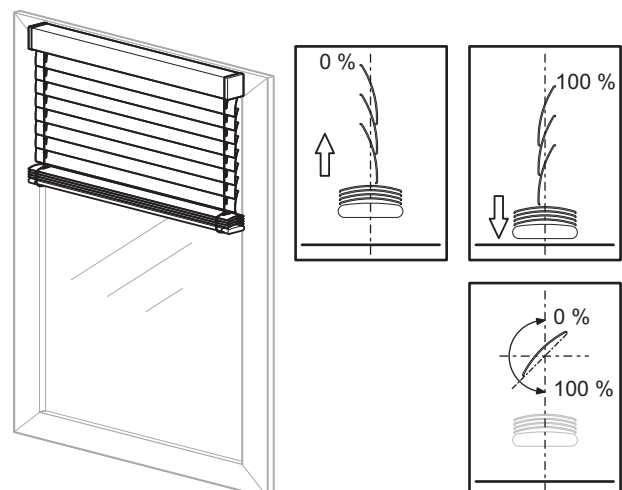
### Blind type 2 (with operating position)



- Upward movement: Slats are in a level, opened position (slat position 0 %)
- Downward movement: Slats tilted in operating position downwards (slat position in operating position)
- Possible regulating range for the opening angle of the slats:  
0 % to operating position, if blind is not in lower end position  
0–100 %, if blind is in lower end position

You can use the parameter "What is the existing slat position during downward movement in %?" to configure the opening angle for the operating position.

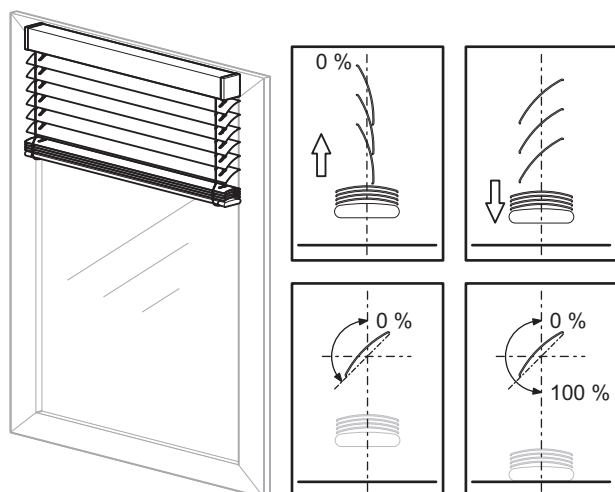
### Blind type 3 (without operating position)



- Upward movement: Slats are closed upwards (slat position 100 %)
- Downward movement: Slats are closed downwards (slat position 100 %)
- Possible regulating range for the opening angle of the slats: 0–100 %

For each channel, you can use the "Slat position after movement" parameter to specify the behaviour of the slats following a movement. If you set the parameter to "operating position", you can configure the opening angle that you want the slats to assume after each downward movement. The default value of 50% corresponds to a slat opening of approximately 45°. Due to the fact that this position is time-controlled, please note the section "Running times of the drives".

#### Blind type 4 (with operating position)



- Upward movement: Slats are closed upwards (slat position 100 %)
- Downward movement: Slats tilted in operating position downwards (slat position in operating position)
- When the lower end position is reached, the slats are closed (slat position 100 %)
- Possible regulating range for the opening angle of the slats:  
0 % to operating position, if blind is not in lower end position  
0–100 %, if blind is in lower end position

You can use the parameter "What is the existing slat position during downward movement in %?" to configure the opening angle for the operating position.

#### What blind type to select in the ETS?

For the corresponding blind type setting, you can configure the "How does the existing blind move?" parameter in the "X: Blind" tab as follows:

Tab	Parameter
X: Blind	How does the existing blind move?

Blind type	Setting
1	downwards closed / upwards horizontal
2	downwards tilted / upwards horizontal
3	downwards closed / upwards closed
4	downwards tilted / upwards closed

Also configure the following parameters.

For type 1 and 3:

Tab	Parameter
X: Blind	Slat position after movement
	Operating position of slat in %

For type 2 and 4:

Tab	Parameter
X: Blind	What is the existing slat position during downward movement in %

#### Slat adjustment function

Every time the blind moves, the position of the slats also changes depending on the direction of movement. After movement, the slats remain in this new position. This application, however, allows you to automatically adjust or reset the position of the slats after a movement.

Use the "Slat position after movement" parameter to specify the behaviour of the slats after a movement for each blind channel.

Tab	Parameter
X: Blind	Slat position after movement

The following parameters are available:

- no response (slats remain in the current position)
- operating position (slats are moved into the operating position)
- last slat position (the slats resume the opening position that they had before the movement started)

The slat opening angle that you specify here is applied after every positioning movement of the blind and also after every manual movement command ended by a stop telegram.

After a bus voltage failure or a download, the last slat position is not clearly defined. As a result, the corresponding operating position is used as the last slat position.

## Running times of the drives

**i Note:** Selecting the smallest possible value as the time basis in each case allows you to achieve the most precise results for the internal device time setting.

The importance of the drive running times setting depends on the desired control task for the blind or roller shutter.

The application provides you with the following parameters for setting running times:

- height running time
- Slat step interval (for blind function)
- Slat running time (for blind function)
- Pause on reverse for change of direction

You also have various options for compensating small time deviations caused by physical conditions or technical drive properties:

- Running time upwards supplement
- Dead time until upwards movement
- Start-up delay
- Run-out delay
- Slat open up start-up supplement (for blind function)
- Slat open down start-up supplement (for blind function)

Selecting the smallest possible value as the time basis in each case allows you to achieve the most precise results for the internal device time setting.

### Tips for setting values

If the running times to be set are too short to measure with the clock, then set an approximate value for the time being. Use position commands to test the behaviour of the drive or the slats. If the desired positions are not fully reached, then correct the running times upwards. If the positions are overshoot, then correct the running times downwards. Use new position commands to check your corrections. Carry out several tests because you will only see or detect the small discrepancies after a few movements.

When making corrections, it makes sense to change the value for the running time factor and to leave the value for the running time basis the same.

In addition to the discrepancies mentioned, environmental factors (temperature, rain etc.) also lead to variations in the movement behaviour of the drives. Due to the fact that the drives cannot report their current position and the current position can't always be calculated, the blind actuator cannot detect these discrepancies. In order to continue to be able to position the drive precisely, it makes sense to return the drives to a fixed starting position by means of regular reference movements. This allows you to achieve satisfactory positioning precision for a long time.

For more information, refer to the section "Calibration/Reference movement".

### Running times for basic function

You only have to measure and set the following running times in order to configure a simple basic function:

#### Running time for height adjustment

Tab	Parameter
X: Drive	Time basis for running time for height adjustment
	Factor for running time for height adjustment (10-64000) 1 second = 1000 ms

The running time is always comprised of the time basis multiplied by the factor, e.g. (default value):

$$100 \text{ ms} * 1200 = 120 \text{ s}$$

The drive needs this period of time to move out of one end position (blind/roller shutter is fully open or closed) into the opposite end position. When the set running time expires, the relay of the corresponding channel is automatically switched off (even if the drive with the values set here has not fully reached its end position). You may want to check whether the drive manufacturer has made any specifications regarding running times.

#### Slat step interval (only for blind)

Step commands allow you to turn the blind slats. You can change the opening angle of the slats gradually, to prevent glare when the sun changes position for example. Time basis multiplied by factor allows you to configure the duration of this kind of gradual rotation.

Tab	Parameter
X: Drive	Time basis for slat step interval
	Factor for slat step interval (5-255)

Example (default values):

$$10 \text{ ms} * 10 = 100 \text{ ms}$$

Depending on the total running time in one direction of movement, the step interval allows you to provide the user with a certain number of steps for opening or closing the slats.

If the running time is 2.5 s for example, then the drive needs approx. 25 steps to go through the entire slat opening range in one direction ( $2.5 \text{ s} / 100 \text{ ms} = 25 \text{ steps}$ ).

Using the same example, if you only want to give the user five slat steps:

$$2.5 \text{ s} / 5 \text{ steps} = 0.5 \text{ s step interval}$$

Leave the time basis of the step interval at 10 ms and set the factor of the step interval to 50:

$$10 \text{ ms} * 50 = 0.5 \text{ s step interval}$$

### Slat running time (only for blind)

The slat running time is the period of time it takes the slat to complete a full movement from 0% to 100% (or vice versa). The regulating range through which the opening angle passes depends on the type of blind in use:

	Type 1	Type 2	Type 3	Type 4
<b>Slat position 0 %</b>	level open	level open	up closed	up closed
<b>Slat position 100 %</b>	down closed	down closed	down closed	down closed

Tab	Parameter
X: Drive	Time base for running time of slat
	Factor for running time of slat (5-255)

Example (default values):

$$10 \text{ ms} * 100 = 1000 \text{ ms} = 1 \text{ s}$$

### How to measure small slat running times:

- Move the slats into the closed position (slat position 100 %). This is the lower end position for blind types with operating position.
- Count step commands: Now send step commands until the blind moves up, counting the number of steps required.

**Example:** The blind requires five steps to go through the slat regulating range. The blind moves upwards on the sixth step.

- The step interval values set (default step interval: 100 ms) is used to calculate the slat running time:  $100 \text{ ms} * 5 \text{ steps} = 0.5 \text{ s}$

### How to measure large slat running times

- Move the slats into the closed position (slat position 100 %). This is the lower end position for blind types with operating position.
- Now send a movement command upwards. Before the drive opens the blind, the slats turn into the open position (0 %). Measure the time it takes them to turn.
- Stop the drive after turning.
- For blind type 2 and 4 (with operating position), ensure that the closed slat position is not engaged until in the lower end position. Then also add on the time it takes to turn from the operating position to the closed position.



**Note:** For blind types 1 and 3 (without operating position) your setting for the slat running time influences the opening angle after a movement. This is because the selected opening angle (percentage of automatic slat position) is converted into a percentage turning time for the slats. The same applies for the slat adjustment function after a movement.

### Pause on reverse for change of direction

When the blind actuator of a drive that is currently moving receives a command to move in the opposite direction, then it first switches off both output relays for this channel. Before it switches on the relay for the new direction, it waits for the pause on reverse interval to pass. Set the length of the pause on reverse using the factor:

Tab	Parameter
X: Drive	Pause on reverse for change of direction (1-255) factor * 100 ms, manufacturer data!

**100 ms** is the underlying time basis. Example (default values):

$$5 * 100 \text{ ms (fixed value)} = 500 \text{ ms}$$

The blind actuator also observes the pause on reverse if, when executing two step commands, it has to turn the slats in different directions.



### Caution!

Pauses on reverse that are too short could cause damage to the drive. When setting values, observe the manufacturer's specifications for the drive under all circumstances.

### Running times for advanced functions and positioning commands

The advanced functions and direct positioning commands allow you to move the connected blinds or roller shutters into the desired position directly and, in the case of blinds, configure the opening angle of the slats also.

Tab	Parameter
X: Drive	Extended drive parameters

Due to the fact that the actuated drive cannot provide any status feedback on its position, these positioning movements are time controlled. Here it is important to set the running time parameter as precisely as possible because the more precisely you set this parameter, the more precisely the desired position can be determined and engaged. This is particularly the case for buildings that demand sophisticated blind control.

Positioning will be more precise the slower and longer a drive moves.

