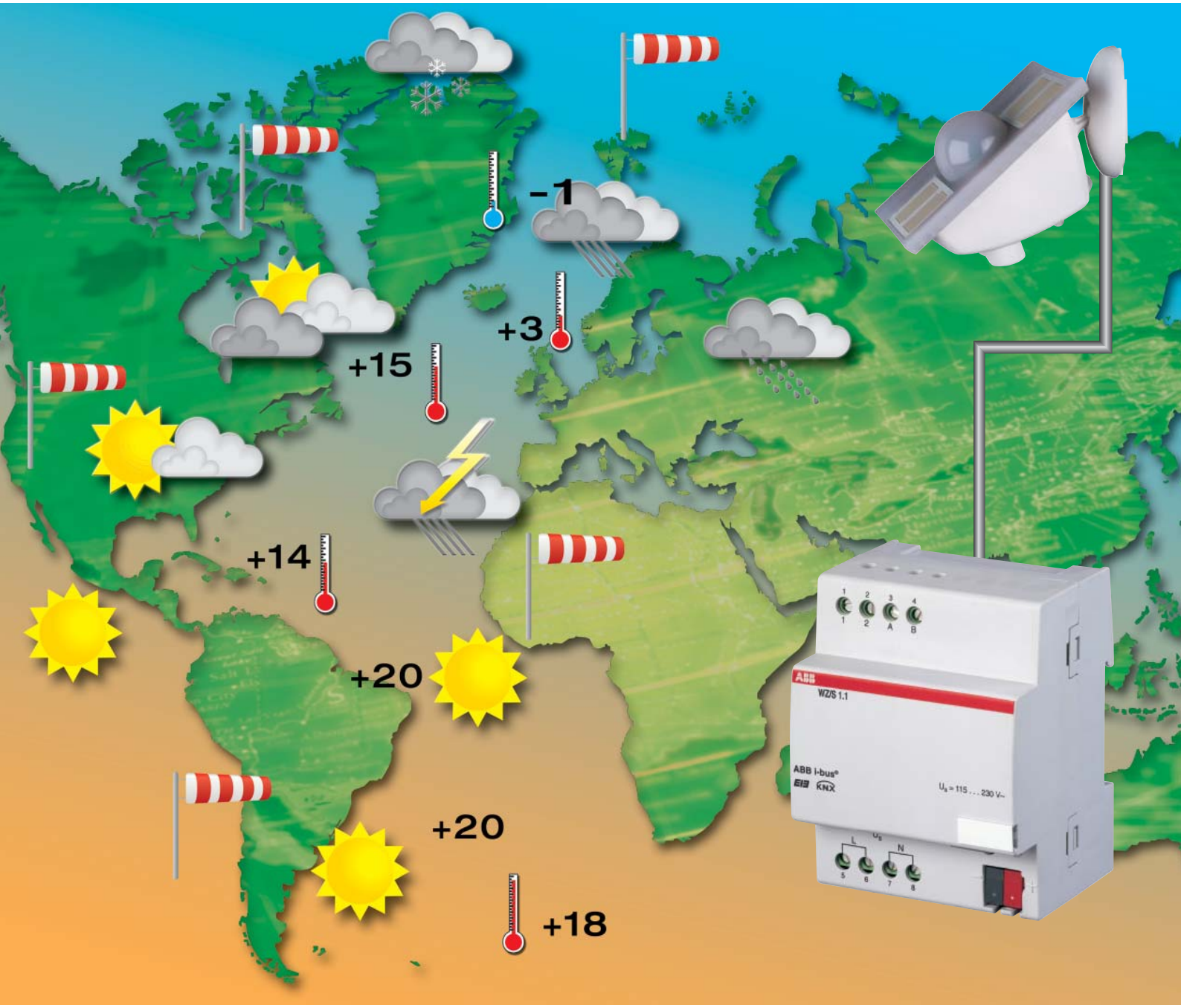
Product Manual

# ABB i-bus® KNX

## Weather Unit / Weather Sensor
## WZ/S 1.1
## WES/A 1.1

Intelligent Installation Systems



This manual describes the function of the Weather Unit WZ/S 1.1/
Weather Sensor WES/A 1.1.
Subject to changes and errors excepted.

**Exclusion of liability:**
Despite checking that the contents of this document match the hardware and software, deviations cannot be completely excluded. We therefore cannot accept any liability for this. Any necessary corrections will be inserted in new versions of the manual. Please inform us of any suggested improvements.

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# 1 General

The Weather Unit WZ/S 1.1 is an KNX modular installation device with a module width of 4 units. The device processes up to 8 independent weather data sources which are detected by the WES/A 1.1.

By recording the brightness level, it is possible to adapt the lighting and shading of rooms fully automatically to the individual needs of the user. Monitoring and security functions are referred to weather data. Shutters and sunblind‘s (awnings) can be retracted in the event of strong wind or skylights and fanlights can be closed when it starts to rain.

This manual provides you with detailed technical information about the Weather Unit, Weather Sensor and includes installation and programming and explains the use of the WZ/S 1.1 and WES/A 1.1 using examples.

This manual is divided into the following sections:

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

## 1.1 Product and functional overview

The Weather Unit WZ/S 4.1 is a DIN rail mounted modular installation device for installation in distribution boards. The connection to the bus is implemented via a Bus Connection Terminal on the front of the device.
The assignment of the physical address as well as the parameter settings is carried out with ETS 2 from version V1.2a onwards.

The device enables the recording and processing of eight independent weather data signals from the Weather Sensor.

The WZ/S 1.1 has an integrated power supply unit for power supply to the Weather Sensor. The mains voltage is 115…230 V AC (+10 % – 15 % tolerance), 50/60 Hz.

The Weather Sensor WES/A 1.1 detects twilight, brightness in three directions, rain, temperature, day/night, wind speed and the date and time using the radio receiver. Sensor heating is automatically activated at temperatures under 10 °C or with precipitation.

The processing of the weather data is carried out in the application program ***Sensor Data/1.***

The measured value can be sent as a 1-bit value, 1-byte value, 2-byte value or 3-byte value via the bus to suit the selected parameter.

It is possible to set 2 threshold values per channel. The threshold value each have an upper and lower limit which can be set independently.
The threshold values themselves can be modified via the bus. It is important to note that the threshold values are overwritten after a download.

The internal logic can be set as an AND or OR gate. The gate can be assigned a maximum of 4 inputs and one output. The inputs and outputs can be inverted. It is possible to link e.g. 2 inputs together via the logic function.

Four value memories each featuring 24 memory slots are available.
The values are stored in the ring buffer.

# 2 Device technology

## 2.1 Weather Unit


Fig. 1: WZ/S 1.1

The Weather Unit WZ/S 1.1 is used for recording weather data – primarily for domestic purposes. The Weather Sensor WES/A 1.1 is connected to the WZ/S 1.1. The connection to the bus is established via the Bus Connection Terminal at the front of the device. The device is ready for operation after connecting the mains voltage of 115…230 V AC and the bus voltage.
The Weather Unit WZ/S 1.1 is parameterised via ETS2 V1.2a or higher.

Note Fascade control is not possible with the WZ/S 1.1.
Please use our Weather Unit WS/S for this purpose.
The WES/A sensor combined with the WZ/S is suitable for small to mid-sized buildings. The façade structure, wind conditions and special local influences should also be considered with these buildings.

### 2.1.1 Technical data “Weather Unit”

| | | |
|---|---|---|
| **Power supply** | – Bus voltage<br>– Current consumption, bus<br>– Mains voltage $U_s$<br>– Power consumption<br>– Current consumption, mains<br>– Power loss | 21 … 32 V DC<br>< 10 mA<br>115 … 230 V AC (+ 10 % – 15 %), 50/60 Hz<br>Max. 11 W, at 230 V AC<br>80/40 mA, at 115/230 V AC<br>Max. 3 W, at 230 V AC |
| **Connections** | – KNX<br>– Mains voltage<br>– 1 ( 0 V potential)<br>– 2 (24 V potential)<br>– A (RS 485)<br>– B (RS 485) | Via Bus Connection Terminal, screwless<br>2 screw terminal<br>Power supply<br>Power supply<br>serial Data communication<br>serial Data communication |
| **Connection terminals** | – Screw terminals<br><br>– Tightening torque | 0.2 … 2.5 mm² finely stranded<br>0.2 … 4.0 mm² single-core<br>Max. 0.6 Nm |
| **Cable length / cross-section** | – Between Weather Unit and Weather Sensor | Max. 100 m |
| **Operating and display** | – P-YCYM or J-Y(ST)Y | 2 x 2 x 0.8 |
| **Elements** | – Programming-LED<br>– Programming button | for assignment of the physical address<br>for assignment of the physical address |
| **Enclosure** | – IP 20 | to DIN EN 60 529 |
| **Enclosure safety class** | – II | to DIN EN 61 140 |
| **Temperature range** | – Operation<br>– Storage<br>– Transport | – 5 °C…+ 45 °C<br>– 25 °C…+ 55 °C<br>– 25 °C…+ 70 °C |
| **Design** | – Modular DIN-Rail Component (MDRC)<br>– Dimensions<br>– Mounting width in space units<br>– Mounting depth | Modular installation device, Pro*M*<br>90 x 72 x 64.5 mm (H x W x D)<br>4, 4 modules at 18 mm<br>64.5 mm |
| **Installation** | – On 35 mm mounting rail | to DIN EN 60 715 |
| **Mounting position** | – as required | |
| **Weight** | – 0.2 kg | |
| **Housing/colour** | – Plastic housing, grey | |
| **Approvals** | – KNX to EN 50 090-1, -2 | Certification |
| **CE mark** | – in accordance with the EMC guideline and low voltage guideline | |

Table 1: Weather Unit technical data

| Application program | Max. number of communication objects | Max. number of group addresses | Max. number of associations |
|---|---|---|---|
| **Sensor Data/1** | 78 | 100 | 100 |

Table 2: Application program

Note The programming requires EIB Software Tool ETS2 V1.2a or higher. If ETS3 is used a ".VD3" type file must be imported. The application program is available in the ETS2 / ETS3 at ABB/input/Weather Unit 1-fold.

