

KNX Weather Station

SCN-WS3HW.01

Further Documents:

Datasheet:

https://www.mdt.de/EN_Downloads_Datasheets.html



Assembly and Operation Instructions:

https://www.mdt.de/EN_Downloads_Instructions.html



Solution Proposals for MDT products:

<https://www.mdt.de/en/for-professionals/tips-tricks.html>



1 Content

2 Overview	3
2.1 Overview Devices	3
2.2 Functions	4
2.3 Wiring diagram	4
2.4 Structure & Handling	5
2.5 Commissioning	5
3 Communication objects	6
3.1 Standard settings of the communication objects	6
4 ETS Parameter	8
4.1 General settings	8
4.2 Brightness sensor East / South / West	10
4.2.1 Threshold values	12
4.2.2 Facade control	16
4.3 Twilight sensor	21
4.4 Wind sensor	24
4.5 Temperature sensor	27
5 Index	29
5.1 List of illustrations	29
5.2 List of tables	29
6 Appendix	30
6.1 Legal provisions	30
6.2 Disposal	30
6.3 Assembly	30
6.4 History	30

2 Overview

2.1 Overview Devices

This manual refers to the following device (order number in bold).

- **SCN-WS3HW.01** KNX Weather Station Home

Note: The following device completes the package for total weather data:

- **SCN-RS1R1.01** Rain Sensor

2.2 Functions

Brightness sensor

Each of the 3 cardinal points east, south and west has its own brightness sensor with two separately adjustable threshold values and its own facade control. This means that the brightness value, 2 threshold values, as well as absolute height and slat positions or scenes for shading can be further processed on a blind actuator. Both threshold values and the facade control can be locked by object.

Twilight sensor

The twilight sensor provides the “Day/Night object” via adjustable lux values for the KNX bus. This allows other KNX components to automatically switch to night mode. The additional Up/Down object can be used to raise and lower blinds or shutters in the morning and evening depending on the brightness.

Wind sensor

Two adjustable threshold values allow awnings, blinds and roller shutters to move to their protective positions if the wind is too strong. The minimum duration for exceeding and falling below the set wind speed can be adjusted. The wind speed [m/s] can be shown in a visualisation or on a button with display, for example.

Temperature sensor

The measured outside temperature can be used to lock or release the shading of the MDT shutter actuators, for example, via one of the two adjustable threshold values.

Teach-in and test mode

If the facade control is activated, the shading positions can be changed easily and conveniently at any time via the teach-in object. The integrated test mode facilitates commissioning with the ETS.

2.3 Wiring diagram

The following figure shows an exemplary wiring diagram:

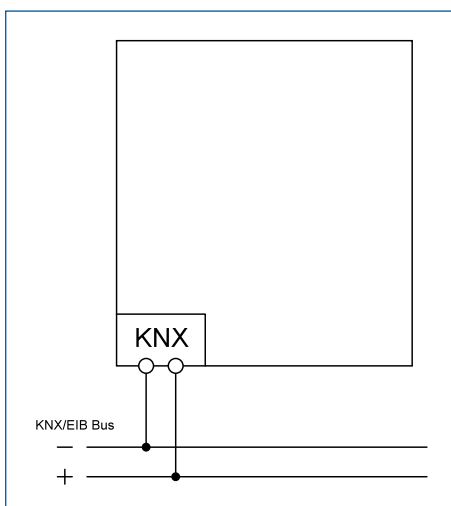


Figure 1: Wiring diagram

2.4 Structure & Handling

The following picture shows the structure of the device:

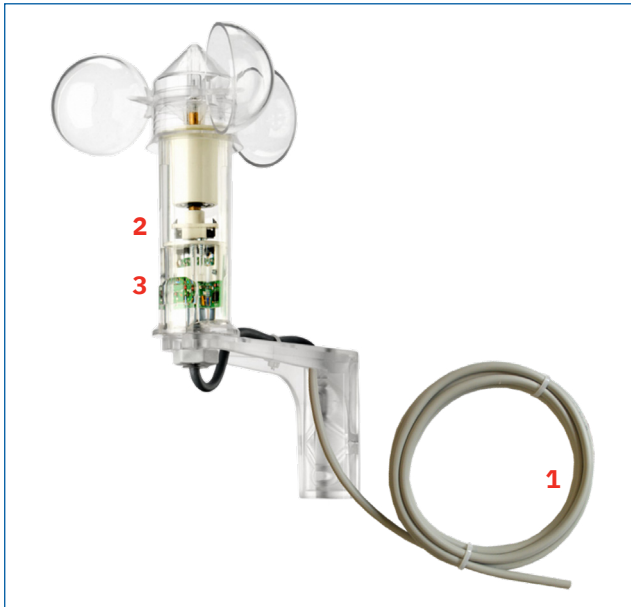


Figure 2: Structure and operation

- 1 = Connection cable
- 2 = Programming button (Reed contact)
- 3 = Programming LED

2.5 Commissioning

1. Connect the device according to the wiring diagram.
2. Connect the interface to the bus.
3. Switch on the bus voltage.
4. Activate programming mode on the device using the magnet supplied (red programming LED lights up permanently).
5. Set and programme the physical address in the ETS (Programming LED switches off).
6. Make and programme settings in the application programme.

3 Communication objects

3.1 Standard settings of the communication objects

Standard settings – General settings									
No.	Name	Object function	Length	C	R	W	T	U	
58	In operation	Status	1 Bit	■	■		■		

Table 1: Communication object – Standard settings: General settings

Standard settings – Brightness sensor									
No.	Name	Object function	Length	C	R	W	T	U	
0	Brightness East	Send measured value	2 Byte	■	■		■		
1	Brightness East	Threshold value 1	1 Bit	■	■		■		
2	Brightness East	Threshold value 2	1 Bit	■	■		■		
3	Brightness East	Threshold value 1 upper limit	2 Byte	■		■	■		
4	Brightness East	Threshold value 1 lower limit	2 Byte	■		■	■		
5	Brightness East	Lock object: Threshold values	1 Bit	■		■	■		
6	Facade East	Send scene	1 Byte	■	■		■		
6	Facade East	Send position of shutter	1 Byte	■	■		■		
6	Facade East	Send position of blinds	1 Byte	■	■		■		
7	Facade East	Send position of slats	1 Byte	■	■		■		
8	Facade East	Lock object: Facade	1 Bit	■		■	■		
9	Facade East	Teach-in position 1	1 Bit	■		■	■		
10	Facade East	Teach-in position 2	1 Bit	■		■	■		
11	Facade East	Status of shutter for Teach-in	1 Byte	■		■	■		
11	Facade East	Status of blinds for Teach-in	1 Byte	■		■	■		
12	Facade East	Status of slats for Teach-in	1 Byte	■		■	■		
13	Facade East	External temperature - Input	2 Byte	■		■	■		
+17	Brightness / Facade South								
+32	Brightness / Facade West								