The settings for the height running time have already been explained. You can also set the following parameters contingent upon physical circumstances and the drive.



### Running time upwards supplement

The running time supplement only applies for upward drive movements. This is due to the physical fact of gravity: it takes drives longer to move up than down. Due to the fact that this time variation can be very short, you need to carry out a few movements in order to become aware of this behaviour. It's a good idea to move the drive from 10% to 90% and back to 10% again a few times. If, after these movements, you observe that the drive doesn't quite reach the top end position any more, you can compensate as follows:

Tab	Parameter
X: Drive	Common time base for additional running time/idle time
	Factor for additional running time in upward direction

Example (default values):

$$10 \text{ ms} * 20 = 200 \text{ ms}$$

### Dead time until upwards movement

If, when in the closed lower end position, the used blind experiences dead time between the time when the main band is activated and the first upward movement, then you can compensate for this delay as follows:

Tab	Parameter
X: Drive	Extended drive parameters
	Common time base for additional running time/idle time
	Factor for dead time to upward movement (1-255)

Example:

$$10 \text{ ms} * 10 = 100 \text{ ms}$$

You can also use the dead time to compensate for the roller shutter opening when using a roller shutter.

### Start-up delay / Run-out delay

Some motors do not achieve maximum output immediately when they are switched on, but a few milliseconds later. You can compensate for this using the start-up delay time setting.

Some motors continue to run for a few milliseconds after they have been switched off. If you observe this behaviour, then you can compensate with the settings for run-out delay.

Tab	Parameter
X: Drive	Extended drive parameters
	Factor for start-up delay Factor * 10 ms
	Factor for deceleration delay Factor * 10 ms

Start-up delay example:

$$10 \text{ ms} * 2 = 20 \text{ ms (with a time basis of 10 ms)}$$

### Slat running time with time-controlled positioning

In addition to the specifications already described for the slat running times, the following values apply in the case of time-control positioning:

- 0 %: Slats open or in the top closed position
- 100 %: Slats closed or in the bottom closed position

The resulting opening angle depends on the type of blind in use.

The device converts the set slat running time to a value between 0% and 100% accordingly and calculates the resulting travel times for the desired position commands.

### Start-up supplement

When opening the slats, some blind types need an extra start-up supplement until the slats start to respond depending on the tightening and loosening of the slat cords. This depends on the current position of the slats. You can use the following parameter to set a start-up supplement for both the top and bottom slat position.

These parameters allow you to set the start-up delay for an upwards movement until the slat turns when the slats are in the open position (0%) (the previous blind movement was an upwards movement):

Tab	Parameter
X: Drive	Extended drive parameters
	Common time base for additional running time/idle time
	Factor for additional start-up time when opening slat upwards

The start-up delay until the slat turns that you specify here is always considered when the blind is opened if the slats are in the closed position (100 %) (the previous blind movement was a downwards movement):

Tab	Parameter
X: Drive	Extended drive parameters
	Common time base for additional running time/idle time
	Factor for additional start-up time when opening slat downwards



**Note:** For every slat movement, it is assumed that the drive is switched on for a minimum running time. This minimum running time of the slat results from the switching capacity of the blind actuator's relay and is approx. 20 ms. Slat movements that are mathematically less than 20 ms are not carried out.

## ● Basic functions: Moving height position and slat opening angle manually

The basic function allows you to move the connected drive into the desired position manually. You have two communication objects to do this: "Movement object for manual mode" and "Stop/step object in manual mode" (for roller shutters: "Stop object in manual mode").

- Move drive  
The "Movement object for manual mode" is responsible for opening and closing the blind or the roller shutter. When the value "1" is received, the drive moves down; "0" moves it up.
- Running time  
The active output remains active until the set running time expires. If a new movement command in the same direction is received, then the drive continues moving.
- Pause on reverse for change of direction  
If, during a drive movement, a control command in the opposite direction is received, then the drive stops and waits for the defined pause on reverse time before moving in the new direction of movement.
- Stop drive  
When a drive that is currently moving receives a bus telegram for the "Stop/step object in manual mode" (for roller shutters: "Stop object in manual mode"), it stops. The object value received is irrelevant.
- Slat adjustment  
If the drive has been stopped, then the slats are turned into the desired position depending on the settings for the "Slat position after movement" parameter.
- Turn blind slats  
The "Stop/step object in manual mode" allows you to adjust the opening angle of the slats gradually for blinds. The drive must be idle. If the communication object receives the object value "1", then the slats are closed by one increment; if "0" is received, they open by one (type 1).

Note the following special cases:

1. If a step command is executed and the slats subsequently reach the limit of their possible movement range or if they are already in a maximum position, then the drive moves briefly in the desired direction. The duration of this movement also corresponds to the set step time.
2. If the direction changes from one step command to the next, then the device waits the pause on reverse time between steps in this case also.

## Parameter settings in the ETS:

Set the following parameters for this function in the ETS:

Tab	Parameter	Blind	Roller shutter
Channel configuration	Channel X operating mode	X	X
X: Blind	How does the existing blind move?	X	
	Slat position after movement	X	
	Operating position of slat in %	X	
	What is the existing slat position during downward movement in %	X	
X: Drive	Time basis for running time for height adjustment	X	X
	Factor for running time for height adjustment (10-64000) 1 second = 1000 ms	X	X
	Time basis for slat step interval	X	
	Factor for slat step interval (5-255)	X	
	Time base for running time of slat	X	
	Factor for running time of slat (5-255)	X	
	Pause on reverse for change of direction (1-255) factor * 100 ms, manufacturer data!	X	X

## Communication objects

Communication objects for blind:

Function	Object name	Type	Prio	Flags	Behaviour
Blind	Movement object for manual mode	1 bit	Low	WC	Receive
Blind	Stop/step object in manual mode	1 bit	Low	WC	Receive

Communication objects for roller shutters:

Function	Object name	Type	Prio	Flags	Behaviour
Roller shutter	Movement object for manual mode	1 bit	Low	WC	Receive
Roller shutter	Stop object in manual mode	1 bit	Low	WC	Receive

Settings for this function:

- "Movement object for manual mode" = "0": Blind/ Roller shutter open
- "Movement object for manual mode" = "1": Blind/ Roller shutter close
- Drive is moving and "Stop/step object in manual mode" or "Stop object in manual mode" = "0" or "1": Stop drive

Extra for blinds:

- Drive is idle and "Stop/step object in manual mode" = "0": Slats one step upwards
- Drive is idle and "Stop/step object in manual mode" = "1": Slats one step downwards.

Special cases:

- Slats in top end position (slat position 0 %) and "Stop/step object in manual mode" = "0": Drive moves one step upwards
- Slats in bottom end position (slat position 100 %) and "Stop/step object in manual mode" = "1": Drive moves one step downwards.

### ● Advanced functions: Move height position and slat opening angle using absolute position commands

This function allows you to manually set a height position, and in the case of blinds the opening angle of the slats, directly using a percentage value. The desired percentage value always relates to the possible movement range of 0–100 % that you set by specifying the running times. You therefore set an absolute height position for the entire movement range.

After receiving a new position value, the blind actuator calculates a proportional movement time from the current position and the new desired position and then moves the drive in the corresponding direction of movement for this period of time. The new position is buffered. The precision of the position settings depends on the precision of your settings for the drive running times.

After a few position movements, there will be minimal deviations between the actual position and the calculated position for physical and mechanical reasons. You can reset these deviations with reference movements.

If a reference movement is necessary before a new position movement, then the blind actuator allows this to be carried out before moving into the new setpoint position (see the section "Calibration/Reference movement").

The communication objects "height in manual mode" and "slat in manual mode" (for blinds) allow you to set the absolute position values.

- Set height position  
The "height in manual mode" object is responsible for the height position of the blind or roller shutter. The limit position 0 % means that the blind/roller shutter is fully up. If 100% is set, then the blind/roller shutter is fully down.
- Turn slats into opening position  
The "slat in manual mode" object allows you to set the slat opening angle directly. In slat position 0 % the slats are horizontally open or closed up. At 100 % they are closed down. The actual opening angle of the slats depends on the type of blind in use.

When it receives a new position value, the blind actuator calculates the running time necessary to reach the new position from the current position. Then the drive is moved to the new position for the calculated period of time. The calculation also determines the direction of travel. If, during a positioning movement, the device receives a new position value and the calculation results in the same direction of travel, then the drive continues moving until it reaches the new setpoint position.



- Pause on reverse for change of direction  
If, during a drive movement or slat adjustment, a new position command is received and the calculation results in the opposite direction of travel, then the drive stops and waits for the defined pause on reverse time before starting the new position movement.
- Slat adjustment  
When the height position of the blind is changed and the blind reaches the desired position, then the slat adjustment function is carried out and the slats are moved into the desired position.

## Parameter settings in the ETS:

Set the following parameters for this function in the ETS:

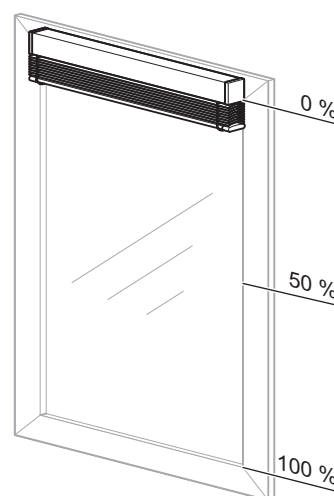
Tab	Parameter	Blind	Roller shutter
Channel configuration	Channel X operating mode	X	X
X: Blind	How does the existing blind move?	X	
	Slat position after movement	X	
	Operating position of slat in %	X	
	What is the existing slat position during downward movement in %	X	
X: Drive	Extended drive parameters	X	X
	Time basis for running time for height adjustment	X	X
	Factor for running time for height adjustment (10-64000) 1 second = 1000 ms	X	X
	Common time base for additional running time/idle time	X	X
	Factor for additional running time in upward direction	X	X
	Factor for idle time until upward movement	X	X
	Factor for additional start-up time when opening slat upwards	X	
	Factor for additional start-up time when opening slat downwards	X	
	Time basis for slat step interval	X	
	Factor for slat step interval (5-255)	X	
	Time base for running time of slat	X	
	Factor for running time of slat (5-255)	X	
	Pause on reverse for change of direction (1-255) Factor * 100 ms, manufacturer data!	X	X
	Factor for start-up delay Factor * 10 ms	X	X
	Factor for deceleration delay Factor * 10 ms	X	X

## Application examples

The following examples show the running times that result in order to reach certain positions.