### 2.1.2 Wiring diagram "Weather Unit"

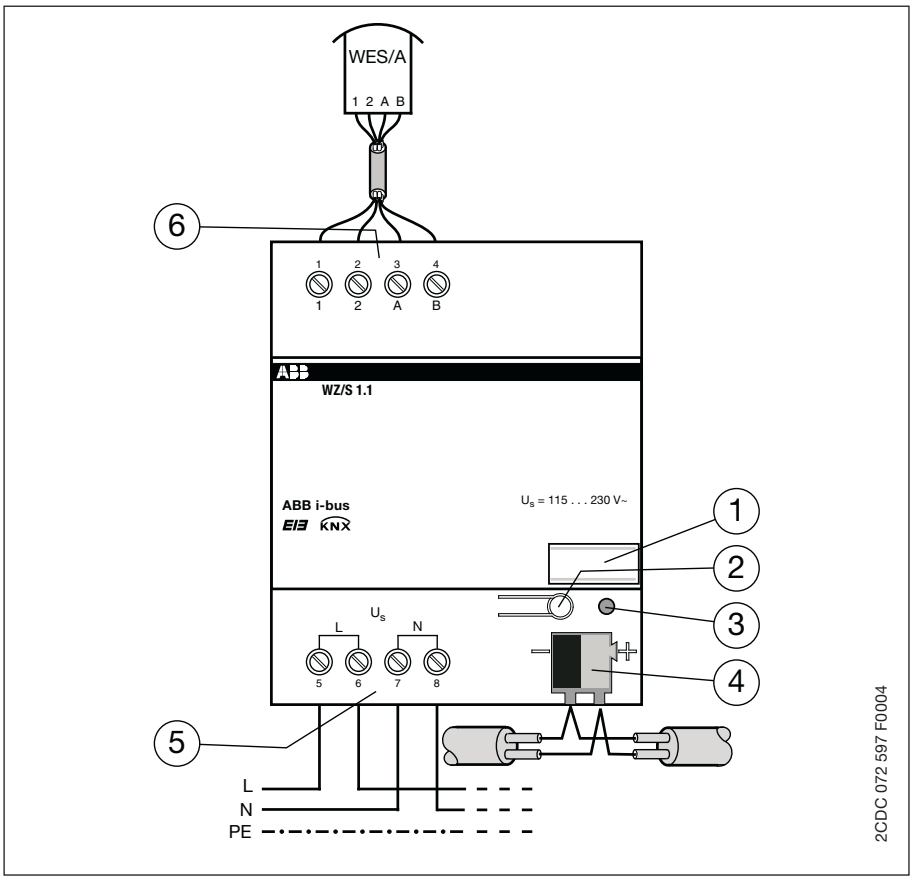



Fig. 2: Circuit diagram "Weather Unit"

**1** Label carrier
**2** Programming button
**3** Programming LED
**4** Bus Connection Terminal
**5** Mains power supply
**6** Weather Sensor connection

### 2.1.3 Dimension drawing "Weather Unit"

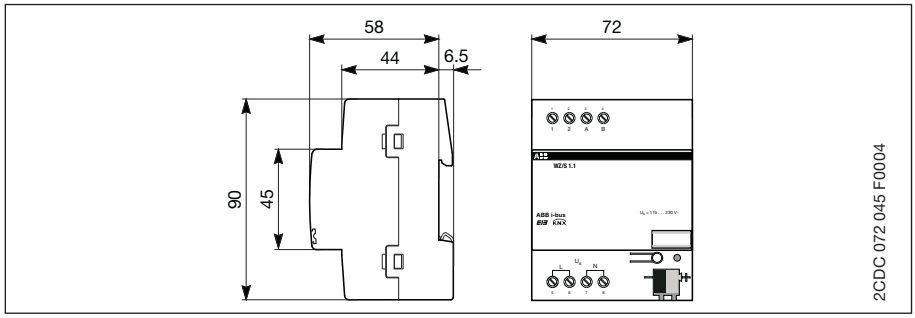



Fig. 3: Dimension drawing "Weather Unit"

## 2.2 Weather Sensor

2CDC 071 057 F0004

Fig. 4: WES/A 1.1

The weather sensor WES/A 1.1 is used primarily for domestic purposes. For detection of twilight (1...999 Lux), brightness in three directions (1,000...99,000 Lux), rain (upper sensor and lower surfaces are permanently heated. Temperature (– 30...+ 50 °C), day/night, windspeeds (0…24.0 m/s), date and time (DCF radio receiver). An additional heating transformer is not required. The Weather Sensor WES/A 1.1 works only in conjunction with the WZ/S 1.1 Weather Unit.

Note Fascade control is not possible with the WZ/S 1.1. Please use our Weather Unit WS/S for this purpose. The WES/A sensor combined with the WZ/S is suitable for small to mid-sized buildings. The façade structure, wind conditions and special local influences should also be considered with these buildings.

### 2.2.1 Technical data "Weather Sensor"

| | | |
|---|---|---|
| **Power supply** | – Voltage | 24 V DC +/- 10 % |
| | – Current | 150 mA |
| **Weather Sensor connections** | – 1 ( 0 V potential)<br>– 2 (24 V potential)<br>– A (RS 485)<br>– B (RS 485) | Voltage supply<br>Voltage supply<br>serial Data communication<br>serial Data communication |
| **Connection terminals** | – Connection terminal, inscribed, plug-in | 0.8 single core |
| **Cable length** | – Between the Weather Unit and weather | Max. 100 m |
| **Cable length / cable cross-section** | – P-YCYM or J-Y(ST)Y | 2 x 2 x 0.8 |
| **Temperature range** | – Operation | – 30…+ 70 °C |
| **Enclosure** | – IP 65 | DIN EN 60 529 |
| **CE mark** | – in accordance with the EMC guideline and low voltage guideline | |
| **Installation** | – surface mount | |
| **Dimensions** | – 80 x 67 x 125 | (H x W x D) |
| **Weight** | – 0.2 kg | |
| **Enclosure** | – Plastic | |
| **Housing colour** | – White | |
| **Sensors:**<br>**Twilight** | <br>– Total measurement range<br>– Resolution<br>– Measurement range<br>– Accuracy<br>– Measurement range<br>– Accuracy | <br>0...999 Lux<br>1 Lux<br>1...100 Lux<br>+/– 4 % of final value/+/– 4 Lux<br>101...999 Lux<br>+/– 20 % of final value/+/– 200 Lux |
| **3 x brightness** | – Total measurement range<br>– Resolution<br>– Measurement range<br>– Accuracy<br>– Measurement range<br>– Accuracy | 0,1000...99.000 Lux<br>1.000 Lux<br>0...10.000 Lux<br>+/– 20 % of final value/+/– 2.000 Lux<br>11.000...99.000 Lux<br>+/– 15 % of final value/+/– 15.000 Lux |
| **Rain sensor** | – Power consumption<br>– Function | 2.4 Watt<br>The upper sensor and lower sensor surfaces are permanently heated. After a rain alarm the rain signal is output for about 6 minutes. |
| **Temperature** | – Total measurement range<br>– Resolution<br>– Accuracy | – 30...+ 50 °C<br>0.6 – 0.7 °C<br>+/– 5 % of final value/+/– 2,5 K |
| **Daylight** | – Day => Night<br>– Night => Day | Under 10 Lux is night<br>at more than 10 Lux it is day (one minute and 15 seconds after the brightness value has exceeded 10 Lux) |

| | | |
|---|---|---|
| **Wind speed *** | – Total measurement range<br>– Resolution | 0...24 m/s<br>0.5 m/s |
| | – Measurement range<br>– Accuracy | 0.5...2.0 m/s<br>+/– 30 % of measured value |
| | – Measurement range<br>– Accuracy | 2.5...24 m/s<br>+/– 20 % of measured value |
| **Radio receiver** | DCF 77 | Date and time |

* The stated tolerances relate to angles of incidence of the air flow in the range of ± 45°, (WES/A as seen from the front, fixing is located at the rear). Higher tolerances must be anticipated for other angles of incidence of the air flow.