Table 2: Communication objects – Standard settings: Brightness sensor

Standard settings – Twilight sensor									
No.	Name	Object function	Length	C	R	W	T	U	
51	Twilight	Send measured value	2 Byte	■	■		■		
52	Twilight	Switchover Day/Night	1 Bit	■	■		■		
59	Twilight	Blinds/Shutter Up/Down	1 Bit	■	■		■		
60	Twilight	Lock object: Blinds/Shutter Up/Down	1 Bit	■		■	■		

Table 3: Communication objects – Standard settings: Twilight sensor

Standard settings – Universal Logic									
No.	Name	Object function	Length	C	R	W	T	U	
53	Wind	Threshold value 1	1 Bit	■	■		■		
54	Wind	Send measured value	2 Byte	■	■		■		
61	Wind	Threshold value 2	1 Bit	■	■		■		

Table 4: Communication objects – Standard settings: Wind sensor

Standard settings – Universal Logic									
No.	Name	Object function	Length	C	R	W	T	U	
55	Temperature	Send measured value	2 Byte	■	■		■		
56	Temperature	Threshold value 1	1 Bit	■	■		■		
57	Temperature	Threshold value 2	1 Bit	■	■		■		

Table 5: Communication objects – Standard settings: Temperature sensor

The preset default settings of the communication objects can be taken from the respective table. The priority of the individual communication objects and the flags can be adjusted by the user as required. The flags assign the communication objects their respective task in the programming, whereby C stands for communication, R for read, W for write, T for transmit and U for update.

4 ETS Parameter

4.1 General settings

The following table shows the available settings

ETS Text	Dynamic range [Default value]	Comment
Startup time	0 ... 60 s [1 s]	Setting the time between restart and functional start-up of the device.
Limitation of telegrams	<ul style="list-style-type: none"> ■ not active ■ active 	Activation of a telegram limit.
Number of telegrams per 10 seconds	0 ... 255 [15]	Number of telegrams permitted within 10 seconds. Only if “Limitation of telegrams” → “active”.
Send „In-operation” cyclically	<p style="text-align: center;">not active</p> <p style="text-align: center;">10 min - 24 h</p>	Setting whether a cyclical in-operation telegram should be sent.
Behaviour after programming	<ul style="list-style-type: none"> ■ hold Teach-in/saved values ■ load parameter settings 	Determines how the weather station behaves after programming.
Brightness sensor East	<ul style="list-style-type: none"> ■ not active ■ active 	Activates the brightness measurement for the east direction.
Brightness sensor South	<ul style="list-style-type: none"> ■ not active ■ active 	Activates the brightness measurement for the south direction.
Brightness Sensor West	<ul style="list-style-type: none"> ■ not active ■ active 	Activates the brightness measurement for the west direction.
Twilight Sensor	<ul style="list-style-type: none"> ■ not active ■ active 	Activates the twilight sensor.
Wind sensor	<ul style="list-style-type: none"> ■ not active ■ active 	Activates the wind speed measurement.
Temperature sensor	<ul style="list-style-type: none"> ■ not active ■ active 	Activates the temperature measurement.
Operating mode	<ul style="list-style-type: none"> ■ normal operation ■ test mode (normal operation disabled) 	Selection of the operating mode.

Table 6: General settings

Startup time

This time defines when the device starts after a restart (reset, reprogramming, bus power return). This can be important if, for example, a bus reset is performed. If there are many devices on a line, every device would “boot up” at the same time and put a load on the bus. With a variable time, the devices can start differently.

Limitation of telegrams

Depending on the setting, the weather station generates a number of telegrams. This large number is not necessary in many applications and loads the bus unnecessarily. This function can be used to limit the number of telegrams sent by the weather station.

„In-Operation“

The “In-operation” object is used to show on the bus that the device is “alive”. If activated, an “ON” telegram is sent cyclically.

Behaviour after programming

This function can be used to set whether the values read in externally (i.e. the teach-in values) are to remain valid after programming or whether the values preset in the weather station are valid.

Operating mode

In “test mode”, the assignment of objects with measured values is deactivated. Instead, the objects “Brightness east – Send measured value”, “Brightness south – Send measured value”, “Brightness west – Send measured value”, “Wind – Send measured value” and “Temperature – Send measured value” are set to the value “0”. The objects can now be assigned a test value via the group monitor of the ETS software. Please note that the “W”-flags must be set manually before values can be written to the weather station via the group monitor. We recommend removing the manually setted “W”-flags again when deactivating the test function.

Important: After completing the “test mode”, switch back to “normal operation”.

Note: As the twilight sensor uses a calculated maximum value from the three brightness sensors, the “Twilight - Send measured value” communication object cannot be written in the test function. To test the functions of the twilight sensor, a value for one of the brightness sensors (east, south or west) must be used.

The following table shows the associated communication objects:

No.	Name / Object function	Length	Usage
58	In operation – Status	1 Bit	Sending a cyclical “In-operation” telegram.

Table 7: Communication object – General settings

4.2 Brightness sensor East / South / West

The Weather Station has three brightness sensors that can be configured independently of each other. In accordance with typical applications, these sensors are named according to the cardinal points east, south and west, in line with the path of the sun.

Note: To ensure that the brightness sensors are correctly assigned to the cardinal points, make sure when installing the weather station that the “nose” of the housing is orientated to the south in accordance with our Assembly and Operating instructions.

For a better overview, the parameter setting of the brightness sensors is explained in this technical manual using the “Brightness sensor East” as an exemplary example. The parameter settings for the other two sensors, “South” and “West”, are carried out in the same way.