*Starting position and set values:*

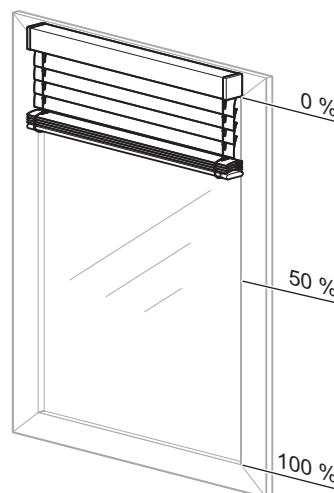
- Blind type 1, operating position 50 %, slat adjustment = operating position
- Running times:  
Start-up delay disabled  
Run-out delay disabled  
Slat open up/down start-up supplement disabled  
height running time 120 s  
Running time supplement upwards 0.2 s  
Slat running time 2.5 s
- Current height position 0 % (blind up)
- Current slat position 0 % (slats open)



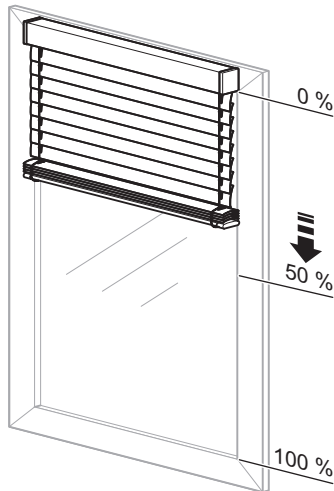
*New height position: 50 %*

Step 1:

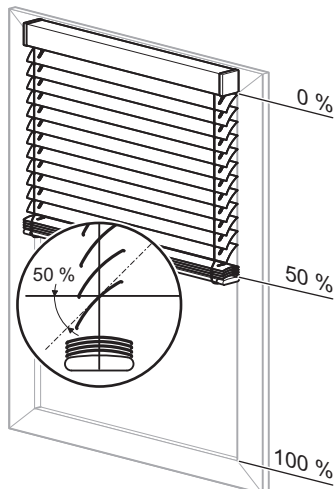
Close slats for downwards movement = **2.5 s**  
(Slat running time from 0 % to 100 %)



Step 2:  
height running time = 60 s, downwards direction  
(Difference between current 0 % and new position 50 % = 50 % of height running time )



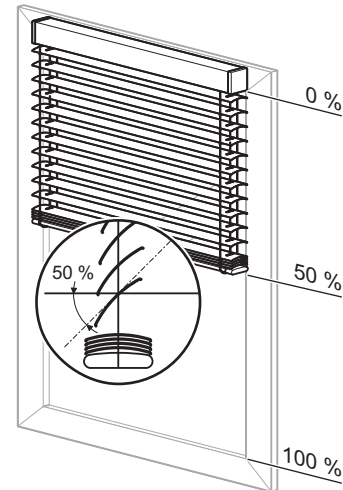
Step 3:  
Slat adjustment into the operating position after downwards movement = **1.25 s**  
(Slat running time from 100 % to 50 %)



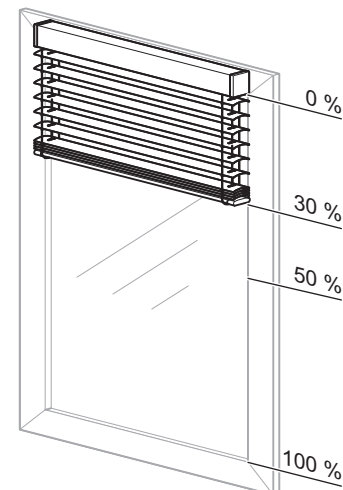
Total movement time therefore:  
 $2.5 \text{ s} + 60 \text{ s} + 1.25 \text{ s} = \mathbf{63.75 \text{ s}}$

*New height position: 30 %*

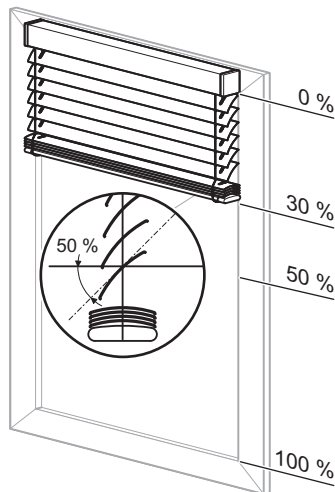
Step 1:  
Open slats for the upwards movement = 1.25 s  
(Slat running time from 50 % to 0 %)



Step 2:  
height running time = 24 s, upwards direction  
(Difference between current position 50 % and new position 30 % = 20 % of height running time)  
plus  
Running time supplement upwards = 0.04 s  
(Difference between current position 50 % and new position 30 % = 20 % of running time supplement)



Step 3:  
Slat adjustment into the operating position after upwards movement = **1.25 s**  
(Slat running time from 0 % to 50 %)



Total movement time therefore:

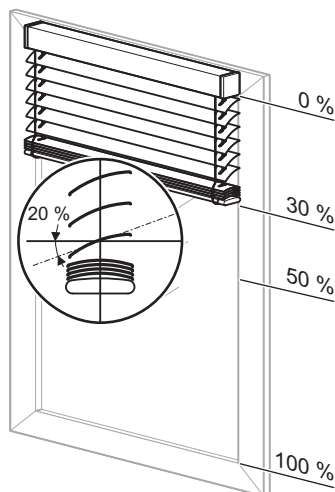
$$1.25 \text{ s} + 24 \text{ s} + 0.04 \text{ s} + 1.25 \text{ s} = \mathbf{26.54 \text{ s}}$$

*New slat position: 20 %*

Step 1:

Slat running time = 750 ms

(Difference between current position 50 % and new position 20 % = 30 % of slat running time)



## Communication objects

Communication objects for blind:

Function	Object name	Type	Prio	Flags	Behaviour
Channel X	Manual height position	1 byte	Low	WC	Receive
Channel X	Manual slat position	1 byte	Low	WC	Receive

Communication objects for roller shutters:

Function	Object name	Type	Prio	Flags	Behaviour
Channel X	Manual height position	1 byte	Low	WC	Receive

## ● Advanced functions: Automatic control

In addition to manual control of the blind/roller shutter drives (using the communication objects for the manual operation options), the software application also provides you with another group of communication objects for automatic control.

Automatic control can take place from other bus devices, e.g., presence detectors, light controllers or through a building control centre. When you have activated automatic control for a channel, then initially you can position the connected drive equally using manual or automatic control. The drive responds identically to control telegrams received from both types of control.

Using parameter settings and objects you can change the operating principle of both control options. You can also configure manual and automatic control to influence each other.

## Activating automatic control

In order to be able to use automatic control, you have to activate the function in the ETS first:

Tab	Parameter
X: Blind X: Roller shutter	Automatic control/Presets

When automatic control is active, the extra tab "X: Automatic" appears. Here you can make more settings.

The communication objects for manual operation and automatic control have the same effects. The drive carries out the last command it received to one of the objects.

## Deactivating/Disabling automatic control

If manual control and automatic control operating on an equal basis doesn't always suit your application, then you can disable the automatic function using another object if necessary, and then enable it again later.

In addition, you can specify how automatic control responds to a manual operating telegram.

Tab	Parameter
X: Automatic	Automatic mode locking

If you set "Automatic mode locking" to the value "on object value 0" or "on object value 1", then the communication object "Automatic mode locking" also appears.

Depending on how it is set, the automatic function is either enabled or disabled when it receives a new telegram value.

- "Automatic mode locking" = "on object value 0"  
If "Automatic mode locking" = "0": Automatic function disabled (Automatic mode locking active)  
If "Automatic mode locking" = "1": Automatic function enabled (Automatic mode locking inactive)

- "Automatic mode locking" = "on object value 1"  
If "Automatic mode locking" = "0": Automatic function enabled (Automatic mode locking inactive)  
If "Automatic mode locking" = "1": Automatic function disabled (Automatic mode locking active)

You can also specify the behaviour of the drive at the end of an Automatic mode locking.

Tab	Parameter
X: Automatic	Behaviour on deactivation of the Automatic locking via object value

### Specifying dependency between automatic function and manual control

The following parameter allows you to define the response of the automatic function to the receipt of a control telegram from the manual control options (manual movement object, manual stop/step object, manual height position, manual slat position and scene retrieval):

Tab	Parameter
X: Automatic	Response in automatic operation on receipt of a manual object value

If this parameter is set to "Automatic control temporarily disabled", two additional parameters appear:

Tab	Parameter
X: Automatic	Time basis for automatic function deactivation time
	Factor for automatic function deactivation time (1-255)

The deactivation time period results from the time basis x factor.

The only way to cancel a continuous deactivation of the automatic function is with a telegram to end an Automatic mode locking via the Automatic locking object. The action that you set in the parameter "Behaviour on deactivation of the Automatic locking via object value" is executed.

After a time-limited deactivation has expired, the drive remains in its current position until it receives the next control telegram.

### Communication objects

Function	Object name	Type	Prio	Flags	Behaviour
Channel X	Automatic movement object	1 bit	Low	WC	Receive
Channel X	Stop/step object automatic	1 bit	Low	WC	Receive
Channel X	Height position automatic	1 byte	Low	WC	Receive
Channel X	Slat position automatic	1 byte	Low	WC	Receive
Channel X	Automatic mode locking	1 bit	Low	CRW T	Send/ Receive/ Read out

### ● Advanced functions: Calibration/Reference movement

The blind actuator calculates the current position of a drive from the running times that you set for the drive and also from the control commands that it executes. This calculation has to be performed because the drive cannot provide any status feedback on its position. Even if you set the running times very precisely, small variations occur between the internally calculated height position and the actual height position after a few movements. These are due to mechanical tolerances and weather influences (temperature fluctuations, frost, rain etc.).

The blind actuator can reset these deviations with reference movements. To do this, it moves the drives specifically into the top or lower end position. After the reference movement, the internal position calculation re-starts from a fixed value. This means that any deviations that have occurred in the meantime are deleted.



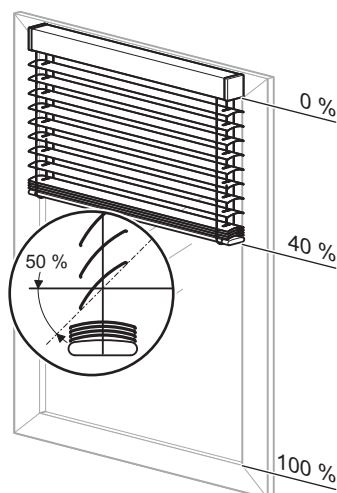
**Note:** The calibration function is primarily important if you are operating with a lot of position commands and require a high level of positioning precision. If you are controlling the blind with the basic function only and position commands are irrelevant, then you don't need this function.

### Operation

A reference movement can be triggered by a communication object or after a certain number of movements. When a reference movement is triggered, the drive moves into the desired reference position (end position). If you have set both end positions as reference positions, then the drive moves into the nearest end position, depending on its current position. In order to ensure that the drive reaches the end position fully, the actuator adds a running time supplement of 5% of the total running time to the calculated movement time for every reference movement.

### Application example

- Blind type 1, automatic slat position after downwards movement (operating position) 50 %
- Start-up delay: disabled  
Run-out delay: disabled  
Slat up start-up supplement: disabled
- height running time 120 s  
Running time supplement upwards 0.2 s  
Slat running time 2.5 s
- Current height position 40 %  
Current slat position 50 % (work position)



Calculated movement time for reference movement to top end position:

- Open slats fully for the upwards movement = 1.25s
- plus height running time (40 % of total movement range) 48 s, upwards direction
- plus running time supplement upwards (40 % of 0.2 s) 0.08 s
- Calculated movement time: 49.33 s
- plus supplement for reference movement (5 % of total running time) 6 s
- **Total movement time of the reference movement 55.33 s**

Calibration is also automatically carried out when the drive moves into an end position following a "normal" positioning command. The running time supplement of 5% also applies in the case of automatic calibration.



**Note:** If during a calibration function a weather alarm or any other higher-level function is activated, then the calibrating function is cancelled and the higher-level function is executed.

You can activate the calibration function for every channel individually: Enable the "Calibration" parameter.

Tab	Parameter
X: Blind	Calibration
X: Roller shutter	

A new tab "X:Calibration" appears for those channels for which you activated the calibration function. Here you can make the desired settings for each channel.