Table 3: Technical data “Weather Sensor”

### 2.2.2 Wiring diagram “Weather Sensor”

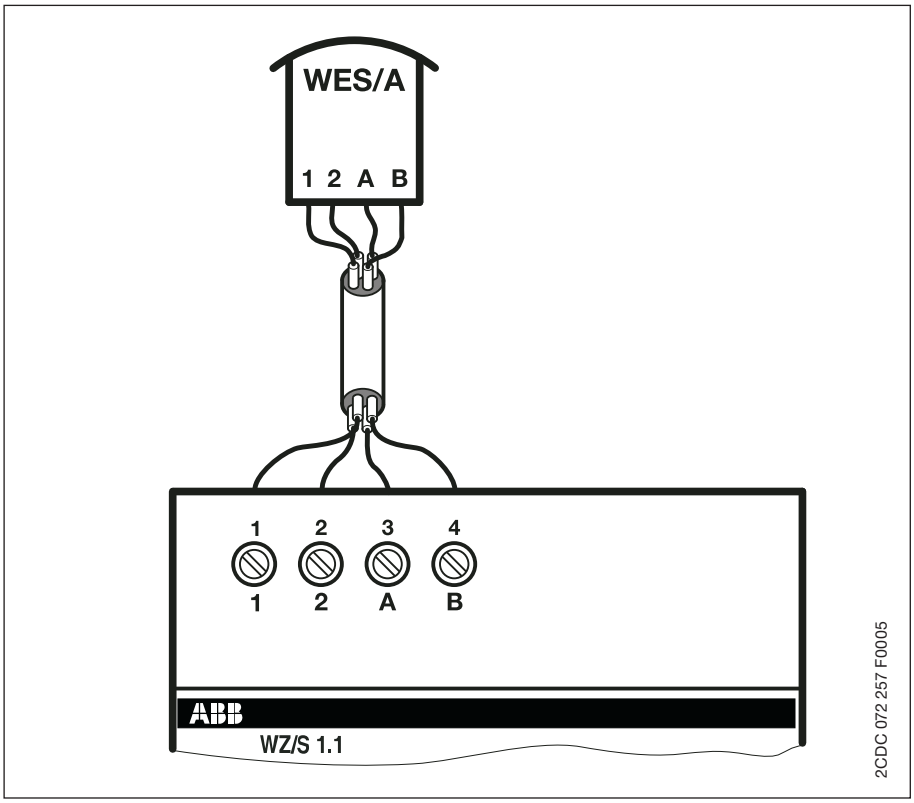



Fig. 5: Circuit diagram “Weather Sensor”

### 2.2.3 Dimension drawing “Weather Sensor”

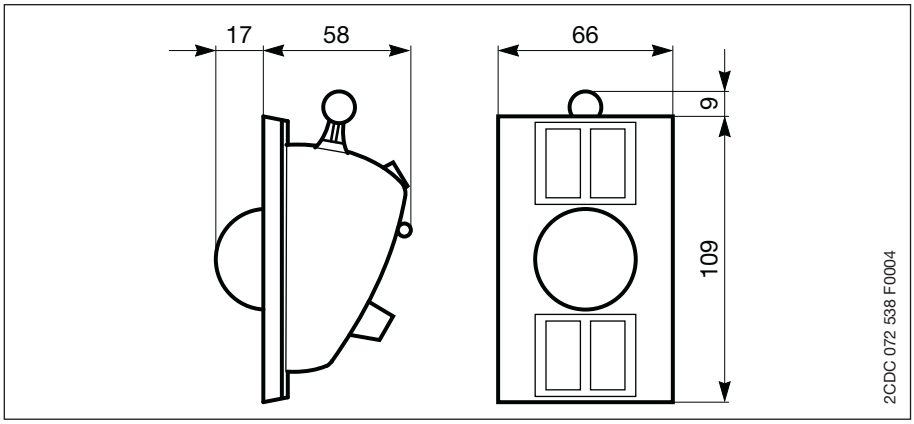



Fig. 6: Dimension drawing “Weather Sensor”

### 2.2.4 Exploded drawing “Weather Sensor”

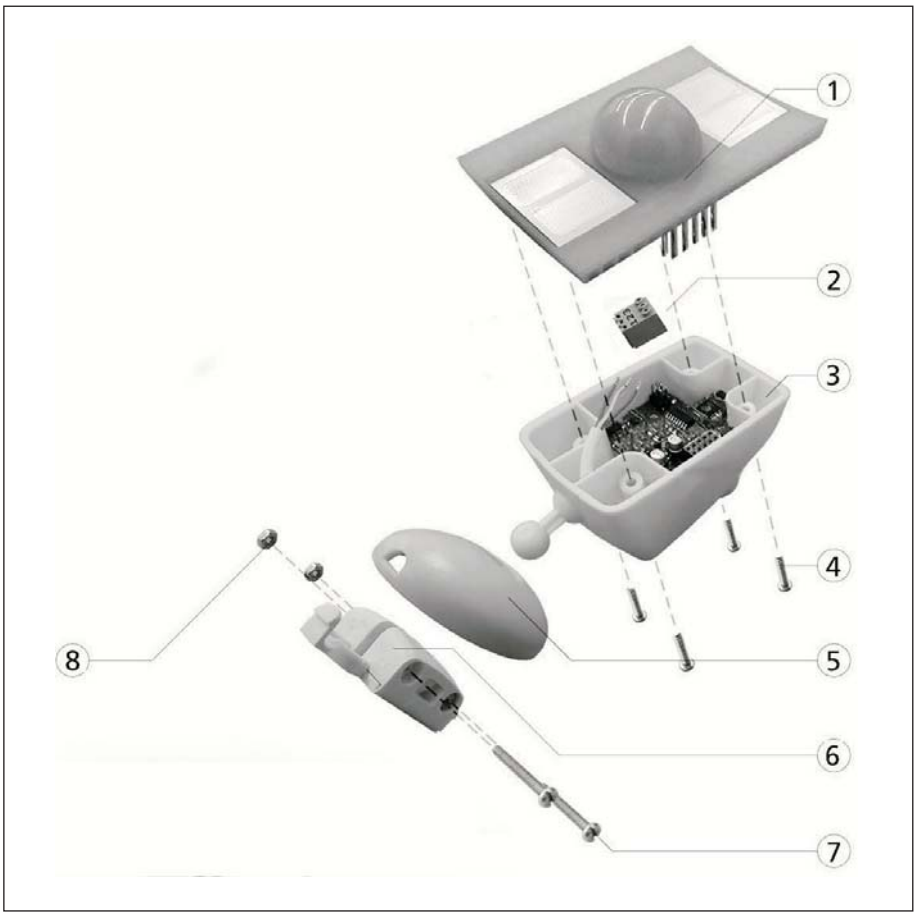



Fig. 7: Exploded drawing “Weather Sensor”

**1** Sensor field (cover)
**2** Pluggable connection terminal
**3** Housing lower section
**4** Screws M3x20mm
**5** Fixture bracket cover
**6** Bracket
**7** Stainless-steel screws M3x20mm
**8** Nuts M3

### 2.2.5 Arrangement and designation of the sensors

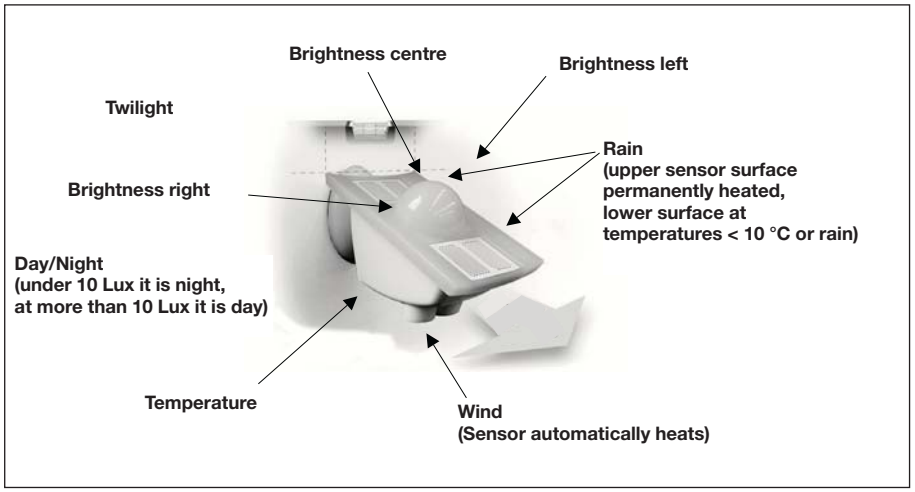



Fig. 8: Arrangement and designation of the sensors

## 2.3 Installation of the Weather Unit

The Weather Unit is a modular installation device for fast installation in the distribution board on 35 mm mounting rails to DIN EN 60 715.

The electrical connection is implemented using screw terminals. The connection to the bus is implemented using the supplied bus connection terminal.

The device is ready for operation once the mains voltage of $U_s$ = 115…230 V AC and the bus voltage have been applied.

Accessibility to the device for the purpose of operation, testing, visual inspection, maintenance and repair must be must be provided (conform to DIN VDE 0100-520).

Note The Weather Unit WZ/S 1.1 may not be mounted outdoors. The technical data of the Weather Sensor must be observed for optimum measuring or monitoring values. The same applies as regards equipment for lightning protection.