The following table shows the available settings:

ETS Text	Dynamic range [Default value]	Comment
Send measured value	<ul style="list-style-type: none"> ■ not active ■ not active, only on request ■ on change ■ cyclic ■ on change and cyclic 	Setting of the sending condition for the measured value.
Send on change of ...	<ul style="list-style-type: none"> ■ 10 % ■ 20 % ■ 30 % 	Setting at which change the measured value should be sent. Only with selection “on change ...”
Send cyclically every ...	10 s – 60 min [5 min]	Setting whether, and at what interval the measured value is sent cyclically. Only with selection „... cyclic“.
Threshold value 1	<ul style="list-style-type: none"> ■ not active ■ active 	Activates the settings of threshold value 1
Threshold value 2	<ul style="list-style-type: none"> ■ not active ■ active 	Activates the settings of threshold value 2 Only if “Threshold value 1” → “active”.
Facade control East	<ul style="list-style-type: none"> ■ not active ■ active 	Activates the facade control system Only if “Threshold value 1” → “active”.

Table 8: Settings – Brightness sensor

To make it easier to configure the brightness values, the table below shows some typical brightness values as a guide:

Incidence of light	Illuminance
Bright sunny day	100.000 Lux
Overcast summer day	20.000 Lux
In the shade during summer	10.000 Lux
Overcast winter day	3500 Lux
Office / Room lighting	500 Lux
Corridor lighting	100 Lux
Street lighting	10 Lux
Full moon	0,25 Lux
Clear starry sky (new moon)	0,001 Lux
Cloudy night sky without moon	0,00013 Lux

Table 9: Overview of brightness levels

Send measured value

The condition under which a measured value is transmitted can be specified by adjusting the ‘Send measured value’ parameter:

- With the setting **“not active, request only”**, the measured value is not sent automatically, but can be requested externally via the object.
- The **“on change”** option causes the measured value to be actively sent to the bus in the event of a change.
The threshold value above which the value is to be sent is specified under **“Send on change of ...”**.
- The **“cyclically”** setting can be used to specify the intervals at which the current measured value is sent, even if the value has not changed
- By selecting **“on change and cyclically”**, the measured value is sent both on a change and at regular intervals.

The following table shows the associated communication objects:

No.	Name / Object function	Length	Usage
0	Brightness East – Send measured value	2 Byte	Output of the measured brightness value.
17	Brightness South – Send measured value	2 Byte	Output of the measured brightness value.
34	Brightness West – Send measured value	2 Byte	Output of the measured brightness value

Table 10: Communication objects – Brightness sensors

4.2.1 Threshold values

The parameters for the threshold values are the same for every brightness function and can be set independently for the east, south and west sides.

The following table shows the available settings for **threshold value 1**:

ETS Text	Dynamic range [Default value]	Comment
Upper limit	1 ... 99 kLux [35 kLux]	Setting of the switch-on level
Minimum time of exceedance	not active, 10s – 60 min [10 min]	Setting for how long the switch-on level must at least be exceeded.
Lower limit	1 ... 99 kLux [30 kLux]	Setting of the switch-off level.
Minimum time of undercutting	not active, 10s – 60 min [30 min]	Setting of the minimum time that the switch-off level must fall below.
Threshold value adjustable	<ul style="list-style-type: none"> ■ only via parameter ■ via objects and parameter 	Setting how the threshold can be changed.
Value when exceeded	<ul style="list-style-type: none"> ■ not active ■ ON ■ OFF 	Setting the value to be sent when the switch-on level is exceeded.
Value when undercut	<ul style="list-style-type: none"> ■ not active ■ ON ■ OFF 	Setting the value to be sent when the value falls below the switch-off level.
Send cyclically every ...	<p style="text-align: center;">not active</p> <p style="text-align: center;">10 s – 60 min</p>	Setting whether, and at what interval the value is to be sent cyclically.
Lock object: Threshold value 1	<ul style="list-style-type: none"> ■ not active ■ active 	Activation of a lock object.

Table 11: Settings – Brightness sensor: Threshold value 1

Note: The values for “Upper limit” and “Lower limit” must be entered in [kLux]. An entered value of 10 corresponds to 10.000 Lux.

Threshold value adjustable

If the setting “**only via parameter**” is selected, the limits can only be changed via the ETS. Selecting “**via objects and parameter**” displays the communication objects “Threshold value 1 upper limit” and “Threshold value 1 lower limit”. These objects can be used to change the limit values via the bus. The values can also be set via the parameters. After a reset/reprogramming, the parameter settings are always valid.

Note: This function is available for all 3 brightness sensors, but only for “Threshold value 1”.

Lock Object: Threshold value 1

If the communication object “Lock object: Threshold values” is set to “1”, the status of the threshold switch is no longer sent, regardless of changes to the brightness value. After deactivating the lock object, the threshold value is evaluated with the current measured value.

The following table shows the available settings for **threshold value 2**:

ETS Text	Dynamic range [Default value]	Comment
Upper limit	1 ... 99 kLux [35 kLux]	Setting of the switch-on level.
Minimum time of exceedance	not active, 10s – 60 min [10 min]	Setting for how long the switch-on level must at least be exceeded.
Lower limit	1 ... 99 kLux [30 kLux]	Setting of the switch-off level.
Minimum time of undercutting	not active, 10s – 60 min [30 min]	Setting of the minimum time that the switch-off level must fall below.
Value when exceeded	<ul style="list-style-type: none"> ■ not active ■ ON ■ OFF 	Setting the value to be sent when the switch-on level exceeded.
Value when undercut	<ul style="list-style-type: none"> ■ not active ■ ON ■ OFF 	Setting the value to be sent when the value falls below the switch-off level.
Send cyclically every ...	not active 10 s – 60 min	Setting whether, and at what interval the value or scene is to be sent cyclically.
Lock object: Threshold value 2	<ul style="list-style-type: none"> ■ not active ■ active 	Activation of a lock object.

Table 12: Settings – Brightness sensor: Threshold value 2

Note: The values for “Upper limit” and “Lower limit” must be entered in [kLux]. An entered value of 10 corresponds to 10.000 Lux.