Using the "Reference position" parameter, first select the end position that you want to use as the reference position.

Tab	Parameter
X: Calibration	Reference position

Then you can specify what triggers a reference movement:

#### Trigger reference movement after a certain number of movements

The actuator adds the number of all movements regardless of which control command triggered the movements. Once the defined number of movements has been reached, the drive carries out a reference movement before the next positioning command. Then it moves into the required position. After the reference movement, the movement counter is reset.

#### Trigger reference movement by communication object

When the "Trigger reference movement" object receives the value "1", a reference movement is started on all associated channels. So as not to overload the power supply of the blind system, you can stagger the reference movements by specifying a delay time for each individual channel. If during this delay time, the object receives a new value of "1", the delay time is restarted. The object value "0" has no meaning.

You can define the height position after the reference movement with the "Position after reference movement via object". If you want the drive to move into a new position, then set the height, and in the case of blinds the opening angle of the slats also, to a value in the movement range between 0% and 100%.

If the blind actuator receives an absolute positioning command during the reference movement, it moves into the desired position after the reference movement. The settings in the "Position after reference movement via object" parameter have no effect in this case. All other control commands interrupt the calibration function. The drive responds to the control commands received.

#### Automatic calibration

Every time the drive moves into the defined end position following a positioning command, the calibration function is carried out. This means that a running time supplement of 5% of the total running time is added to the calculated movement time needed by the drive, so that the drive can reach the desired end position fully. When the end position is reached, the movement counter is reset.



## Reference movement after initialisation

The aim of the reference movement after a download or recovered bus voltage is to have an exact starting position for subsequent position movements.



**Note:** The reference movement after initialisation is always carried out, even if the "Reference movement in general" function is disabled.

The reference movement is triggered by an absolute positioning command. These are, for example, the receipt of a value on the "Manual height position" or "Automatic height position" objects, retrieval of scenes or pre-set values, or if an absolute position is assumed in the event of a weather alarm, alarm or lock. If after initialisation the "Manual movement object" object receives a value that moves the blind/roller shutter into the top end position, then the actuator automatically assesses this movement as a reference movement.

In general, the reference movement after initialisation is towards the top end position. If you enabled transmission of the Status reports "Status of height" and/or "Status of slat" (active status feedback object), the current status is automatically transmitted via this object.

## Reference movement in the event of movement range limitation



### Caution!

Blinds/roller shutters could be damaged. The blinds/roller shutter may move beyond the limits of the movement range into windows that may be open. Pay attention therefore to where you want the reference movement to go.

A reference movement also takes place after initialisation even if the "Limit movement range" function is active. The blinds/roller shutter may move beyond the limits of the movement range into windows that may be open. Pay attention therefore to where you want the reference movement to go. In general, the reference movement after initialisation is towards the top end position. Only when the "Reference position" is set to "down" does a reference movement take place towards the lower end position. In the case of a reference movement, the "Movement range limit status feedback" object receives the value "0". The blind/roller shutter only moves in the travel range after the reference movement has completed.

## Parameter settings in the ETS:

Set the following parameters for this function in the ETS:

Tab	Parameter
General	Reference movement in general
X: Blind or X: Roller shutter	Calibration
X: Calibration	Reference movement
	number of movements until a reference movement is executed (1-20)
	Reference movement delay time via object in seconds
	Position after reference movement via object
	Height position after reference movement in %
	(for blind) slat position after reference movement in %
	Reference position
	Automatic calibration

## Communication objects

If the "Reference movement in general" parameter is enabled in the "General" tab, the "Trigger reference movement" object appears.

Function	Object name	Type	Prio	Flags	Behaviour
Calibration	Trigger reference movement	1 bit	Low	WC	Receive

## ● Advanced functions: Locking function for manual operating options

You can control the connected drives using the communication objects for manual operation or by automatic control. There are two manual operation options available:

- Manually move height position and slat opening angle with up/down/step/stop commands
- Move height position and slat opening angle using absolute position commands

### Disable manual operation

If you want to disable manual operation for a time, then you can activate a locking function for every output channel.

Tab	Parameter
X: Blind X: Roller shutter	Manual mode locking

Depending on how it is set, manual operation is either enabled or disabled when it receives a new telegram value.

- "Manual mode locking" = at object value "0"  
If "Manual lock" = "0": manual operation disabled (manual mode locking active)  
If "Manual mode locking" = "1": manual operation enabled (manual mode locking inactive)
- "Manual mode locking" = on object value "1"  
If "Manual lock" = "0": manual operation enabled (Manual mode locking inactive)  
If "Manual mode locking" = "1": manual operation disabled (Manual mode locking active)

Alarm functions or other higher-level functions (e.g., wind alarm, rain alarm) also disable drive operation (see the section "Higher-level functions").

### Communication objects

If you set "Manual mode locking" to the value "at object value 0" or "at object value 1", then the communication object "Manual lock" appears.

Function	Object name	Type	Prio	Flags	Behaviour
Channel X	Manual lock	1 bit	Low	WC	Receive

## ● Advanced functions: Preset function

The preset function allows you to save up to four height positions and slat opening angles (for blind drives) per blind or roller shutter channel and to activate these preset positions later by telegram. You can save current height positions as preset positions by telegram control. The difference between this function and the scene function is in terms of the data format of the allocated communication objects. In the case of the preset function, all communication objects are 1-bit objects.

You can activate the preset function as an alternative to the automatic function.

### Activating the preset function

You can activate the preset function for each channel individually:

Tab	Parameter
X: Blind X: Roller shutter	Automatic control/Presets

After you have activated the function, the "X: Presets" tab opens. Here you can specify the four preset positions. You can change these positions later during operation using telegrams.

### Retrieving preset positions

You can retrieve the preset positions with the communication objects "Preset 1/2" or "Preset 3/4".

Following receipt of a telegram on either of the two objects, the drive moves into the saved pre-set position.

- "Retrieve preset 1/2" = "0": Preset position 1 is activated
- "Retrieve preset 1/2" = "1": Preset position 2 is activated
- "Retrieve preset 3/4" = "0": Preset position 3 is activated
- "Retrieve preset 3/4" = "1": Preset position 4 is activated

If a reference movement is necessary before moving into the preset position, the reference movement is carried out first and then the drive moves into the requested preset position.

### Saving a preset position

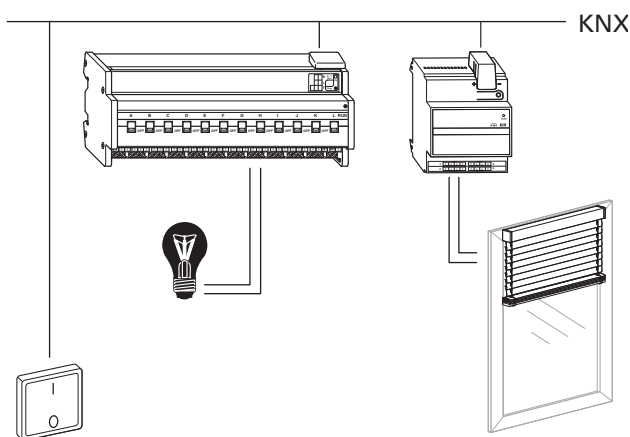
You can replace the preset positions during operation with the communication objects "Preset 1/2" or "Preset 3/4".

Following receipt of a telegram on either of the two objects, the current position of the drive is saved as the new preset position.

- "Set preset 1/2" = "0": Saves current position as preset position 1
- "Set preset 1/2" = "1": Saves current position as preset position 2
- "Set preset 3/4" = "0": Saves current position as preset position 3
- "Set preset 3/4" = "1": Saves current position as preset position 4

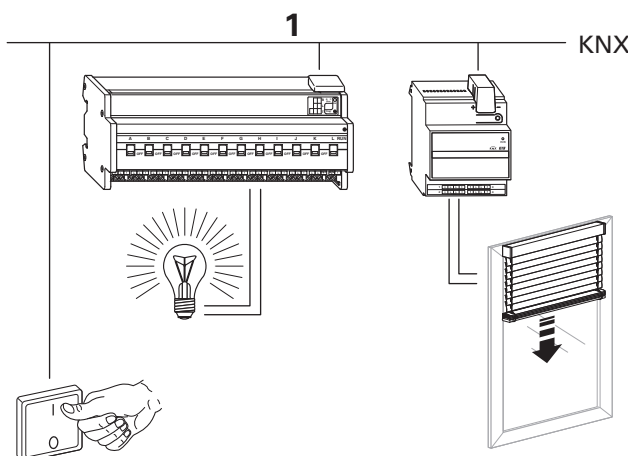
If you enabled the parameter "Replace preset values in the actuator on download", then the preset values saved in the device are replaced with your default values on download. If you don't want to replace the values in the device, then you must disable this parameter.

### Application example 1

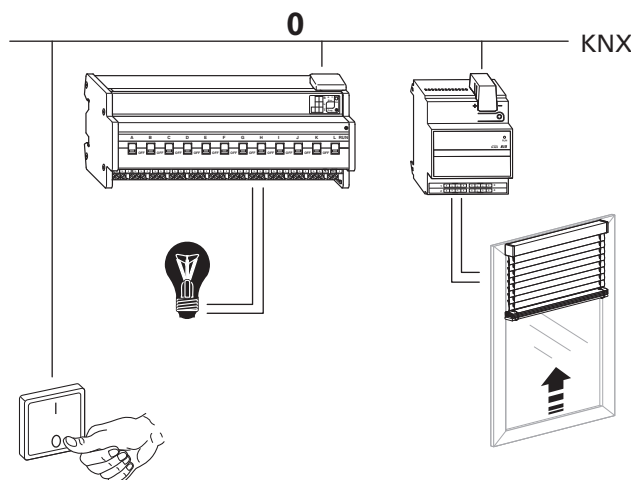


The preset function allows you, for example, to switch on the lighting and move the roller shutter at the same time by pressing one push-button. If you enter the value 0 % (roller shutter open) for preset function 1 and the value 100 % (roller shutter closed) for preset value 2, then pressing one push-button gives you the following control:

Push-button action to ON => telegram value "1" => light ON and retrieve preset position 2 = close roller shutter:



Push-button action to OFF=> telegram value "0" => light OFF and retrieve preset position 1 = open roller shutter:



In this case, due to the fact that the roller shutter requires a certain running time to open, the light needs to be switched off with a switch-off delay so that it doesn't suddenly become dark prematurely.

### Application example 2

You can also use a 1-bit light sensor to retrieve a preset. The following devices can be used as a light sensor: INSTABUS-ARGUS 220 Connect Art. No. 6315., light-sensitive switch REG-S/DS1 Art. No. 670601, weather station REG-K/4-gang Art. No. 682991.