**Commissioning requirements**
In order to commission the Weather Unit WZ/S 1.1, a PC with ETS2 from version V1.2a or higher is required as well as an interface to the bus, e.g. via an RS232 interface or via a USB interface. The device is ready for operation when the mains voltage of $U_s$ = 115…230 V AC and the bus voltage have been applied.

The installation and commissioning may only be carried out by electrical specialists. The appropriate norms, guidelines, regulations and specifications should be observed when planning and setting up electrical installations.

– The device should be protected from damp, dirt and damage during transport, storage and operation.
– The device should not be operated outside the specified technical data!
– The device should only be operated in a closed housing (distribution board)!

**Supplied state**
The Weather Unit is supplied with the physical address 15.15.255.
The ***Sensor Data/1*** user program is pre-installed. Hence, only group addresses and parameters must be loaded during commissioning.
The entire application can be reloaded if required.

**Download behaviour**
Due to the complexity of the device, it may take up to 1.5 minutes before the progress bar appears depending the PC which is used.

**Assignment of the physical address**
The assignment and programming of the physical address is carried out in the ETS.

**Cleaning**
If devices become dirty, they can be cleaned using a dry cloth. Should a dry cloth not remove the dirt, they can be cleaned using a slightly damp cloth and soap solution. Corrosive materials or solutions should never be used.

**Maintenance**
The device is maintenance-free. No repairs should be carried out by unauthorised personnel if damage occurs (e.g. during transport or storage). The warranty expires if the Weather Unit is opened.

Note After successful commissioning of the Weather Unit and of the weather sensor, the communication object “No time synchronisation” should be read. This verifies if the radio receiver can receive a valid DCF signal. With good reception, the sensor will require about 2–3 minutes to synchronise to the signal.

Note After successful commissioning of the Weather Unit and Weather Sensor, the Weather Sensor will require a settling or heating up phase of about 30 minutes. Only after this phase will the correct temperature be available and can be calibrated if necessary.

## 2.4 Mounting and installation of the Weather Sensor

Select an installation site on the building where wind, rain and sun can be detected without impedance by the sensors. In particular, the light dome on the cover may not be obstructed by buildings or trees. A free space of at least 60 cm must remain under the Weather Sensor WES/A 1.1 in order to allow for correct wind measurement and to prevent it being snowed in during a snowfall.

Metals in the vicinity of the Weather Sensor reduce the reception quality of the installed radio clock receiver. Please keep a clearance of at least 10 cm from surrounding metallic objects.

Note Strong magnetic fields, disturbance fields of electrical machines and transmitters can block or interfere with reception. This should be observed with the installation of the Weather Sensor.

**Preparation for installation**
Verify that all the parts in the parts list are available, see chapter 2.2.4. Push both of the side sections (hemispherical indentations) of the bracket (6) so that a hollow sphere results. Insert two nuts (8) into the side section which features a receptacle for the hexagon nut. Screw the stainless steel screws (7) through the other side section into the hexagon nuts. Only turn the screw until the tip of the screw is aligned with the edge of the hexagon nut (do not screw any tighter). Open the sensor field (cover) (1) of the Weather Sensor WES/A 1.1 by loosening the screws (4).

**Installation**
Attach the bracket (6) vertically. Now insert the cable and connect the Weather Sensor WES/A 1.1 using the plug in and inscribed connection terminal. The screwed joint must be tightened to guarantee that it is sealed. Place the sensor field (cover) (1) onto the housing lower section (3), ensure that the plug connection is correctly plugged in. Before screwing on the sensor field (cover) (1), ensure that the sensor field (cover) (1) is situated correctly on the housing lower section (3) (both parts must sit firmly). Now screw the screws (4) back in. The screws must be tightened to ensure that the device is sealed correctly. Now plug the housing cover (5) onto the ball joint of the housing lower section (3) and lock the housing lower section into the bracket (6).

**Alignment**
Ensure that the WES/A 1.1 is aligned by about 45° (longitudinal direction) to the horizontal plane. The WES/A 1.1 must be mounted horizontally in the transverse (horizontal) plane. The stainless steel screws (7) should be tightened moderately. Check the installation again and correct if necessary. Clip the housing cover (5) for the bracket (6) back on. The mounting of the Weather Sensor must be undertaken as described, otherwise the radio receiver reception will malfunction.

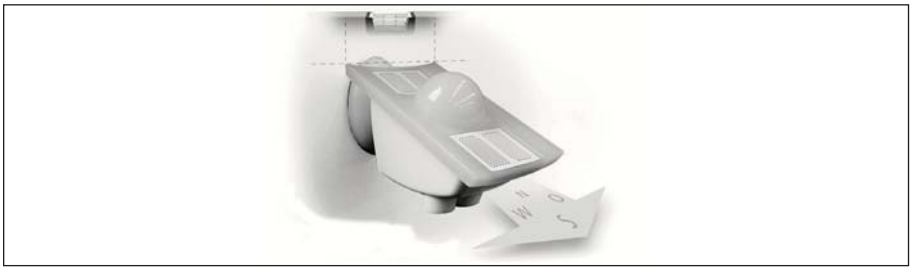


Fig. 9: Alignment “Weather Sensor”

Note Fascade control is not possible with the WZ/S 1.1.
Please use our Weather Unit WS/S for this purpose.

The Weather Sensor WES/A 1.1 should be aligned horizontally to the fascade, which is most oriented in a southerly direction (see illustration below). The Weather Sensor thus directly provides brightness values for the façades provided that they are aligned at right angles to each other.

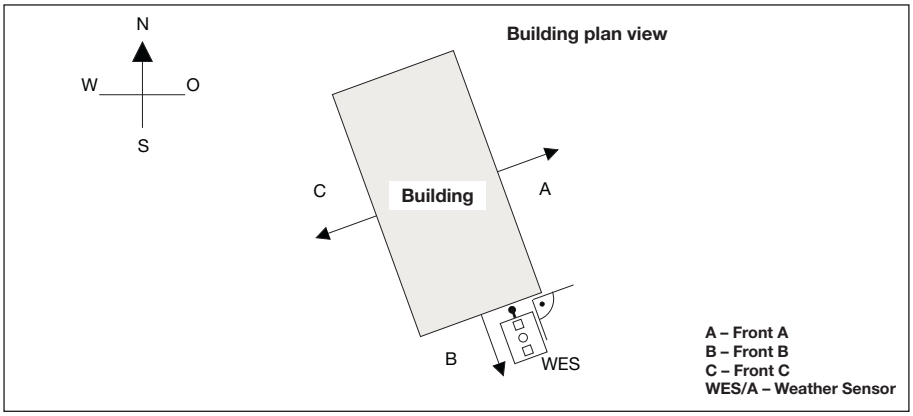



Fig. 10: Alignment of the Weather Sensor on the building

**Connection / commissioning**
The electrical connection is implemented using connection terminals. The connection to the Weather Unit is implemented using a cable length of maximum 100 m. The connection is implemented using commercially available P-YCYM or J-Y(ST)Y cables 2 x 2 x 0.8 or similar. Do not open the Weather Sensor WES/A 1.1 when water or rain can enter it. Even a few drops can make the Weather Sensor WES/A 1.1 unusable.

The external temperature sensor is glued onto the housing and the connection wires of the sensor are connected to the electronics by an internally drilled hole in the housing. If the sensor is pushed or rotated with too much force the connection wires may break and the temperature measurement may no longer function as intended.

**Maintenance**
A inspection onsite should be undertaken at regular intervals to ensure malfunction free operation of the Weather Sensor. A high level of dirt or contamination can lead to the Weather Sensor transmitting incorrect weather information.

Note The terminal designations can be found on the circuit board and connection terminal.

Note After successful commissioning of the Weather Unit and Weather Sensor, the communication object “No DCF signal” should be read. This verifies if the radio receiver can receive a DCF signal. With good reception, the sensor will required about 2-3 minutes to synchronise to the signal.

Note After successful commissioning of the Weather Unit and Weather Sensor, the Weather Sensor will require a settling or heating up phase of about 30 minutes. Only after this phase will the correct temperature be available and can be calibrated if necessary.

# 3 Commissioning

## 3.1 Overview

The Weather Unit WZ/S 1.1 is loaded with the application ***"Sensor Data/1"***. Programming requires ETS2 V1.2a or higher. If ETS3 is used a ".VD3" type file must be imported. A maximum of 78 communication objects, 100 group addresses and 100 associations can be linked.