Lock object: Threshold value 2

If the communication object “Lock object: Threshold values” is set to “1”, the status of the threshold switch is no longer sent regardless of changes to the brightness value. After deactivating the lock object, the threshold value is evaluated with the current measured value.

Behaviour of the threshold value

The behaviour of the threshold switch is specified by one value each for the “Upper limit” and the “Lower limit”. To avoid frequent triggering, a minimum time can be specified for the exceed and undercut. This means that the set limit value must be exceeded/fallen below for this time before a telegram is sent. This avoids, for example, frequent movement of the shading if a cloud only darkens for a short time.

Important: When configuring threshold values 1 and 2, please note that the threshold values must be staggered. This means that the limit values of “Threshold 2” must be higher than those of “Threshold 1”.

The following figure illustrates the staggering of threshold values 1 and 2:

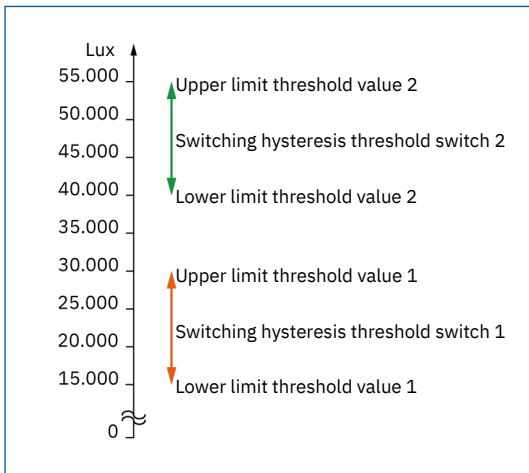


Figure 3: Staggering of threshold values 1 and 2

An overlap of the two threshold values is also possible if the upper limit value of threshold value 2 is higher than the upper limit value of threshold value 1 and the lower limit value (switch-off point) of threshold value 2 is above the lower limit value of threshold value 1

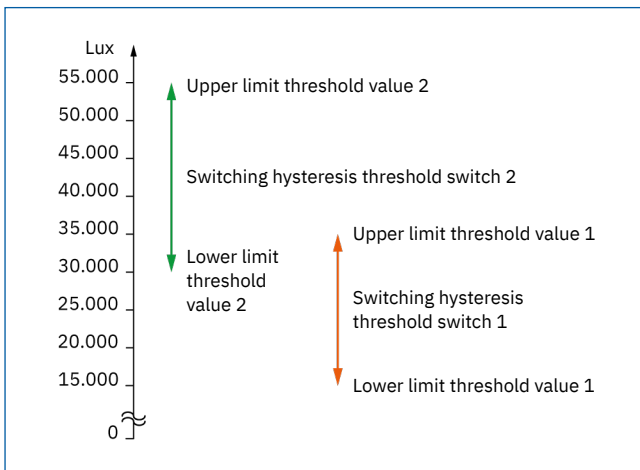


Figure 4: Overlapping of threshold values 1 and 2

The following table shows the associated communication objects:

No.	Name / Object function	Length	Usage
1	Brightness East – Threshold value 1	1 Bit	Sends the value of threshold 1
2	Brightness East – Threshold value 2	1 Bit	Sends the value of threshold 2
3	Brightness East – Threshold value 1 upper limit	2 Byte	Sets the switch-on level for threshold value 1.
4	Brightness East – Threshold value 1 lower limit	2 Byte	Sets the switch-off level for threshold value 1.
5	Brightness East – Lock object: Threshold values	1 Bit	Lock object for both threshold switches of this brightness sensor.
+17	Brightness South ...		
+34	Brightness West ...		

Table 13: Communication objects – Brightness sensor: Threshold switch

4.2.2 Facade control

The facade control allows shutters and blinds on one side of the facade to be controlled depending on the brightness.

The parameters for facade control are identical for every brightness function and can be set independently for the east, south and west sides.

The following table shows the available settings

ETS Text	Dynamic range [Default value]	Comment
Function	<ul style="list-style-type: none"> ■ scene ■ absolute height position ■ absolute height and slats position 	Selection of the function for the facade control.
Only if „Function“ → „Scene“		
Action on exceeding threshold value 1	<ul style="list-style-type: none"> ■ not active ■ send scene 	Activation of an action to be carried out in the event of exceedance.
Scene number	1 – 64 [1]	Scene number that is sent in the event of exceedance.
Action on undercutting threshold 1	<ul style="list-style-type: none"> ■ not active ■ send scene 	Activation of an action to be carried out in the event of undercutting.
Scene number	1 – 64 [2]	Scene number that is sent in the event of an undercut.
Action on exceeding threshold value 2	<ul style="list-style-type: none"> ■ not active ■ send scene 	Activation of an action to be carried out in the event of exceedance. Only if „Threshold 2“ → „active“.
Scene number	1 – 64 [3]	Scene number that is sent in the event of exceedance.
Only if „Function“ → „absolute height position“		
Action on exceeding threshold value 1	<ul style="list-style-type: none"> ■ not active ■ move to high position 	Activation of an action to be carried out in the event of exceedance.
Absolute high position	0 – 100 % [0 %]	Value that is sent in the event of exceedance.
Position 1	<ul style="list-style-type: none"> ■ Teach in is not used ■ adjustable via Teach-in object 	Defines whether only preset values or also learnt values are used.
Action on undercutting threshold value 1	<ul style="list-style-type: none"> ■ not active ■ move to high position 	Activation of an action to be carried out in the event of undercutting.
Absolute height position	0 – 100 % [0 %]	Value that is sent when the value falls below.