### Parameter settings in the ETS:

Set the following parameters for this function in the ETS:

Tab	Parameter
X: Blind or X: Roller shutter	Automatic control/Presets
X: Presets	Replace preset values in the actuator on download
	Preset 1 height pos. in %
	Preset 1 slat pos. in %
	Preset 2 height pos. in %
	Preset 2 slat pos. in %
	Preset 3 height pos. in %
	Preset 3 slat pos. in %
	Preset 4 height pos. in %
	Preset 4 slat pos. in %

## Communication objects

Use the following objects to retrieve the preset functions:

Function	Object name	Type	Prio	Flags	Behaviour
Channel X	Retrieve preset 1/2	1 bit	Low	WC	Receive
Channel X	Retrieve preset 3/4	1 bit	Low	WC	Receive
Channel X	Set preset 1/2	1 bit	Low	WC	Receive
Channel X	Set preset 3/4	1 bit	Low	WC	Receive

## ● Advanced functions: Scene function

If you want to change various room functions at the same time using a bus telegram, then the scene function is ideal. Retrieving a scene allows you, for example, to dim the room lighting to a desired value, move the blinds into a desired position and turn the slats, switch heating control to daytime operation and switch on the power to the socket-outlets in a room. Due to the fact that these functions can have different telegram formats and moreover, the telegram values have different meanings (e.g., for lighting value "0" means OFF and for blinds OPEN), without the scene function you would have to send a separate telegram to each actuator to achieve the same result.

The scene function allows you to integrate the blind actuator into scene control. There are memory slots for up to five different scene values for each output channel. Each of these scene memory slots can be assigned one of 64 possible Address of scenes (Address of scenes 0 to 63 correspond to telegram values 0 to 63). You can save height positions, and for blinds also slat opening angles, as scene values. When the actuator receives a telegram that retrieves a Address of scene, the drive is moved into the saved position and the slats are turned. The Address of scenes that you save on commissioning can be replaced later by users if they want.

### Telegram format

Telegrams for the scene function have the data format L X D D D D D D.

L: Learn bit

X: is not used

DDDDDD: retrieved Address of scene

If the learn bit in a telegram has the value "0", the position values saved for this Address of scene are retrieved and engaged.

If the learn bit has the value "1", then the current drive and slat positions are saved as new position values for the Address of scene.

Examples:

- Telegram value 2  
Binary 0000 0010  
Hexadecimal 02  
Retrieve Address of scene 2
- Telegram value 45  
Binary 0010 1101  
Hexadecimal 2D  
Retrieve Address of scene 45
- Telegram value 173  
Binary 1010 1101  
Hexadecimal AD  
Learn Address of scene 45
- Telegram value 190  
Binary 1011 1110  
Hexadecimal BE  
Learn Address of scene 62

## Activating the scene function

In order to be able to use the scene function for the individual channels, you first have to enable the function for the device once:

Tab	Parameter
General	Scenes in general

After you enable the function, the communication object "Scene object" appears. This object receives the scene telegrams.

Now you can activate the function for each channel individually:

Tab	Parameter
X: Blind X: Roller shutter	Scenes

After you enable the "Scenes" parameter, the "X: Scenes" tab appears. Here you can assign the scene position. You can activate each of the scene memory slots independently of each other.

## Parameter settings in the ETS:

Set the following parameters for this function in the ETS:

Tab	Parameter
General	Scenes in general
X: Blind X: Roller shutter	Scenes
X: Scenes	Replace scene values in the actuator on download
	Scene 0
	Scene 0: Address of scene (0-63)
	Scene 0: Height pos. in %
	Scene 0: Slat pos. in % (only for blind)
	Scene 1
	Scene 1: Address of scene (0-63)
	Scene 1: Height pos. in %
	Scene 1: Slat pos. in % (only for blind)
	Scene 2
	Scene 2: Address of scene (0-63)
	Scene 2: Height pos. in %
	Scene 2: Slat pos. in % (only for blind)
	Scene 3
	Scene 3: Address of scene (0-63)
	Scene 3: Height pos. in %
	Scene 3: Slat pos. in % (only for blind)
	Scene 4
	Scene 4: Address of scene (0-63)
	Scene 4: Height pos. in %
	Scene 4: Slat pos. in % (only for blind)

## Retrieving and saving a scene position

The "Scene object" object allows you to retrieve scene positions. When a scene telegram is received, the blind actuator evaluates the Address of scene sent.

If a reference movement is necessary before moving into the scene position, the reference movement is carried out first and then the drive moves into the requested scene position.

If the "Scene object" object receives a scene telegram with learn bit "1", then the current position, and in the case of blinds the current slat position, is saved as the new scene value in all those scene memory slots allocated the Address of scene received.



**Note:** If a Address of scene has been allocated to more then one scene within a channel, then the first scene that has this Address of scene and is found will be activated (only this Address of scene). Or it will be saved in the memory. To avoid this, you should allocate different Address of scenes to every scene within a channel.

## Example:

### – Output channel 1

Scene 1 activated to Address of scene 13  
(Scene 1 Height position = 50 %,  
(Scene 1 Slat position = 75 %,  
Scene 2 activated to Address of scene 7  
(Scene 2 Height position = 0 %,  
(Scene 2 Slat position = 0 %,  
Scene 3, 4, 5 deactivated

### – Output channel 4

Scene 1 activated to Address of scene 7  
(Scene 1 Height position = 100 %,  
(Scene 1 Slat position = 0 %,  
Scene 3 activated to Address of scene 21  
(Scene 3 Height position = 50 %,  
(Scene 3 Slat position = 50 %,  
Scene 2, 4, 5 deactivated

"Scene object" object receives "Retrieve Address of scene 13" telegram:

– Output channel 1 moves into position 50 % height, 75 % slat

– Output channel 4 does not respond

"Scene object" object receives "Retrieve Address of scene 1" telegram:

– Actuator does not respond because Address of scene 1 is not assigned.

"Scene object" object receives "Retrieve Address of scene 7" telegram

– Output channel 1 moves into position 0 % height, 0 % slat

– Output channel 4 moves into position 100 % height, 0 % slat

"Scene object" object receives "Retrieve Address of scene 21" telegram

– Output channel 1 does not respond

– Output channel 4 moves into position 50 % height, 50 % slat



Drives are moved into the following positions either manually or automatically:

- Output channel 1: Height position = 30 %, Slat position = 70 %
- Output channel 4: Height position = 20 %, Slat position = 10 %

The "Scene object" object now receives a learning telegram for Address of scene 13

- Output channel 1: Scene 1 Height position = 30 %, Scene 1 Slat position = 70 %
- Output channel 4 does not respond

"Scene object" object receives "Retrieve Address of scene 13" telegram:

- Output channel 1 moves into position 30 % height, 70 % slat
- Output channel 4 does not respond

Note the difference with the first retrieval of Address of scene 13!

If you enabled the parameter "Replace scene values in the actuator on download", then the scene values saved in the device are replaced with your default values on download. If you don't want to replace the values in the device, then you must disable this parameter.

### Extension function for scenes

This function allows you to activate or re-program the scene values for Address of scenes 0–3 also using 1-bit telegrams. Activate the extension function for the device:

Tab	Parameter
General	Ext. input Scenes

After you enable this function, two communication objects appear to activate a Address of scene:

- "Retrieve scene 1/2" = "0": Address of scene 1 is activated
- "Retrieve scene 1/2" = "1": Address of scene 2 is activated
- "Retrieve scene 3/4" = "0": Address of scene 3 is activated
- "Retrieve scene 3/4" = "1": Address of scene 4 is activated

Two communication objects to set a Address of scene also appear:

- "Set scene 1/2" = "0": Address of scene 1 is programmed
- "Set scene 1/2" = "1": Address of scene 2 is programmed
- "Set scene 3/4" = "0": Address of scene 3 is programmed
- "Set scene 3/4" = "1": Address of scene 4 is programmed



**Note:** The actions correspond to a normal retrieval or learn command for Address of scenes 1, 2, 3 or 4 using the "Scene object" object. The extension function is not available for Address of scenes 5 to 63. You can only address these Address of scenes using the "Scene object" object.

By using this extension function for scenes, you can also avail of a preset function (retrieving saved position values using 1-bit telegrams) if you want to use automatic control instead of the actual preset function.

If you use the preset function and the extension function for scenes together, you have up to eight different positions available for each channel, which you can retrieve using 1-bit telegrams.

### Communication objects

Use the following objects to retrieve the preset functions:

Function	Object name	Type	Prio	Flags	Behaviour
Scene extension	Retrieve scene 1/2	1 bit	Low	WC	Receive
Scene extension	Retrieve scene 3/4	1 bit	Low	WC	Receive
Scene extension	Set scene 1/2	1 bit	Low	WC	Receive
Scene extension	Set scene 3/4	1 bit	Low	WC	Receive
Scenes	Scene object	1 byte	Low	WC	Receive

### ● Higher-level functions: General information

You can use four higher-level functions with the blind actuator:

- Weather alarm
- Alarm function
- Locking function
- Limit travel range

Higher-level functions are executed before the basic function and advanced functions.

You can prioritise the higher-level functions among each other as you wish with the following parameter:

Tab	Parameter
General	Set the order of priority for higher-level functions

A higher-level function only becomes active if there is no other higher-level function active at the same time. If a higher-level function has been reset and there is another higher-level function of lower priority active at the same time, then the actions of the function of lower priority are carried out.

## ● Higher-level functions: Weather alarm

The weather alarm functions allow you to protect the blinds or roller shutters from weather damage such as wind, rain and frost.. If an alarm is triggered for one of these three weather events, the drives move into a safe position and stay there until the event has passed (depending on the priorities of the higher-level functions).

### Enabling the weather alarm function

Enable the weather alarm function for the blind actuator as a higher-level function:

Tab	Parameter
General	Weather alarm in general

Once you have enabled the function, the new "Weather alarm in general" tab appears. Here you can configure the alarm function in detail for three wind alarms, one rain alarm and one frost protection alarm. You can enable and disable the individual alarm functions separately. For each function you enable, a communication object appears through which the sensor signals are received.

### Cyclical monitoring of sensor signals

The signals of the active weather sensors can be monitored cyclically. The device then expects a telegram from the sensor in question within the set cycle time. If it doesn't receive this telegram within the monitoring period, the associated weather alarm is still triggered for security reasons (if for example the sensor or the cable connection between the sensor and the blind actuator is defective and no signalling takes place in the event of a real alarm).

First define the time basis for the monitoring time:

Tab	Parameter
Weather alarm in general	Time basis for monitoring time of weather alarms

Now you can set the relevant monitoring time for each active sensor by specifying a factor:

Tab	Parameter
Weather alarm in general	Wind alarm no. 1
	(if wind alarm no. 1 is enabled) Factor for monitoring time of wind alarm no. 1
	Wind alarm no. 2
	(if wind alarm no. 2 is enabled) Factor for monitoring time of wind alarm no. 2
	Wind alarm no. 3
	(if wind alarm no. 3 is enabled) Factor for monitoring time of wind alarm no. 3
	Rain alarm
	(if rain alarm enabled) Factor for monitoring time of rain alarm
	Frost alarm
	(if frost alarm enabled) Factor for monitoring time of frost alarm

The monitoring time is calculated by multiplying the time basis by the factor. If you have disabled the value of a factor, then cyclical measured value monitoring will not take place for this sensor value. In this case 1-bit telegrams trigger the alarm.

### Weather alarm priorities

You can prioritise the weather alarms as you wish.

General weather alarm	
Parameter	Setting
Priority sequence of weather alarms	<b>1. wind alarm, 2. rain alarm, 3. frost alarm</b>
	1. wind alarm, 2. frost alarm, 3. rain alarm
	1. rain alarm, 2. wind alarm, 3. frost alarm
	1. rain alarm, 2. frost alarm, 3. wind alarm
	1. frost alarm, 2. wind alarm, 3. rain alarm
	1. frost alarm, 2. rain alarm, 3. wind alarm

This prioritisation applies for all blind and roller-shutter channels for which you have enabled the weather protection function. Responses to a weather alarm only become active if there is no other higher-level weather alarm active at the same time. If a weather alarm is reset and there is another lower-priority weather alarm active at the same time, then the responses of the lower-priority alarm are carried out.