The following functions can be selected to suit the sensor type:

| | |
|---|---|
| Data types of the output value | The output value can be sent as a 1-bit value [0/1] or as a 2-byte value [EIB floating point] |
| Output range | Predefined output range of the sensor. |
| Threshold | 2 threshold values can be set, each with an upper and lower limit. The limits can be modified via the bus. |
| Logical functions | Logic functions such as AND and OR gates can be created.<br>There are 4 inputs available per logic function.<br>These can be linked with 2 external inputs.<br>The inputs and outputs can be inverted. |
| Value memory | 24 values per value memory can be stored in a ring buffer bus. The time is saved using radio receiver with each value. |
| Radio receiver | Data and time can be sent on the bus. |

Table 4: Functions of the application program

## 3.2 Parameter

Note The standard settings for the options are underlined, e.g. Options: no/yes

### 3.2.1 Parameter window “General”

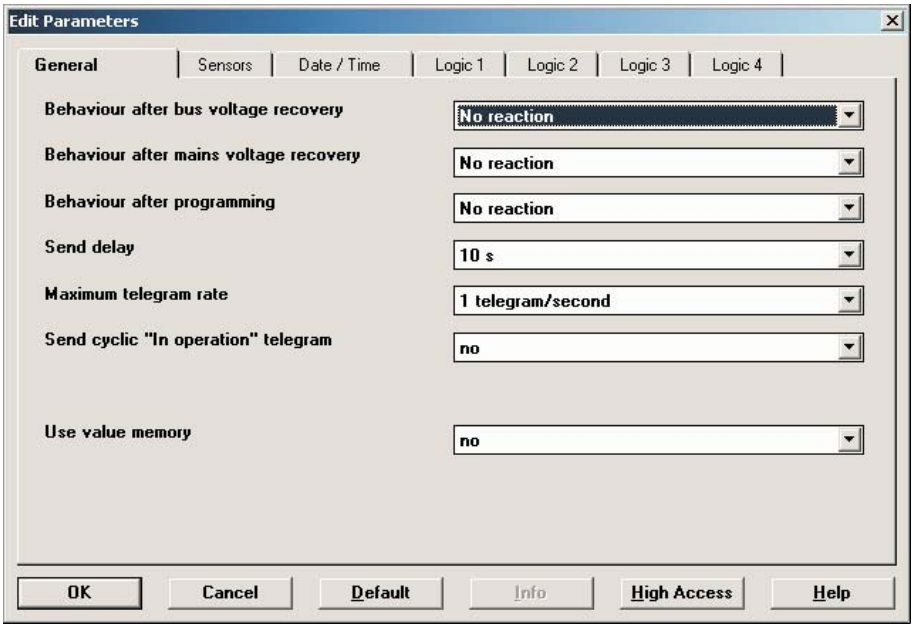



Fig. 11: Parameter window “General”

**Behaviour after bus voltage recovery,**
**Behaviour after mains voltage recovery,**
**Behaviour after programming**

Options: no reaction
send output and threshold values immediately
send output and threshold values with a delay

The parameters are used for setting the behaviour on *bus voltage recovery*, *mains voltage recovery* and after *programming*.

Option *no reaction* = Send no values

Option *send output and threshold values immediately* = Send values immediately

Option *send output and threshold values with a delay* = Send values with a delay.

The *Send delay* is set separately and applies to all three parameters.

**How does the device react if the bus voltage recovers before the supply voltage?**
As the circuit is supplied by mains voltage, it is not possible to react to the bus voltage recovery event. The circuit can not be contacted. If the mains voltage then recovers, the bus voltage is already available and the reaction after a bus voltage recovery is implemented.

**How does the device react if the mains voltage recovers before the bus voltage?**
Case 1: Option “send output and threshold values immediately”. The telegrams are sent immediately. The telegrams are not visible as the bus voltage is still absent. If the bus voltage recovers the reaction will be in accordance with the set bus voltage recovery option.

Case 2: Option “send output and threshold values with a delay”.
Now the behaviour will depend on the bus voltage recovery option.

Option “no reaction”
The operating send delay will not be interrupted.

Option “send output and threshold values immediately”
The operating send delay will be interrupted and it is sent immediately.

Option “send output and threshold values with a delay”
The operating send delay will be re-triggered. The telegram is sent after the send delay time has timed out.

**How does sending values to the Weather Unit function?**
Generally the send options of the individual sensors overlap with the options, which are possible with mains voltage recovery or programming.

Here is an example. If a temperature sensor has been programmed to send cyclically every 5 seconds, it will continue to do so after mains voltage recovery, regardless of the selected option for mains voltage recovery.

In contrast, the rain sensor which should send with a change, it may not send for weeks provided that it does not rain in this time, as its object value does not change.

With the options in the parameter Behaviour on ... it is possible to achieve after an event (mains voltage recovery, programming and bus voltage recovery) that the complete process map of the sensor (output values and threshold values) are sent either immediately or after a certain delay.
This ensures that all the relevant information is sent once after the event (e.g. for visualisation purposes).

**Send delay**
Options: 1s/2s/3s/5s/10s/20s/30s/50s

The send delay determines the time after bus voltage recovery, *mains voltage recovery* and *programming* which must be waited before the telegrams should be sent from the Weather Unit on the bus.

Once the device is started, the following communication objects also send a telegram after the set delay.

– Communication object “Request time – Time synchronisation” sends a read telegram, with the option *Slave (EIB time synchronisation)* if the parameter mode is selected in the *Date* / *Time* tab. It is still possible to request the time after the start or after a bus failure. It is thus possible to choose between sending of a request object or a value read telegram on the *Time* communications object.

– Communication object “In operation – System” sends cyclically on the bus at the set intervals

– Communication object “Status byte – System” sends a status byte telegram.

**Maximum telegram rate**
Options: 1/2/3/5/10/20 telegrams/second

To control the bus load, it is possible to limit the *Maximum telegram* rate per second with this parameter.

**Send cyclic “In operation” telegram**
Options: no/yes

Option *no* = *Cyclic “In operation” telegram* is not sent
Option *yes* = the “In operation – System” communication object appears

If *yes* is selected in the parameter *Cyclical “In operation” telegram*, the following parameter window becomes visible.

**Send interval for “In operation” telegram**
Options: 10min/30min/1h/3h/6h/12h/24h

The communication object “In operation – System” is sent cyclically on the bus after the set interval.

The Weather Unit can thus be cyclically monitored.

**Use value memory**
Options: no/yes

With the selection *yes* the value memory 1 to 4 becomes visible as an independent parameter window.

### 3.2.2 Parameter window “Sensors”

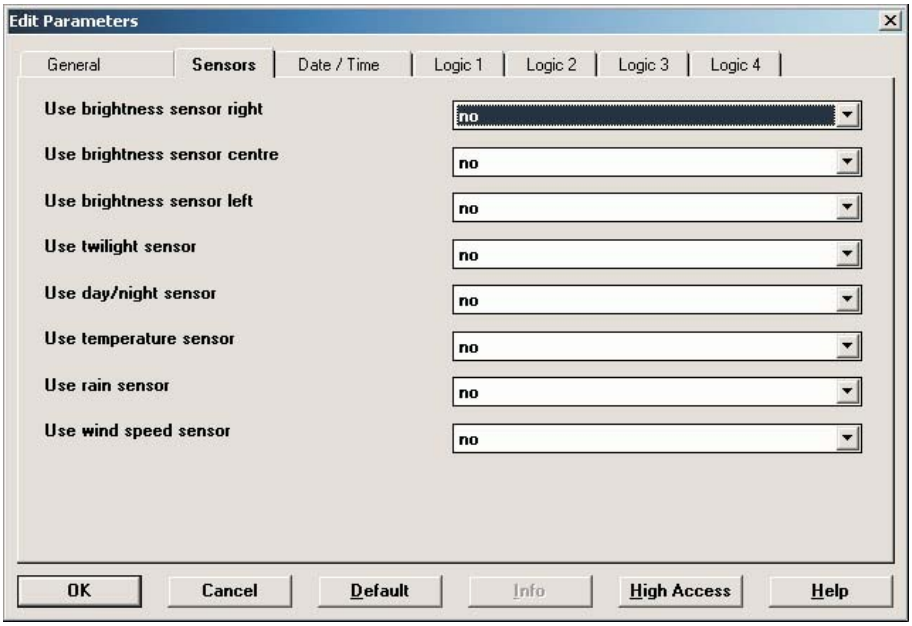



Fig. 12: Parameter window “Sensors”

**Use brightness sensor right**
**Use brightness sensor centre**
**Use brightness sensor left**
**Use twilight sensor**
**Use day/night sensor**
**Use temperature sensor**
**Use rain sensor**
**Use wind speed sensor**
Options: no/yes

If *yes* is selected 5 parameter windows become visible for each sensor.