ETS Text	Dynamic range [Default value]	Comment
Action on exceeding threshold value 2	<ul style="list-style-type: none"> ■ not active ■ move to height position 	Activation of an action to be carried out in the event of exceedance. Only if “Threshold 2” → “active”.
Absolute hight position	0 – 100 % [0 %]	Value that is sent in the event of exceedance.
Position 2	<ul style="list-style-type: none"> ■ Teach-in is not used ■ adjustable via Teach-in object 	Defines whether only preset values or also learnt values are used.
Only if „Function“ → „absolute hight and slats position“		
Action on exceeding threshold value 1	<ul style="list-style-type: none"> ■ not active ■ move to hight and slats position 	Activation of an action to be carried out in the event of exceedance.
Absolute hight position	0 – 100 % [0 %]	Value that is sent in the event of exceedance.
Absolute position of slats	0 – 100 % [0 %]	Value that is sent in the event of exceedance.
Position 1	<ul style="list-style-type: none"> ■ Teach-in is not used ■ adjustable via Teach-in object 	Defines whether only preset values or also learnt values are used.
Action on undercutting threshold value 1	<ul style="list-style-type: none"> ■ not active ■ move to hight and slats position 	Activation of an action to be carried out in the event of undercutting.
Absolute hight position	0 – 100 % [0 %]	Value that is sent when the value falls below.
Absolute position of slats	0 – 100 % [0 %]	Value that is sent when the value falls below.
Action on exceeding threshold value 2	<ul style="list-style-type: none"> ■ not active ■ move to hight and slats position 	Activation of an action to be carried out in the event of exceedance. Only if “threshold 2” → “active”.
Absolute hight position	0 – 100 % [0 %]	Value that is sent in the event of exceedance.
Absolute position of slats	0 – 100% [0 %]	Value that is sent in the event of exceedance.
Position 2	<ul style="list-style-type: none"> ■ Teach-in is not used ■ adjustable via Teach-in object 	Defines whether only preset values or also learnt values are used.
Send cyclically every ...	not active 1 min – 120 min	Setting whether, and at what interval the value or scene is to be sent.

ETS Text	Dynamic range [Default value]	Comment
Function with temperature influence	<ul style="list-style-type: none"> ■ not active ■ internal Sensor ■ external Sensor 	Specifies whether and with which sensor the measured value for the minimum temperature of the facade control should work
Action only if temperature greater ...	20 °C – 45 °C [25 °C]	Defines the minimum temperature for enabling the facade control. Only if „Function with temperature influence” is active.
Lock object	<ul style="list-style-type: none"> ■ not active ■ active 	Activation of a lock object.

Table 14: Settings – Brightness Sensor: Facade control

Functionality of the façade control

The facade control automatically adjust the position of shutters and blinds based on the brightness values. If the measured brightness value exceeds the “Upper limit” of threshold switch 1 and the “Minimum time of exceedance” has elapsed, the shutters are moved to the previously defined “Absolute height position” , which was set via teach-in or the ETS.

If the brightness value then exceeds the “Upper limit” of threshold switch 2, the “Minimum time of exceedance” for threshold value 2 starts. The shading is then set to the corresponding “Absolute height position”.

If the brightness falls below the “Lower limit” of threshold switch 2, the shading is moved back to the value for “Upper limit” of threshold switch 1 after the “Minimum time of undercutting” has elapsed. If the brightness value now also exceeds the “Lower limit” of threshold value 1 for the corresponding time, the roller shutters are moved to the “Absolute height position” value assigned to this threshold value.

Function with temperature influence

This function can be used to set that the façade control only reacts above a certain temperature. You can specify whether this is done via the internal sensor or via an external sensor. When “external sensor” is activated, a new communication object “External temperature - Input” is displayed.

The following diagram shows the function of the facade control:

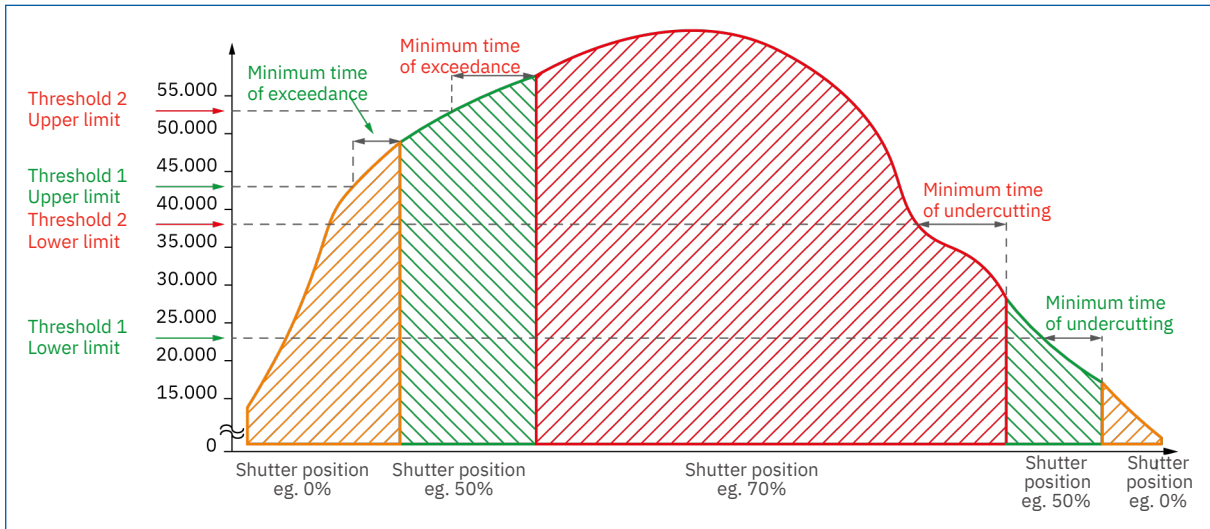


Figure 5: Diagram – Brightness Sensor: Facade control

Teach-in Function

In the facade control, the values for the height and slat position can either be configured via the ETS or read in using a teach-in procedure.

In the teach-in procedure, the shading is moved manually to the desired position (height position and slat position, if applicable). By writing a “1” value to the “**Teach-in position 1**” communication object, the height position and, if applicable, the slat position are read from the shutter actuator to the weather station and written to the parameters for threshold function 1.

The same procedure refers to the parameter teach-in function for “Exceeding threshold value 2”, whereby the “1” value must be written to the “**Teach-in position 2**” communication object.

Important: Please note that the objects “Status of shutter for teach-in” or “Status of blinds for teach-in” and “Status of slats for teach-in” must be linked to the status values of the height- and, if applicable, slat position on the shutter actuator in order to be able to execute the teach-in function correctly.