### Response of the individual drives in the event of a weather alarm

After you have prioritised the weather alarm functions, you can specify the behaviour of the drive in the event of a weather alarm for each output channel. First you must enable the weather alarm function for each output channel:

Tab	Parameter
X: Blind X: Roller shutter	Weather alarm

When you have enabled the weather alarm function for an output channel, a new tab appears: "X: Weather alarm"

First select how you want the drive to respond to an active weather alarm. To protect against damage in the event of high wind speeds, you can individually assign each channel to one of the three wind sensor categories, 1, 2 or 3. Alternatively, you can choose to connect the three signals logically with the OR and AND operators.

Tab	Parameter
X: Weather alarm	Reaction to wind alarm no.
	Reaction to wind alarms
	Reaction to rain alarm
	Reaction to frost alarm

If a wind alarm becomes active, the drive has one of the following responses depending on its settings:

- No response: The alarm function is inactive. The weather alarm function is switched off. **In case of a wind alarm the channel is not disabled.**
- Up: The drive moves into the top end position. The weather alarm function is switched on and the alarm function is active.
- Down: The drive moves into the lower end position. The weather alarm function is switched on and the alarm function is active.
- Move to position: The drive moves into the specified safety position. The weather alarm function is switched on and the alarm function is active.

When the drive has responded accordingly, it remains in this position and cannot be operated as long as the weather alarm is active. Only when a higher-level function becomes active will the response defined for this function be carried out.

If you want the drive to move into a special safety position, you can define this position using the following parameters:

Tab	Parameter
X: Weather alarm	Height position on weather alarm in %
	Slat position on weather alarm in %

This safety position applies for all three weather alarms if you selected the "Move to position" parameter value as the Reaction to a weather alarm.

### Drive behaviour after weather alarm ends

When the sensor values of the weather sensors return to within the normal measurement range, the weather alarms are deactivated again. You can specify how you want the drive to respond when the weather alarm ceases to be active.

Tab	Parameter
X: Weather alarm	Behaviour on end of all weather alarm functions

The drive then carries out the following functions:

- No response: The drive remains in its current position. The alarm function is terminated.
- Up: The drive moves into the top end position. The alarm function is terminated.
- Down: The drive moves into the lower end position. The alarm function is terminated.
- Assume current automatic position: This setting only makes sense if the automatic function is active. The drive moves into the last requested automatic position. The alarm function is terminated.

### Communication objects

The following communication objects are available:

Function	Object name	Type	Prio	Flags	Behaviour
Weather alarm	Wind alarm 1	1 bit	Low	WC	Receive
Weather alarm	Wind alarm 2	1 bit	Low	WC	Receive
Weather alarm	Wind alarm 3	1 bit	Low	WC	Receive
Weather alarm	Rain alarm	1 bit	Low	WC	Receive
Weather alarm	Frost alarm	1 bit	Low	WC	Receive

## ● Higher-level functions: Alarm function

In the event of an alarm situation, the drive can be moved into a specified alarm position. When the drive reaches the alarm position, further operation is disabled. Now only a higher-level function of higher priority can move the drive into another position. You can activate the alarm function for each output channel individually:

Tab	Parameter
X: Blind X: Roller shutter	Alarm function

After you activate the alarm function, the communication object "Alarm object" appears for this channel. This object allows you to switch the function on and off.

You can make the other function settings in the additional "X: Alarm function" tab.

First select the object value that you want to switch on the alarm function:

Tab	Parameter
X: Alarm function	Alarm

Values to be set:

- For object value "1": Object value "1" switches the alarm function on. If the object value "0" is received, the alarm function is switched off again.
- For object value "0": Object value "0" switches the alarm function on. A telegram with the object value "1" deactivates the function again.

## Drive behaviour when alarm function is activated

Here you specify how you want the blind actuator to behave when the alarm function is enabled:

Tab	Parameter
X: Alarm function	Behaviour on alarm start

Values to be set:

- No response: The drive remains in its current position.
- Up: The drive moves into the top end position.
- Down: The drive moves into the lower end position.
- Move to position: The drive moves into the specified safety position.

After the drive has carried out the desired action, it remains in this position and cannot be operated as long as the alarm function is active. Only when a higher-level function becomes active will the response defined for this function be carried out.

You can define a special safety position for the alarm function:

Tab	Parameter
X: Alarm function	Height position on alarm start in % Slat position on alarm start in %

The drive moves into this safety position if you selected the "Move into position" parameter value as the behaviour when the alarm function begins.

## Drive behaviour when alarm function has finished

When a new object value has switched the alarm function off, you can operate the drive as normal again. If you want the drive to carry out an automatic action when the alarm function ends, you can define this action using the following parameter:

Tab	Parameter
X: Alarm function	Behaviour on alarm end

Values to be set:

- No response: The drive remains in its current position.
- Up: The drive moves into the top end position.
- Down: The drive moves into the lower end position.
- Assume current automatic position: This setting only makes sense if the automatic function is active. The drive moves into the last requested automatic position.

## ● Higher-level functions: Locking function

In the event of a special operating status, the drive can move into a specified disable position. When the drive has reached the disable position, operation is no longer possible. Now only a higher-level function of higher priority can move the drive into another position. You can activate the locking function for each output channel individually:

Tab	Parameter
X: Blind X: Roller shutter	Locking function

After you activate the locking function, the "Disable object" communication object appears for this channel. This object allows you to switch the function on and off.

You can make the other function settings in the additional "X: Locking function" tab.

First select the object value that you want to switch on the locking function:

Tab	Parameter
X: Locking function	Lock

Values to be set:

- For object value "1": Object value "1" switches the locking function on. If the object value "0" is received, the Locking function is switched off again.
- For object value "0": Object value "0" switches the Locking function on. A telegram with the object value "1" deactivates the function again.

### Drive behaviour when Locking function is activated

Here you specify how you want the blind actuator to behave when the Locking function is enabled:

Tab	Parameter
X: Locking function	Behaviour at start of locking

Values to be set:

- No response: The drive remains in its current position.
- Up: The drive moves into the top end position.
- Down: The drive moves into the lower end position.
- Move to position: The drive moves into the specified safety position.

After the drive has carried out the desired action, it remains in this position and cannot be operated as long as the Locking function is active. Only when a higher-level function becomes active will the response defined for this function be carried out.

You can define a special safety position for the Locking function:

Tab	Parameter
X: Locking function	Height position at start of locking in % Slat position at start of locking in %

The drive moves into this safety position if you selected the "Move into position" parameter value as the behaviour when the Locking function begins.

### Drive behaviour when Locking function has finished

When a new object value has switched the Locking function off, you can operate the drive as normal again. If you want the drive to carry out an automatic action when the Locking function ends, you can define this action using the following parameter:

Tab	Parameter
X: Locking function	Behaviour at end of locking

Values to be set:

- No response: The drive remains in its current position.
- Up: The drive moves into the top end position.
- Down: The drive moves into the lower end position.
- Assume current automatic position: This setting only makes sense if the automatic function is active. The drive moves into the last requested automatic position.



## ● Higher-level functions: Limitation of the movement range

For certain applications, e.g. open pivot-hung windows, it can be helpful or necessary to limit the possible movement range of a drive temporarily or permanently. If the movement range has been limited, then during manual operation, automatic functions, scene retrievals or presets, the drive can only move within the defined limits. The limit also applies for movement commands from functions of lower priority. Only a higher-level function of higher priority can move the drive into another position beyond the limit.

You can activate the movement range limitation for each output channel individually:

Tab	Parameter
X: Blind X: Roller shutter	Movement range limits

After you have activated the movement range limits, the additional "X: Movement range limits" tab appears:

Tab	Parameter
X: Movement range limits	Limit movement range

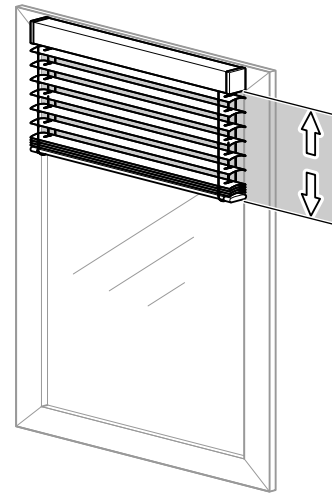
Values to be set:

- Immediately after bus voltage recovery: The function becomes active immediately after bus voltage recovery or a download. The drive can only move between the limit values. Only a function of higher priority can move the drive into a position beyond the limit.
- For object value "1": Object value "1" switches the limit on. If the object value "0" is received, the entire movement range is enabled again.
- For object value "0": Object value "0" switches the limit on. A telegram with the object value "1" deactivates the limit again.

When activated by an object value, an additional communication object "Activate movement limits" appears for this channel. This object allows you to switch the limit on and off.

You can set the limits of the movement range using additional parameters:

Tab	Parameter
X: Movement range limits	upper limit value in % lower limit value in %



When the limit function is active, the drive only moves between the limit values. The limit applies for all movement commands from manual operation, automatic functions, scenes, presets and for movements from functions of lower priority.

If the drive is outside the limits when the movement range limitation is activated, then it is automatically moved to the nearest limit and remains there.

**i Note:** Remember to set the lower limit value higher than the top limit value because otherwise the drive can't move.

When a drive reaches its movement range limits, this is reported by a status object on the bus. Dependent functions, for example opening a window, can now be carried out. The next section on "Status responses" has more information on this.

## Reference movement after initialisation



### Caution!

Blinds/roller shutters could be damaged. The blinds/roller shutter may move beyond the movement range limits into windows that may be open. Pay attention therefore to where you want the reference movement to go.

After a download or bus voltage recovery, a reference movement takes place following initialisation, even if the "Reference movement in general" function is disabled. The blinds/roller shutter may move beyond the limits of the movement range into windows that may be open.

Pay attention therefore to where you want the reference movement to go. In general, the reference movement after initialisation is towards the top end position. Only when the "Reference position" is set to "down" does a reference movement take place towards the lower end position.

In the case of a reference movement, the "Movement range limit status feedback" object receives the value "0". The blind/roller shutter only moves in the travel range after the reference movement has completed.

### Drive behaviour after movement limitation ends

If object values are responsible for limiting the movement range and a new object value disables the limitation, then you can operate the drive as normal again. If you want the drive to carry out an automatic action in this case, you can define this action using the following parameter:

Tab	Parameter
X: Movement range limits	Behaviour at end of movement limitation

Values to be set:

- No response: The drive remains in its current position.
- Up: The drive moves into the top end position.
- Down: The drive moves into the lower end position.
- Assume current automatic position: This setting only makes sense if the automatic function is active. The drive moves into the last requested automatic position.

### Communication objects

The following communication objects are available:

Function	Object name	Type	Prio	Flags	Behaviour
Channel X	Activate movement limits	1 bit	Low	WC	Receive

### ● Status reports/status feedback

The software application provides you with numerous options to report the current device status and the status of output channels via communication objects. Depending on these Status reports, you can trigger certain control processes or enable and Locking functions in the system.

So for example, opening a window is permitted if a blind drive reports that it has reached the height position within a movement range limitation. The window status in turn can be used to deactivate an active movement range limitation.