### 3.2.3 Parameter window “Date / Time”

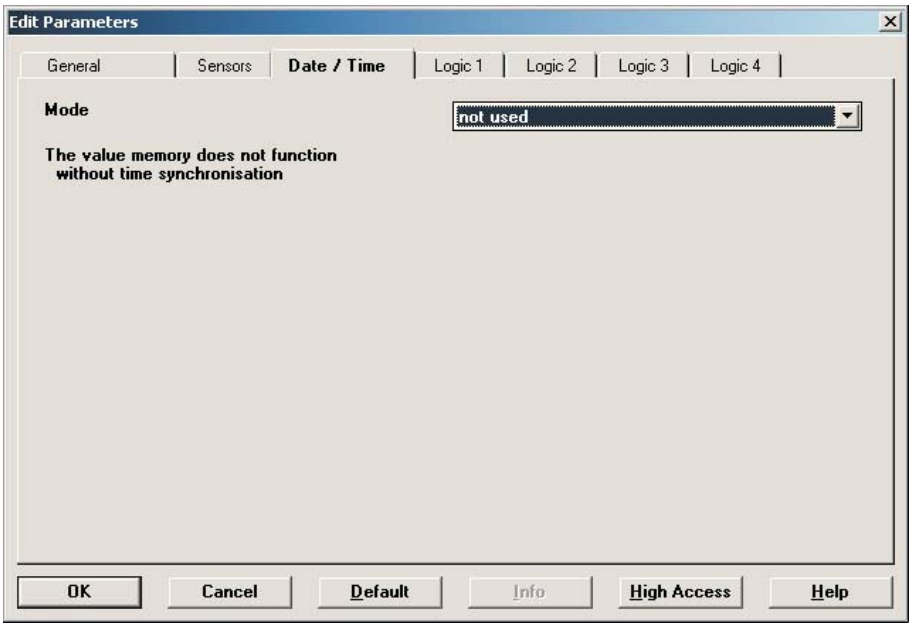



Fig. 13: Parameter window “Date / Time”

**Operating mode:**

Options: not used/
Master (synchronisation via sensor)/
Internal (synchronisation via sensor)/
Slave (synchronisation via bus)

Note The value memory does not function without time synchronisation.

### 3.2.3.1 Operating mode “Master (synchronising via sensor)”

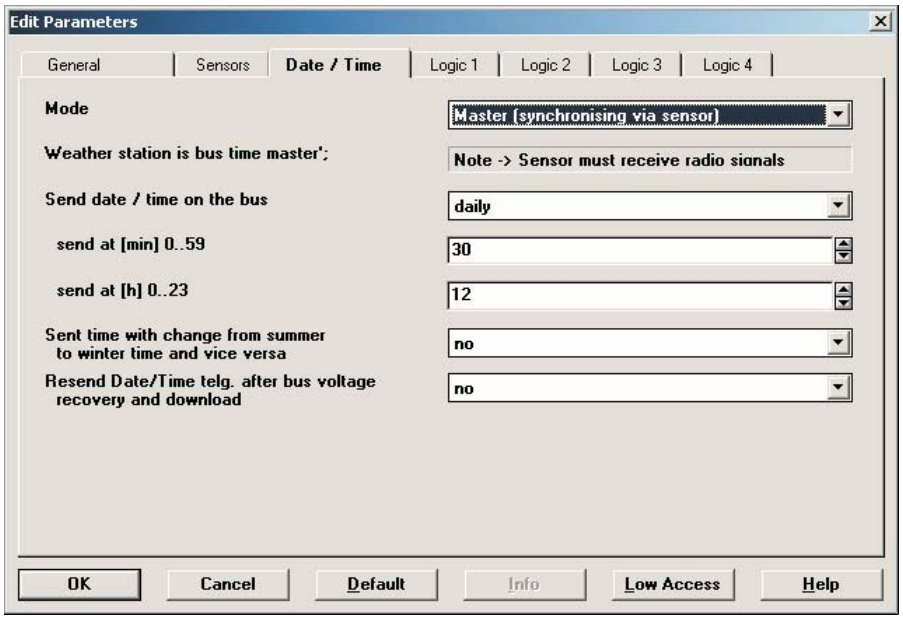



Fig. 14: Parameter “Master (synchronising via sensor)”

**Weather Unit is bus time master**
Note -> Sensor must receive radio signals

To ensure that the Weather Unit can be used as a master, it is important to ensure that the radio signal can be received.

The information can be read via the communication object “No DCF signal”.

Telegram value “0” = DCF signal available

Telegram value “1” = no DCF signal available

**Send date / time on the bus**
Options: daily/hourly/every minute

The send interval of the date and time is set with this parameter.

**send at [min] 0…59**
Options: 0…30…59

**send at [h] 0…23**
Options: 0…12…23

With both of these parameters the minute and hour when they should be sent *daily* are set.

With the option *hourly* only the parameters *send at [min] 0…59* appears.

With the option *every minute* the date and time are sent every minute.

**Sent time with change from summer to winter time and vice versa**
Options: no/yes

With the option *yes* the change from summer to winter time and vice versa the time is sent automatically.

**Resend Date/time telg. after bus voltage recovery and programming**
Options: no/yes

If the option yes is selected with the parameter *Date/time delayed send after bus voltage recovery, mains voltage recovery* and *programming* the following parameters become visible.

**Resent after**
Options: 1s/2s/3s/5s/10s/20s/30s/50s

The parameter *Resend after* determines the time, which is waited after *bus voltage recovery and programming* until the date/time telegram is sent by the Weather Unit to the bus.

**When is a valid telegram for date/time sent?**
Immediately after the Weather Unit is operational and the weather sensor receives a valid DCF signal. Otherwise nothing is sent. After the set time has timed out in the *Resend after* parameter a valid telegram for the date/time is sent.

An example: The time is set to 30 seconds. The bus voltage recovers and a valid DCF signal is received from the weather sensor. The valid telegram for date/time is immediately sent without waiting for 30 seconds. After the 30 seconds has elapsed the telegram for date/time is sent again.

### 3.2.3.2 Operating mode “Internal (synchronising via sensor)”

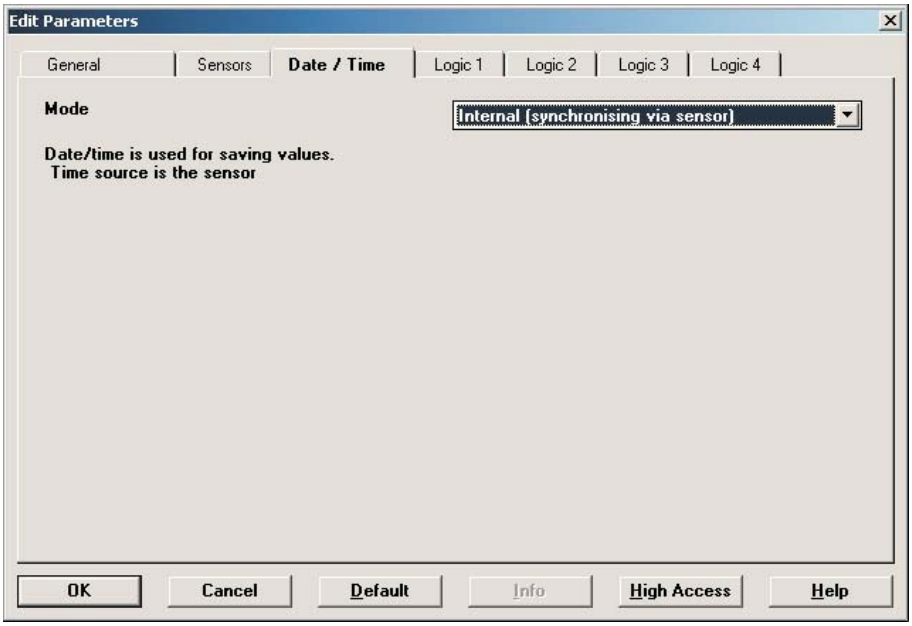



Fig. 15: Parameter “Internal (synchronising via sensor)”

Note Date/time is used for saving values. Time source is the sensor.

### 3.2.3.3 Operating mode “Slave (synchronising via bus)”

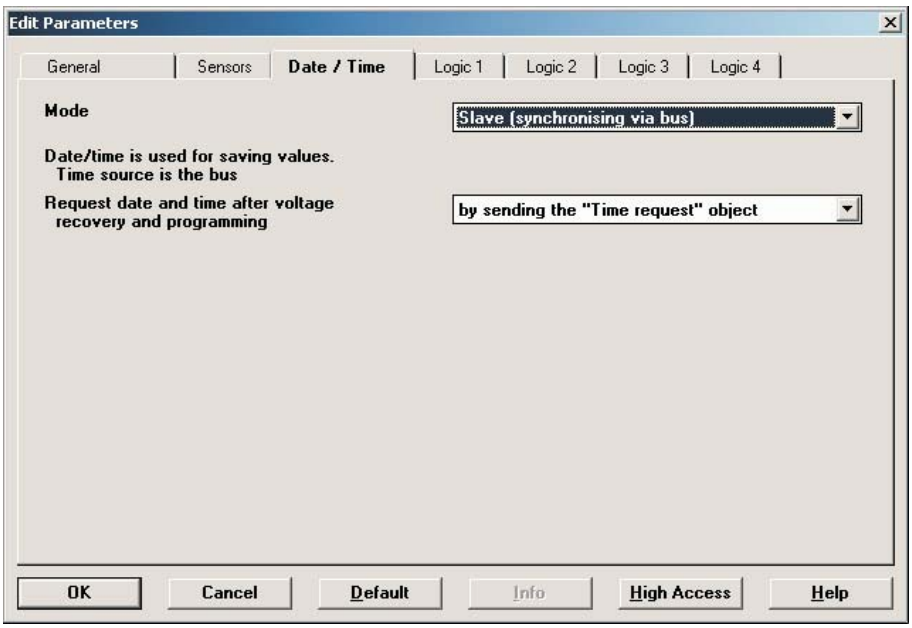



Fig. 16: Parameter “Slave (synchronising via bus)”

Note Date/time is used for saving values. Time source is the bus.