The following table shows the associated communication objects:

No.	Name / Object function	Length	Usage
6	Facade East – Send Scene	1 Byte	Sends the scene assigned to the threshold value.
6	Facade East – Send position of shutter	1 Byte	Sends the absolute height position assigned to the threshold value for roller shutter control.
6	Facade East – Send position of blinds	1 Byte	Sends the absolute height position assigned to the threshold value for blind control.
7	Facade East – Send position of slats	1 Byte	Sends the absolute slat position assigned to the threshold value for blind control.
8	Facade East – Lock object: Facade	1 Bit	Lock object for facade control.
9	Facade East – Teach-in position 1	1 Bit	Enable for teaching in the values (teach-in) for position 1.
10	Facade East – Teach-in position 2	1 Bit	Enable for teaching in the values (teach-in) for position 2.
11	Facade East – Status of shutter for teach-in	1 Byte	Read-back object of the shutter position for teach-in function.
11	Facade East – Status of blinds for teach-in	1 Byte	Read-back object of the blind position for teach-in function.
13	Facade East – Status of slats for teach in	1 Byte	Read-back object of the slat position for teach-in function.
13	Facade East – External temperature - Input	2 Byte	Input object for an external temperature sensor.
+17	Facade South ...		
+34	Facade West ...		

Table 15: Communication objects – Brightness sensor: Facade control

4.3 Twilight sensor

The twilight sensor is used to switch from “Day” to “Night” and back. It uses the maximum value of the 3 brightness sensors installed in the weather station for detection.

The following table shows the available settings

ETS Text	Dynamic range [Default value]	Comment
Send measured value	<ul style="list-style-type: none"> ■ not active ■ not active, only on request ■ on change ■ cyclic ■ on change and cyclic 	Setting of the sending condition for the measured value.
Send on change of ...	<ul style="list-style-type: none"> ■ 10 % ■ 20 % ■ 30 % 	Setting at which change the measured value should be sent. Only with selection “on change ...”
Send cyclically every ...	10 s – 60 min [1 min]	Setting whether and at what interval the measured value is sent cyclically. Only with selection „... cyclic“.
Day/Night object	<ul style="list-style-type: none"> ■ not active ■ Day = 1 / Night = 0 ■ Day = 0 / Night = 1 	Activation of the Day/Night object and the corresponding polarity.
Only if “Day/Night object“ → “Day = 1 / Night = 0“ or “Day = 0 / Night = 1”		
“Day” if greater than ...	20 – 850 Lux [100 Lux]	Specifies the brightness value for switching to “Day”.
“Night” if less than ...	0 – 200 Lux [10 Lux]	Specifies the brightness value for switching to “Night”.
Send cyclically every ...	not active 10 s – 60 min	Setting whether and at what interval the measured value is sent cyclically.
The following setting requires hardware from R1.2		
Object for blinds/shutter control	<ul style="list-style-type: none"> ■ not active ■ active 	Activates the movement function of the blinds/shutter depending on Day/Night.
Delay after change to “Day”	not active 1 min – 60 min	Setting whether and with what delay an upward movement should take place after switching to “Day” or downward movement after switching to “Night” respectively.
Delay after change to “Night”	not active 1 min – 60 min	Only if „Object for blinds/shutter control” is active.

Table 16: Settings – Twilight sensor

Send measured value

The condition under which a measured value is transmitted can be specified by adjusting the 'Send measured value' parameter:

- With the setting **"not active, request only"**, the measured value is not sent automatically, but can be requested externally via the object.
- The **"on change"** option causes the measured value to be actively sent to the bus in the event of a change.
The threshold value above which the value is to be sent is specified under **"Send on change of ..."**.
- The **"cyclically"** setting can be used to specify the intervals at which the current measured value is sent, even if the value has not changed
- By selecting **"on change and cyclically"**, the measured value is sent both on a change and at regular intervals.

Day/Night object

By activating the "Day/Night", further settings can be configured. "Day' if greater than ..." determines the threshold above which the device switches to day mode. "Night' if less than ..." determines the threshold below which the device switches to night mode. After a switchover, the device remains in the corresponding operating mode up to when the other threshold is fallen below or exceeded respectively. Furthermore, the current status can be sent cyclically to the bus.

The following diagram illustrates how the Day/Night switchover works

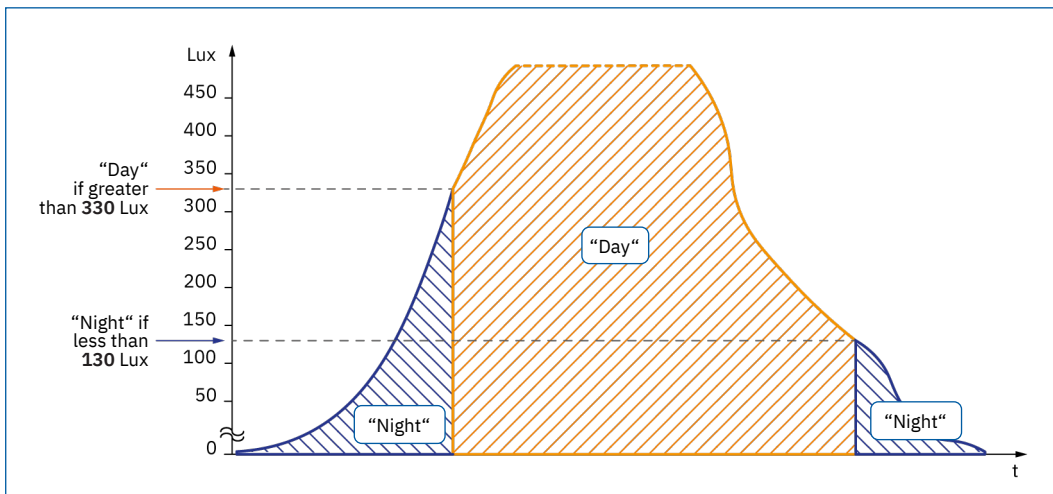


Figure 6: Diagram – Twilight sensor: Switching of Day/Night object

Object for blind/shutter movement (This setting requires hardware from R1.2)

By activating the function, it is possible to send delayed telegrams via an additional object after switching to “day mode” or “night mode”. A delay can be set for starting an upward movement when switching to “Day” and a delay for a downward movement when switching to “Night”.