In addition, Status reports are also suitable for displaying current operating statuses by means of visualisation software.

The Status reports of the output channels are made available through communication objects. You can set the transmission characteristics of these status objects to one of the following values using parameters:

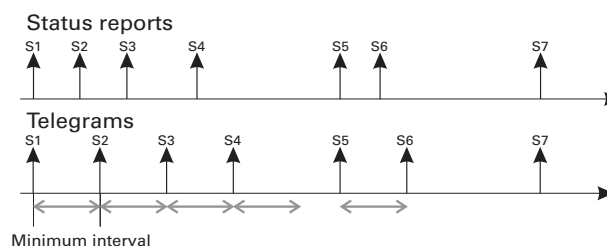
- disabled  
The status object is not active.
- active status  
When the status changes, the new status is automatically transmitted.
- passive status  
The status object does not transmit its values. But the current status is available and can be read out by other bus devices.

### Transmission behaviour of the Status reports in time

You can prioritise the interval between two status telegrams for the device. This setting applies for the transmission behaviour of all Status reports.

Tab	Parameter
General	Minimum interval for status reports

If there is only one pending transmission job, then the message is sent immediately. If there are several Status reports pending, then the first one is sent immediately and the remainder are staggered according to the delay time specified in the "Minimum interval for status reports" parameter.



If you want to activate the Status reports for an output channel, then you have to enable the "Status reports" parameter:

Tab	Parameter
X: Blind X: Roller shutter	Status reports

A new tab "X: Status reports" then appears for this output channel. Here you make settings for the possible Status reports.

### Status of height

The current position of the drive is available as a value between 0 –100 %. The associated status objects change name depending on whether the status is to be transmitted (Status of height feedback) or read out (Status of height).

Tab	Parameter
X: Status reports	Status of height

The Status of height object is only updated when the drive has reached a fixed position after a movement.

### Status of slat

The current angle of rotation of the blind slats is available as a value between 0 –100 %. The associated status objects change name depending on whether the status is to be transmitted (Status of slat feedback) or read out (Status of slat).

Tab	Parameter
X: Status reports	Status of slat

The Status of slat object is only updated when the drive has reached a fixed position after a movement.

### Status of automatic mode

The status message of the automatic function takes place via the "Automatic locking" object of the output channels (see the section "Automatic control"). This is a bidirectional object. In addition to its status function, it also serves to enable and disable the automatic function directly using bus telegrams.

If you want to display an activation and lock of the automatic function via operating telegrams as a status function, then set the "Status of automatic mode" to the desired value:

Tab	Parameter
X: Status reports	Status of automatic mode

The current object value of the "Automatic locking" object is simultaneously the status value.

### Disable message status

There are two types of disable messages you can activate as the status message: a drive lock or a movement range limitation.

Tab	Parameter
X: Status reports	Type of locking signal

#### Type of locking signal = Drive locking

A drive lock is triggered by the higher-level functions weather alarm, alarm function and Locking function.

Tab	Parameter
X: Status reports	Status of drive locking

If one of the higher-level functions is active and the drive has reached its defined safety position, the status object receives the value "1". When the drive is enabled again, the object value of the status message changes to "0".

#### Type of locking signal = Limit Movement range

If you are using the higher-level function movement range limitation and other control functions depend on whether the drive has reached its limit if movement range limitation is active, then you can report this using this status type:

Tab	Parameter
X: Status reports	Movement range limit status

The value of the status object receives the object value "1" if movement range limitation is active and the drive has reached one of the specified limits.

- If, when movement range limitation is activated, the drive is already within the specified limits, then the status object receives the object value "1" immediately.
- If a function of higher priority causes the drive to leave the movement range or if the limitation is cancelled, then object value switches to "0".

### Communication objects

The following communication objects are available:

Function	Object name	Type	Prio	Flags	Behaviour
Channel X	Status of height feedback	1 bit	Low	CRT	Transmit/Read out
Channel X	Status of height	1 bit	Low	CR	Read out
Channel X	Status of slat feedback	1 bit	Low	CRT	Transmit/Read out
Channel X	Status of slat	1 bit	Low	CR	Read out
Channel X	Status of drive locking feedback	1 bit	Low	CRT	Transmit/Read out
Channel X	Status of drive locking	1 bit	Low	CR	Read out
Channel X	Movement range limit status feedback	1 bit	Low	CRT	Transmit/Read out
Channel X	Movement range limit status	1 bit	Low	CR	Read out
Channel X	Automatic mode locking	1 bit	Low	CRW T	Transmit/Receive/Read out

## ● Behaviour after failure and recovery of bus voltage

### Bus voltage has failed

The RUN LED is not lit when bus voltage fails.

### Behaviour of channels for blind/roller shutters

You can set failure behaviour as follows:

Tab	Parameter
X: Failure behaviour	Behaviour on bus voltage failure

Possible settings:

- no response  
The drive remains in its current status, in other words, it doesn't move or it completes its current movement until the running times have expired.
- Stop  
The drive stops immediately.
- Up  
If the drive was in an downward movement, it simply stops. If the drive was stationary or in an upward movement, it moves upwards.
- Down  
If the drive was in an upward movement, it simply stops. If the drive was stationary or in a downward movement, it moves downwards.



During bus voltage failure pause on reverse is impossible, in this case the motor stops.

### Bus voltage is recovered

The RUN LED is lit, thus indicating that bus voltage is present again. The behaviour that you specified for bus voltage recovery is also carried out if the device receives a restart instruction (management function) through a bus.

### Behaviour of channels for blind/roller shutters

After bus voltage has been recovered, all output relays are opened (all drives stop) and the pause on reverse specified by the parameters is started. Only after the pause on reverse time has expired will the behaviour that you set with the following parameter be carried out:

Tab	Parameter
X: Failure behaviour	Behaviour on bus voltage recovery

Possible values:

- Stop  
The drive stays in its current idle state.
- Up  
The drive moves upwards. If it was in the middle of an downwards movement, then it stops and waits the pause on reverse time before beginning the upwards movement.
- Down  
The drive moves downwards. If it was in the middle of an upwards movement, then it stops and waits the pause on reverse time before beginning the downwards movement.
- Move to position  
The blind moves into a position defined by you. The new parameter "Height position on bus voltage recovery in %" appears to allow you to set this position.  
Set the desired height position in the possible travel range of 0 –100 %.  
In the case of blind drives, the additional parameter "Slat position on bus voltage recovery in %" allows you to define the opening angle of the slats in the regulating range of 0 –100 %.

If there is no weather alarm present, the position movement begins. If there is a weather alarm present, then the device responds in line with your settings for this weather alarm, and the position movement is no longer carried out.

## ● Behaviour after application download

Before the first download after commissioning, all relays are switched off (default setting).

You can specify the download behaviour of the output channels:

Tab	Parameter
X: Blind X: Roller shutter	Failure behaviour
X: Failure behaviour (if failure behaviour enabled)	Relay status after download

Possible settings:

- no response  
After a download, the relays remain in their current status.
- as for bus voltage recovery  
The relays behave in line with your settings for a return of bus voltage for this channel.

If an internal error or a defective download results in a status in which the application is no longer operational, the device does not respond. The drives remain in their last position. All relays are switched off.

## ● Parameters and settings

This section lists all the parameters of the ETS application with their settings and default settings.

General	
Parameter	Setting
Time-dependent reset of manual operation	<b>disabled</b>
	enabled
Scenes in general	<b>disabled</b>
	enabled
Ext. input scenes	<b>disabled</b>
	enabled
Mains voltage status	<b>disabled</b>
	active status feedback object
	passive status object
Minimum interval for status reports	100 ms, <b>200 ms</b> , 500 ms, 1 sec, 1.5 sec, 2 sec

General	
Parameter	Setting
Set the order priority for higher-level functions	<b>1. alarm, 2. weather alarm, 3. lock, 4. movement range</b>
	1. alarm, 2. weather alarm, 3. movement range, 4. lock
	1. alarm, 2. lock, 3. weather alarm, 4. movement range
	1. alarm, 2. lock, 3. movement range, 4. weather alarm
	1. alarm, 2. movement range, 3. weather alarm, 4. lock
	1. alarm, 2. movement range, 3. lock, 4. weather alarm
	1. weather alarm, 2. alarm, 3. lock, 4. movement range
	1. weather alarm, 2. alarm, 3. movement range, 4. lock
	1. weather alarm, 2. lock, 3. alarm, 4. movement range
	1. weather alarm, lock, 3. movement range, 4. alarm
	1. weather alarm, 2. movement range, 3. alarm, 4. lock
	1. weather alarm, 3. movement range, 3. lock, 4. alarm
	1. lock, 2. alarm, 3. weather alarm, 4. movement range
	1. lock, 2. alarm, 3. movement range, 4. weather alarm
	1. lock, 2. weather alarm, 3. alarm, 4. movement range
	1. lock, 2. weather alarm, 3. movement range, 4. alarm
	1. lock, 2. movement range, 3. weather alarm, 4. alarm
	1. lock, 2. movement range, 3. alarm, 4. weather alarm
	1. movement range, 2. alarm, 3. weather alarm, 4. lock
	1. movement range, 2. alarm, 3. lock, 4. weather alarm
	1. movement range, 2. weather alarm, 3. alarm, 4. lock
	1. movement range, 2. weather alarm, 3. lock, 4. alarm
	1. movement range, 2. lock, 3. weather alarm, 4. alarm
	1. movement range, 2. lock, 3. alarm, 4. weather alarm
Weather alarm in general	<b>disabled</b>
	enabled (=> "Weather alarm in general" tab)
Reference movement in general	<b>disabled</b>
	enabled

Channel_config_X	
Parameter	Setting
Channel X operating mode	disabled (default setting for all channels except 1)
	Blind (default setting for channel 1) (=> "X:_Blind" tab => "X:_Drive" tab)
	Roller shutter (=> "X:_Roller shutter" tab => "X_Drive" tab)

If weather alarm is enabled in the "General" tab:

Weather alarm in general	
Parameter	Setting
Time basis for monitoring time of weather alarms	1 sec, <b>1 min</b> , 1 hr
Order of priority for weather alarms	<b>1. wind alarm, 2. rain alarm, 3. frost alarm</b> 1. wind alarm, 2. frost alarm, 3. rain alarm 1. rain alarm, 2. wind alarm, 3. frost alarm 1. rain alarm, 2. frost alarm, 3. wind alarm 1. frost alarm, 2. wind alarm, 3. rain alarm 1. frost alarm, 2. rain alarm, 3. wind alarm
Wind alarm no. 1	<b>disabled</b> enabled
Factor for monitoring time of wind alarm no. 1 (if wind alarm no. 1 enabled)	<b>disabled</b> , 1 to 255
Wind alarm no. 2	<b>disabled</b> enabled
Factor for monitoring time of wind alarm no. 2 (if wind alarm no. 2 enabled)	<b>disabled</b> , 1 to 255
Wind alarm no. 3	<b>disabled</b> enabled
Factor for monitoring time of wind alarm no. 3 (if wind alarm no. 3 enabled)	<b>disabled</b> , 1 to 255
Rain alarm	<b>disabled</b> enabled
Factor for monitoring time of rain alarm (if rain alarm enabled)	<b>disabled</b> , 1 to 255
Frost alarm	<b>disabled</b> enabled
Factor for monitoring time of frost alarm (if rain alarm enabled)	<b>disabled</b> , 1 to 255