**Request date and time after voltage recovery and programming**
Options: do not use/
ValueRead telegram/
by sending the “Time request” object

The request for the date and time with *voltage recovery* and *programming* is set with this parameter.

### 3.2.4 Parameter window “Logic 1”

In the following the parameters for Logic 1 are described, which also apply for Logic 2, 3 and 4.

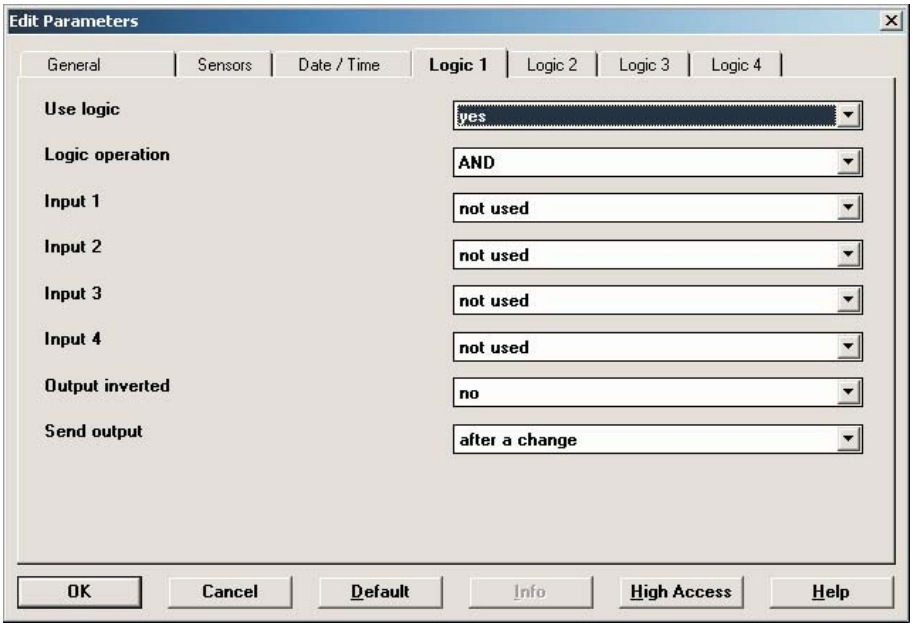



Fig. 17: Parameter window “Logic 1”

**Use logic**
Options: no/yes

This parameter is used to determine if Logic 1 is to be used. With the selection *yes* the communication object “Output send – Logic 1” appears.

**Logic operation**
Options: AND/OR

Option *AND* = Logic as AND gate
Option *OR* = Logic as OR gate

**Input 1…4**
Options: not used
Brightness right value below threshold 1
Brightness right value above threshold 1
Brightness right value below threshold 2
Brightness right value above threshold 2
…
Twilight value below threshold x
Twilight value above threshold x
Day/night value below threshold x
Day/night value above threshold x
Rain value below threshold x
Rain value above threshold x
Temperature value below threshold x
Temperature value above threshold x
Wind speed value below threshold x
Wind speed value above threshold x
Communication object, input 1
Communication object, input 1 inverted
Communication object, input 2
Communication object, input 2 inverted

* This condition is “true”, i.e. the logic value is “1”, if the threshold value is exceeded or below the limit, regardless of if the assigned threshold object sends a “0” or a “1” when exceeded or below the limit.

Up to four different inputs can be assigned to logic 1 via these four parameters.

Two external inputs are available with communication objects input 1 and 2.

**Output inverted**
Options: no/yes

The inversion of the output is defined via this parameter.

**Send output**
Options: after a change
after a change and cyclically

This parameter defines how the output should be sent.

This parameter defines how the output should be sent.
Option *after a change* = Send output after a change
Option *after a change and cyclically* = Send output after a change and cyclically.

If the option *after a change and cyclically* is selected with the parameter *send output*, the following parameter becomes visible.

**Output is sent every**
Options: 5s/10s/30s/1min/5min/10min/30min/1h/6h/12h/24h

The interval for cyclical sending is set with this additional parameter.

### 3.2.5 Parameter window “Brightness right”

In the following the parameters for the sensor “Brightness right” are described. The explanations apply both to the sensors “Brightness centre” and “Brightness left”.

Note The parameter window for brightness right is only active if “yes” has been selected in the parameter “Brightness sensor right”. The parameter can be found in the “Sensors” parameter window..

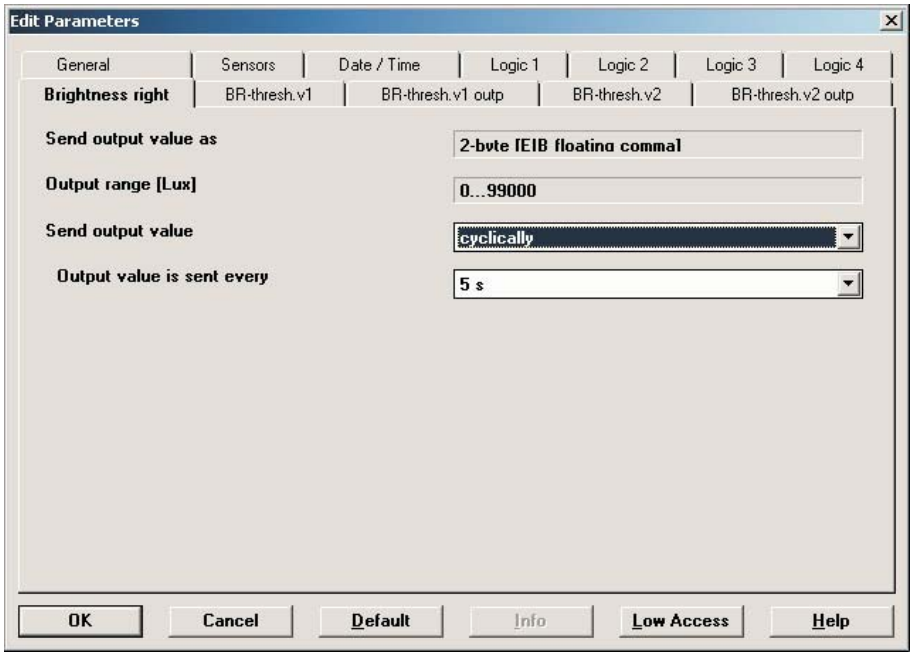



Fig. 18: Parameter window “Brightness right”

**Send output value as**
This parameter is fixed to 2-byte [EIB floating point].

**What is the output value?**
The output value designates the value which the Weather Unit sends on the bus. The Weather Unit records a sensor value, converts it according to the set parameters and sends it on the bus.

**Output range [Lux]**
The output range is fixed to 0…99.000.

**Send output value**
Options: on request
after a change
cyclically
after a change and cyclically

This parameter defines how the output value should be sent.

Option *on request* = send output value on request

If the option *on request* is selected, the communication object “Request output value – brightness right” appears.

As soon as a “1” is received at this communication object, the current output value is sent once to the communication object “Output value – brightness right”.

Option *after a change* = Send output value after a change
Opton *cyclically* = Send output value cyclically
Option *after a change and cyclically* = Send output value after a change and cylically.

In the options *after a change*, *cyclically* and *after a change and cyclically* have been selected with the output value parameter, the following parameters become visible.

**Output value is sent every**
Options: 5s/10s/30s/1min/5min/10min/30min/1h/6h/12h/24h

The interval for cyclical sending is set with this additional parameter.

**The output value is sent with a change in x Lux**
Options: 1.000…5.000…25.000

This parameter defines from which change in Lux the output value is to be sent.

With the option 5.000, the output value is sent with a change exceeding 5.000 Lux.

### 3.2.5.1 Parameter window “Brightness R. threshold 1”

In the following the parameters for the threshold 1 are described and also apply to threshold 2.

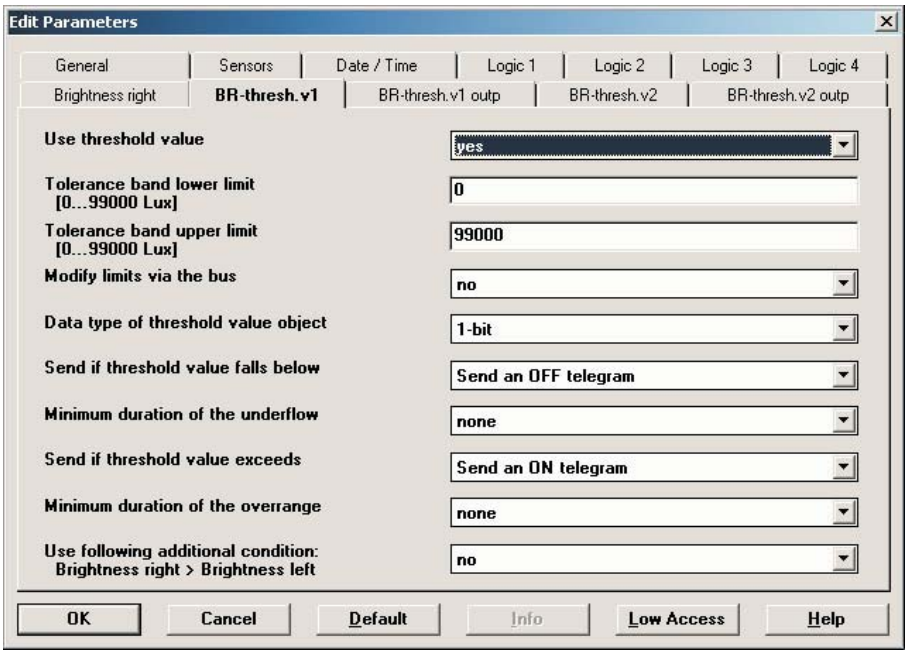



Fig. 19: Parameter window “Brightness right threshold 1”

**Use threshold value**
Options: no/yes

This parameter defines whether *Threshold 1* should be used. If *yes* is selected the communication object “Threshold value – brightness right threshold 1” appears.