If one of the two delay times is set to “not active”, the respective operating command is not sent.

The object for blinds/shutter movement has its own lock object. If a “1” is sent to the lock object, the function is locked; a “0” cancels the lock.

Note: When switching to “Day”, a “0” is always sent to the object after “Delay after switching to ‘Day’” has elapsed, and when switching to “Night”, a “1” is always sent to the object after “Delay after switching to ‘Night’” has elapsed.

The following table shows the associated communication objects:

No.	Name / Object function	Length	Usage
51	Twilight – Send measured value	2 Byte	Sending the current measured value
52	Twilight – Switchover Day/Night	1 Bit	For switchover between Day and Night operation. Polarity according to parameter.
59	Twilight – Blinds/Shutter Up/Down	1 Bit	Object for moving the blinds/shutter
60	Twilight – Lock object: Blinds/Shutter Up/Down	1 Bit	Locking the up/down movement

Table 17: Communication objects – Twilight sensor

4.4 Wind sensor

The following table shows the available settings

ETS Text	Dynamic range [Default value]	Comment
Send measured value	<ul style="list-style-type: none"> ■ not active ■ not active, only on request ■ on change ■ cyclic ■ on change and cyclic 	Setting of the sending condition for the measured value.
Send on change of ...	<ul style="list-style-type: none"> ■ 10 % ■ 20 % ■ 30 % 	Setting at which change the measured value should be sent. Only with selection "on change ..."
Send cyclically every ...	10 s – 60 min [1 min]	Setting whether, and at what interval the measured value is sent cyclically. Only with selection "... cyclic".
Threshold value 1	<ul style="list-style-type: none"> ■ not active ■ active 	Activation of threshold value 1
Only if „Threshold value 1“ → „active“		
Upper limit	1 ... 240 x 0,1 m/s [40x 0,1 m/s]	Setting the switch-on level.
Minimum time of exceedance	not active, 10s–60 min [5 min]	Setting for how long the switch-on level must at least be exceeded.
Lower limit	1 ... 240 x 0,1 m/s [20x 0,1 m/s]	Setting of the switch-off level.
Minimum time of undercutting	not active, 10s–60 min [30 min]	Setting of the minimum time that the switch-off level must fall below.
Value when exceeded	<ul style="list-style-type: none"> ■ not active ■ ON ■ OFF 	Setting the value to be sent when the switch-on level is exceeded.
Value when undercut	<ul style="list-style-type: none"> ■ not active ■ ON ■ OFF 	Setting the value to be sent when the switch-off level falls below
Send cyclically every ...	not active 10 s – 60 min	Setting whether and at what interval the value is to be sent cyclically.
Threshold value 2	<ul style="list-style-type: none"> ■ not active ■ active 	Activation of threshold value.2

ETS Text	Dynamic range [Default value]	Comment
Only if „Threshold value 2“ → „active“ (The following setting requires hardware from R1.8)		
Upper limit	1 ... 240 x 0,1 m/s [80 x 0,1 m/s]	Setting of the switch-on level.
Minimum time of exceedance	not active, 10s–60 min [5 min]	Setting for how long the switch-on level must at least be exceeded.
Lower limit	1 ... 240 x 0,1 m/s [60 x 0,1 m/s]	Setting of the switch-off level.
Minimum time of undercutting	not active, 10s–60 min [30 min]	Setting of the minimum time that the switch-off level must fall below.
Value when exceeded	<ul style="list-style-type: none"> ■ not active ■ ON ■ OFF 	Setting the value to be sent when the switch-on level is exceeded.
Value when undercut	<ul style="list-style-type: none"> ■ not active ■ ON ■ OFF 	Setting the value to be sent when the value falls below the switch-off level.
Send cyclically every ...	<p style="text-align: center;">not active</p> <p style="text-align: center;">10 s – 60 min</p>	Setting whether, and at what interval the value is to be sent cyclically.

Table 18: Settings – Wind sensor

Note: The values for “Upper limit” and “Lower limit” must be entered in [10 cm/s] for both threshold values. An entered value of 10 corresponds to 1 m/s.

Send measured value

The condition under which a measured value is transmitted can be specified by adjusting the ‘Send measured value’ parameter:

- With the setting “**not active, request only**”, the measured value is not sent automatically, but can be requested externally via the object.
- The “**on change**” option causes the measured value to be actively sent to the bus in the event of a change.
The threshold value above which the value is to be sent is specified under “Send on change of ...”.
- The “**cyclically**” setting can be used to specify the intervals at which the current measured value is sent, even if the value has not changed
- By selecting “**on change and cyclically**”, the measured value is sent both on a change and at regular intervals.

In order to better be able to configure the configuring of the wind speeds, some typical wind speeds are listed here as guide values:

Description	Wind speed [m/s]	Examples of effects
Calm	0 – 0,2	Smoke rises vertically
Light air	0,3 – 1,5	Direction shown by smoke drift but not by wind vanes
Light breeze	1,6 – 3,3	Wind felt on face; leaves rustle; wind vane moved by wind
Gentle breeze	3,4 – 5,4	Leaves and small twigs in constant motion; light flags extended
Moderate breeze	5,5 – 7,9	Raises dust and loose paper; small branches moved
Fresh breeze	8,0 – 10,7	Small trees in leaf begin to sway; crested wavelets on inland waters
Strong breeze	10,8 – 13,8	Large branches in motion; umbrellas used with difficulty
Near gale	13,9 – 17,1	Whole trees in motion; inconvenience felt when walking against the wind
Gale	17,2 – 20,7	Twigs break off trees; generally impedes progress
Strong gale	20,8 – 24,4	Slight structural damage (chimney pots and slates removed)
Storm	24,5 – 28,4	trees uprooted; considerable structural damage
Violent storm	28,5 – 32,6	widespread damage
Hurricane	from 32,7	Devastation

(Source: Wikipedia - Beaufort scale)

Table 19: Overview of wind forces

The following table shows the associated communication objects:

No.	Name / Object function	Length	Usage
53	Wind – Threshold value 1	1 Bit	Sends the value of threshold 1.
54	Wind – Send measured value	2 Byte	Output of the wind speed.
61	Wind – Threshold value 2	1 Bit	Sends the value of threshold 2.