X_Blind X_Roller shutter	
Parameter	Setting
Only for operation type "blind"	
How does the existing blind move?	<b>downwards closed / upwards horizontal (= blind type 1)</b> downwards tilted / upwards horizontal (= blind type 2) downwards closed / upwards closed (= blind type 3) downwards tilted / upwards closed (= blind type 4)
Operating position of slat in % (for blind type 1 and 3 - if operating position)	0-100 Default settings: Blind type 1: 50% Blind type 3: 75%
What is the existing slat position during downward movement in %? (for blind type 2 and 4)	0-100 Default settings: Blind type 2: 50% Blind type 4: 75%
Slat position after movement	no response
	operating position <b>last slat position</b>

"Blind" operation type / "Roller shutter" operation type

Automatic mode/Presets	<b>disabled</b> Automatic control (=> "X_Automatic" tab) Presets (=> "X_Presets" tab)
Scenes	<b>disabled</b> enabled (=> "X_Scenes" tab)
Manual mode locking	<b>inactive</b> For object value "0" For object value "1"
Calibration	<b>disabled</b> enabled (=> "X_Calibration" tab)
Weather alarm	<b>disabled</b> enabled (=> "X_Weather alarm")
Alarm function	<b>disabled</b> enabled (=> "X_Alarm function" tab)
Locking function	<b>disabled</b> enabled (=> "X_Locking function" tab)
Limit movement range	<b>disabled</b> enabled (=> "X_Movement range limits" tab)
Failure behaviour	<b>disabled</b> enabled (=> "X_Failure behaviour" tab)
Status messages	<b>disabled</b> enabled (=> "X_Status reports" tab)



<b>X: Drive</b>	
Parameter	Setting
Extended drive parameters	<b>enabled</b> disabled
Time basis for running time for height adjustment	10 ms, <b>100 ms</b>
Factor for running time for height adjustment (10-64000) 1 second = 1000 ms	10-64000, <b>1200</b> default setting
Common time base for additional running time/idle time	<b>10 ms</b> , 100 ms
Factor for additional running time in upward direction	disabled, 1-255, <b>20</b> default setting
Factor for idle time until upward movement	Factor for additional start-up time when opening slat upwards <b>disabled</b> , 1-255
Factor for additional start-up time when opening slat upwards ( <i>"Blind" only</i> )	<b>disabled</b> , 1-255
Factor for additional start-up time when opening slat downwards ( <i>"Blind" only</i> )	<b>disabled</b> , 1-255
Time base for step interval of slat ( <i>"Blind" only</i> )	<b>10 ms</b> , 100 ms
Factor for step interval of slat (5-255) ( <i>"Blind" only</i> )	5-255, <b>10</b> default setting
Time base for running time of slat ( <i>"Blind" only</i> )	<b>10 ms</b> , 100 ms
Factor for running time of slat (5-255) ( <i>"Blind" only</i> )	5-255, <b>100</b> default setting
Pause on reverse on change in direction (1-255), factor * 100 ms, manufacturer data!	1-255, <b>5</b> default setting
Factor for start-up delay Factor * 10 ms	<b>disabled</b> , 1-255
Factor for deceleration delay Factor * 10 ms	<b>disabled</b> , 1-255

If "Automatic control/Presets" in the "X\_Blind" tab set to "Automatic control":

<b>X: Automatic</b>	
Parameter	Setting
Automatic mode locking	<b>inactive</b> For object value "0" For object value "1"
Response in automatic operation on receipt of a manual object value	<b>Automatic control disabled</b> Automatic control remains enabled Automatic control disabled temporarily
Behaviour on deactivation of Automatic locking via object value ( <i>only if Automatic locking enabled</i> )	<b>without reaction</b> Assume current automatic position
Time basis for automatic control deactivation time ( <i>only if automatic control disabled temporarily</i> )	1 sec, <b>1 min</b> , 1 hr
Factor for automatic control deactivation time ( <i>only if automatic control disabled temporarily</i> )	1-255, <b>1</b> default setting

If "Automatic control/Presets" in the "X\_Blind" tab set to "Presets":

<b>X: Presets</b>	
Parameter	Setting
Replace preset values in the actuator on download	<b>disabled</b> enabled
Preset 1: Height pos. in %	0-100, <b>0</b> default setting
Preset 1: Slat pos. in %	0-100, <b>0</b> default setting
Preset 2: Height pos. in %	0-100, <b>0</b> default setting
Preset 2: Slat pos. in %	0-100, <b>0</b> default setting
Preset 3: Height pos. in %	0-100, <b>0</b> default setting
Preset 3: Slat pos. in %	0-100, <b>0</b> default setting
Preset 4: Height pos. in %	0-100, <b>0</b> default setting
Preset 4: Slat pos. in %	0-100, <b>0</b> default setting

If "Scenes" in the "X\_Blind" tab is "enabled":

<b>X: Scenes</b>	
Parameter	Setting
Replace scene values in the actuator on download?	<b>disabled</b> enabled
Scene 1	<b>disabled</b> enabled
Scene 1: Address of scene (0-63) ( <i>only if scene 1 enabled</i> )	0-63, <b>0</b> default setting
Scene 1: Pos. height (1-64) ( <i>only if scene 1 enabled</i> )	0-100, <b>0</b> default setting
Scene 1: Pos. height in % ( <i>blind operation only and only if scene 1 enabled</i> )	0-100, <b>0</b> default setting
Scene 2	<b>disabled</b> enabled
Scene 2: Address of scene (0-63) ( <i>only if scene 2 enabled</i> )	0-63, <b>1</b> default setting
Scene 2: Pos. height (2-64) ( <i>only if scene 1 enabled</i> )	0-100, <b>0</b> default setting
Scene 2: Pos. height in % ( <i>blind operation only and only if scene 2 enabled</i> )	0-100, <b>0</b> default setting
Scene 3	<b>disabled</b> enabled
Scene 3: Address of scene (0-63) ( <i>only if scene 3 enabled</i> )	0-63, <b>2</b> default setting
Scene 3: Pos. height (3-64) ( <i>only if scene 1 enabled</i> )	0-100, <b>0</b> default setting
Scene 3: Pos. height in % ( <i>blind operation only and only if scene 3 enabled</i> )	0-100, <b>0</b> default setting
Scene 4	<b>disabled</b> enabled
Scene 4: Address of scene (0-63) ( <i>only if scene 4 enabled</i> )	0-63, <b>3</b> default setting
Scene 4: Pos. height (4-64) ( <i>only if scene 1 enabled</i> )	0-100, <b>0</b> default setting
Scene 4: Pos. height in % ( <i>blind operation only and only if scene 4 enabled</i> )	0-100, <b>0</b> default setting
Scene 5	<b>disabled</b> enabled
Scene 5: Address of scene (0-63) ( <i>only if scene 5 enabled</i> )	0-63, <b>4</b> default setting
Scene 5: Pos. height (5-64) ( <i>only if scene 1 enabled</i> )	0-100, <b>0</b> default setting
Scene 5: Pos. height in % ( <i>blind operation only and only if scene 5 enabled</i> )	0-100, <b>0</b> default setting

If "Calibration" in the "X\_Blind" tab is "enabled":

X: Calibration	
Parameter	Setting
Reference movement	<b>to number of movements</b> at reference movement object = 1 at number of movements and object
Number of movements until a reference movement is executed (1-20)	1-20, <b>7</b> default setting
Reference position	<b>upper</b> lower upper and lower
Automatic calibration	<b>upper limit position</b> upper and lower limit position
Reference movement delay time via object in seconds ( <i>only for "Reference movement object"</i> )	<b>disabled</b> , 1-255
Position after reference movement via object ( <i>only for "Reference movement object"</i> )	<b>New position</b> remain in reference position position prior to reference movement
Height position after reference movement in % ( <i>only for "new position"</i> )	0-100, <b>0</b> default setting
Slat position after reference movement in % ( <i>only for "new position"</i> )	0-100, <b>0</b> default setting

If "Weather alarm" in the "X\_Blind" tab is "enabled":

X: Weather alarm	
Parameter	Setting
Reaction to wind alarm no.	<b>without reaction</b> 1 2 3 1 OR 2 1 OR 3 2 OR 3 1 OR 2 OR 3 1 AND 2 1 AND 3 2 AND 3 1 AND 2 AND 3
Reaction to wind alarm(s) (no response=alarm funktion inactive)	<b>without reaction</b> Up Down Move to position
Reaction to rain alarm (no response=alarm funktion inactive)	<b>without reaction</b> Up Down Move to position
Reaction to frost alarm (no response=alarm funktion inactive)	<b>without reaction</b> Up Down Move to position
Height position on weather alarm in %	0-100, <b>0</b> default setting
Slat position on weather alarm in %	0-100, <b>0</b> default setting

X: Weather alarm	
Parameter	Setting
Behaviour on end of all weather alarm functions	<b>without reaction</b> Up Down accept current automatic mode position

If "Alarm function" in the "X\_Blind" tab is "enabled":

X: Alarm function	
Parameter	Setting
Alarm	For object value "0" <b>For object value "1"</b>
Behaviour on alarm start	<b>without reaction</b> Up Down Move to position
Behaviour on alarm end	<b>without reaction</b> Up Down accept current automatic mode position
Height position on alarm start in % ( <i>only for "Move to position"</i> )	0-100, <b>0</b> default setting
Slat position on alarm start in % ( <i>only for "Move to position"</i> )	0-100, <b>0</b> default setting

If "Locking function" in the "X\_Blind" tab is "enabled":

X: Locking function	
Parameter	Setting
Locking	At object value "0" <b>At object value "1"</b>
Behaviour at start of locking	<b>without reaction</b> Up Down Move to position
Behaviour at end of locking	<b>without reaction</b> Up Down accept current automatic mode position
Height position at start of locking in % ( <i>only for "Move to position"</i> )	0-100, <b>0</b> default setting
Slat position at start of locking in % ( <i>only for "Move to position"</i> )	0-100, <b>100</b> default setting

If "Movement range limits" in the "X\_Blind" tab is "enabled":

X: Movement range limits	
Parameter	Setting
Limit movement range	<b>Immediately after bus voltage recovery</b> At object value "0" At object value "1"
upper limit value in %	0-100, <b>0</b> default setting
lower limit value in %	0-100, <b>0</b> default setting

If "Failure behaviour" in the "X\_Blind" tab is "enabled":

<b>X: Failure behaviour</b>	
Parameter	Setting
Behaviour on bus voltage failure	<b>without reaction</b>
	Stop
	Up
	Down
Behaviour on bus voltage recovery	<b>Stop</b>
	Up
	Down
	Move to position
Relay status after download	<b>Stop</b>
	like a bus voltage recovery
Height position on bus voltage recovery in % ( <i>only for "Move to position"</i> )	0-100, <b>0</b> default setting
Slat position on bus voltage recovery in % ( <i>only for "Move to position"</i> )	0-100, <b>0</b> default setting

If "Status reports" in the "X\_Blind" tab is "enabled":

<b>X: Status reports</b>	
Parameter	Setting
Status of height	<b>disabled</b>
	active status
	passive status
Status of slat	<b>disabled</b>
	active status
	passive status
Status of automatic mode	<b>disabled</b>
	active status
	passive status
Type of locking signal	<b>Drive locking</b>
	Movement range limit
Status of drive locking ( <i>if Type of locking signal = drive lock</i> )	<b>disabled</b>
	active status
	passive status