Table 20: Communication objects – Wind sensor

4.5 Temperature sensor

The following table shows the available settings

ETS Text	Dynamic range [Default value]	Comment
Send measured value	<ul style="list-style-type: none"> ■ not active ■ not active, only on request ■ on change ■ cyclic ■ on change and cyclic 	Setting of the sending condition for the measured value.
Send on change of ...	not active 0,1 – 2,0 K [1,0 K]	Setting at which change the measured value should be sent. Only with selection “on change ...”
Send cyclically every ...	10 s – 60 min [5 min]	Setting whether and at what interval the measured value is sent cyclically. Only with selection „... cyclic“.
Calibration value for sensor (value x 0,1)	-50 ... 50 K [0]	Value for manual adjustment of the temperature sensor.
Threshold value 1	<ul style="list-style-type: none"> ■ not active ■ active 	Activation of threshold value 1
Threshold value 2	<ul style="list-style-type: none"> ■ not active ■ active 	Activation of threshold value 2.
Only if “Threshold value 1“ → „active“		
Upper limit	-30 ... 50 °C [6 °C]	Setting of the switch-on level
Value when exceeded	<ul style="list-style-type: none"> ■ not active ■ ON ■ OFF 	Setting the value to be sent when the switch-on level is exceeded.
Lower limit	-30 ... 50 °C [4 °C]	Setting of the switch-off level
Value when undercut	<ul style="list-style-type: none"> ■ not active ■ ON ■ OFF 	Setting the value to be sent when the value falls below the switch-off level.
Send cyclically every ...	not active 10 s – 60 min	Setting whether and at what interval the value is to be sent cyclically.
Only if “Threshold value 2“ → „active“		
Upper limit	-30 ... 50 °C [40 °C]	Setting of the switch-on level.

ETS Text	Dynamic range [Default value]	Comment
Value when exceeded	<ul style="list-style-type: none"> ■ not active ■ ON ■ OFF 	Setting the value to be sent when the switch-on level is exceeded.
Lower limit	-30 ... 50 °C [35 °C]	Setting of the switch-off level.
Value when undercut	<ul style="list-style-type: none"> ■ not active ■ ON ■ OFF 	Setting the value to be sent when the value falls below the switch-off level.
Send cyclically every ...	not active 10 s – 60 min	Setting whether and at what interval the value is to be sent cyclically.

Table 21: Settings – Temperature sensor

Send measured value

The condition under which a measured value is transmitted can be specified by adjusting the “Send measured value” parameter:

- With the setting “**not active, request only**”, the measured value is not sent automatically, but can be requested externally via the object.
- The “**on change**” option causes the measured value to be actively sent to the bus in the event of a change.
The threshold value above which the value is to be sent is specified under “Send on change of ...”.
- The “**cyclically**” setting can be used to specify the intervals at which the current measured value is sent, even if the value has not changed
- By selecting “**on change and cyclically**”, the measured value is sent both on a change and at regular intervals.

Adjustment value for temperature sensor

This correction value is used to increase or decrease the actual measured value. The adjustment range is from -50 up to +50 x 0.1K. This means that the measured value can be increased or decreased by a maximum of 5 Kelvin. For example, a setting of 10 causes the measured temperature value to be increased by 1 Kelvin. When this function is activated, the temperature sensor sends the corrected values.

The following table shows the associated communication objects:

No.	Name / Object function	Length	Usage
55	Temperature – Send measured value	2 Byte	Output of the temperature.
56	Temperature – Threshold value 1	1 Bit	Sends the value of threshold 1
57	Temperature – Threshold value 2	1 Bit	Sends the value of threshold 2

Table 22: Communication objects – Temperature sensor

5 Index

5.1 List of illustrations

Figure 1: Wiring diagram	4
Figure 2: Structure and operation	5
Figure 3: Staggering of threshold values 1 and 2	14
Figure 4: Overlapping of threshold values 1 and 2	14
Figure 5: Diagram – Brightness Sensor: Facade control	19
Figure 6: Diagram – Twilight sensor: Switching of Day/Night object	22

5.2 List of tables

Table 1: Communication object – Standard settings: General settings	6
Table 2: Communication objects – Standard settings: Brightness sensor	6
Table 3: Communication objects – Standard settings: Twilight sensor	7
Table 4: Communication objects – Standard settings: Wind sensor	7
Table 5: Communication objects – Standard settings: Temperature sensor	7
Table 6: General settings	8
Table 7: Communication object – General settings	9
Table 8: Settings – Brightness sensor	10
Table 9: Overview of brightness levels	11
Table 10: Communication objects – Brightness sensors	11
Table 11: Settings – Brightness sensor: Threshold value 1	12
Table 12: Settings – Brightness sensor: Threshold value 2	13
Table 13: Communication objects – Brightness sensor: Threshold switch	15
Table 14: Settings – Brightness Sensor: Facade control	18
Table 15: Communication objects – Brightness sensor: Facade control	20
Table 16: Settings – Twilight sensor	21
Table 17: Communication objects – Twilight sensor	23
Table 18: Settings – Wind sensor	25
Table 19: Overview of wind forces	26
Table 20: Communication objects – Wind sensor	26
Table 21: Settings – Temperature sensor	28
Table 22: Communication objects – Temperature sensor	28

6 Appendix

6.1 Legal provisions

The devices described above must not be used in conjunction with devices which directly or indirectly serve human, health, or life-safety purposes. Furthermore, the devices described must not be used if their use may cause danger to people, animals, or property.

Do not leave the packaging material carelessly lying around. Plastic foils/bags or similar can become a dangerous toy for children.

6.2 Disposal



Do not dispose of the old devices in the household waste. The device contains electrical components that must be disposed of as electronic waste. The housing is made of recyclable plastic.

6.3 Assembly



Danger to life from electric current!

The device may only be installed and connected by qualified electricians. Observe the country-specific regulations and the applicable KNX guidelines

The devices are approved for operation in the European Union and in the United Kingdom. The products are respectively marked with the CE and UKCA symbols.

Use in the USA and Canada is prohibited!

6.4 History

V1.0 First Version of Technical Manual
V1.1 Revision, new languages (DB)

DB V1.1 09/2012
DB V1.1 08/2024