**Tolerance band lower limit [0…99.000 Lux]**
Options: 0…99.000
**Tolerance band upper limit [0…99.000 Lux]**
Options: 0…99.000

The upper and lower limit is set via these two parameters.

Note If for example, the upper limit is set below the lower limit, the limits are not taken into consideration. The threshold value is not processed and a telegram is not sent to the bus.

**Modify limits via the bus**
Options: no/yes

With this parameter you define whether *Modify limits via the bus* is permitted. When yes is selected, the communication objects “Modify – Brightness Right Threshold 1 lower limit” and “Modify – Brightness Right Threshold 1 upper limit” also appear.

Note The value formats of these communication objects are identical to the format set under the parameter *Send output value* in the parameter window *Brightness right*. The value must be sent in the same format as the output value of the sensor.

**Data type of threshold value object**
Options: 1-bit/1-byte [0…255]

If the option *1 bit* is set for the parameter *Data type of threshold value object*, the following parameters appear.

**Send if threshold value falls below**
Options: do not send a telegram
send an ON telegram
send an OFF telegram
**Send if threshold value exceeds**
Options: do not send a telegram
send an ON telegram
send an OFF telegram

Option *do not send a telegram* = No reaction occurs

Option *send an ON telegram* = Send telegram value “1”

Option *send an OFF telegram* = Send telegram value “0”

**Minimum duration of the underflow**
**Minimum duration of the overrange**
Options: none/5s/10s/30s/1min/5min/10min/30min/1h/6h/12h/24h

Option *none* = Send threshold value directly

With the further time options, a minimum duration can be selected.
If the send condition reverts during the minimum duration, no telegrams are sent.

If the option *1 byte [0…255*] is set for the parameter *Data type of threshold value object* the following parameters appear.

**Send if threshold value falls below [0…255]**
Options: 0…255
**Send if threshold value exceeds [0…255]**
Options: 0…255

A value from 0 to 255 can be entered in single steps.

**Minimum duration of the underflow**
**Minimum duration of the overrange**
Options: none/5s/10s/30s/1min/5min/10min/30min/1h/6h/12h/24h

Option none = Send threshold value directly

With the further time options, a minimum duration can be selected.
If the send condition reverts during the minimum duration, nothing is sent.

**Use following addition condition:**
**Brightness left > Brightness right**
Options: no/yes

With selection *yes* in the parameter, if the upper limit is exceeded the condition “Brightness left > Brightness right” is also polled.

If the condition is fulfilled it is assured that the Sun is in the east, i.e. it is located on the left brightness side.

If the condition is not fulfilled it is assured that the Sun is in the west, i.e. it is located on the right brightness side.

Note Fascade control is not possible with the WZ/S 1.1.
Please use our Weather Unit WS/S for this purpose.

### 3.2.5.2 Parameter window “Brightness R. threshold 1 output”

The parameters for the output of threshold 1 are described in the following. They also apply to the output of threshold 2.

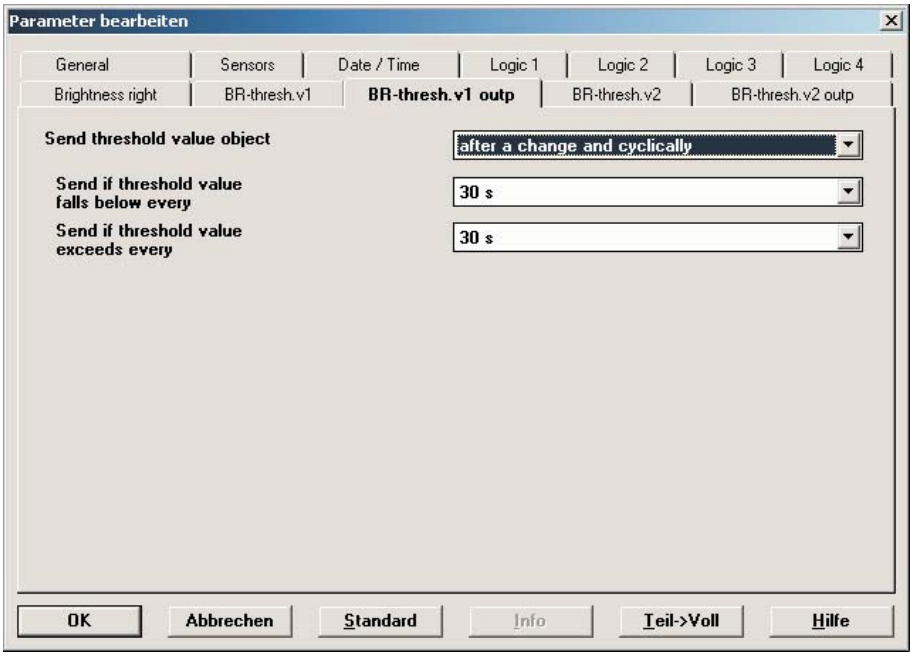



Fig. 20: Parameter window “Brightness right threshold 1 output”

**Send threshold value object**
Options: after a change
after a change and cyclically

This parameter is used to specify the send behaviour of the threshold value object.

Option *after a change* = Send threshold value object after a change
Option *after a change and cyclically* = *Send threshold value object* after a change and cyclically.

Note The threshold value object is sent cyclically until the value falls below or exceeds the other limit.

If the option *after a change and cyclically* is selected with the parameter *Send threshold value object*, the following parameters becomes visible.

**Send if threshold value falls below every**
**Send if threshold value exceeds every**
Options: 5s/10s/30s/1min/5min/10min/30min/1h/6h/12h/24h

These two parameters are used to define the point at which cyclical sending should take place after an underflow in the lower limit or an overrange in the upper limit.

### 3.2.6 Parameter window “Twilight”

In the following the parameters for Logic are presented and described, which differ from the description of the sensor “Brightness right”.

Note The parameter window for the brightness sensor is only active if “yes” has been selected in the “Twilight sensor” parameter. The parameter can be found in the “Sensors” parameter window.

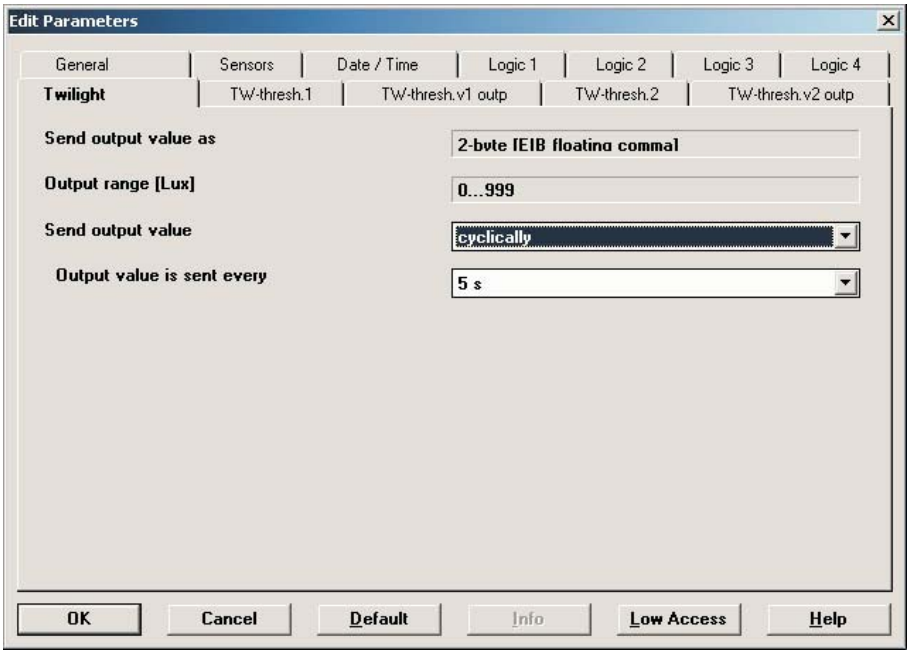



Fig. 21: Parameter window “Twilight”“

**Send output value as**
This parameter is fixed to 2-byte [EIB floating point].

**What is the output value?**
The output value designates the value which the Weather Unit sends on the bus. The Weather Unit records a sensor value, converts it according to the set parameters and sends it on the bus.

**Output range [Lux]**
The output range is fixed to 0…999.

### 3.2.6.1 Parameter window “Twilight threshold value 1”

In the following the parameters for the threshold 1 are described and also apply to threshold 2.

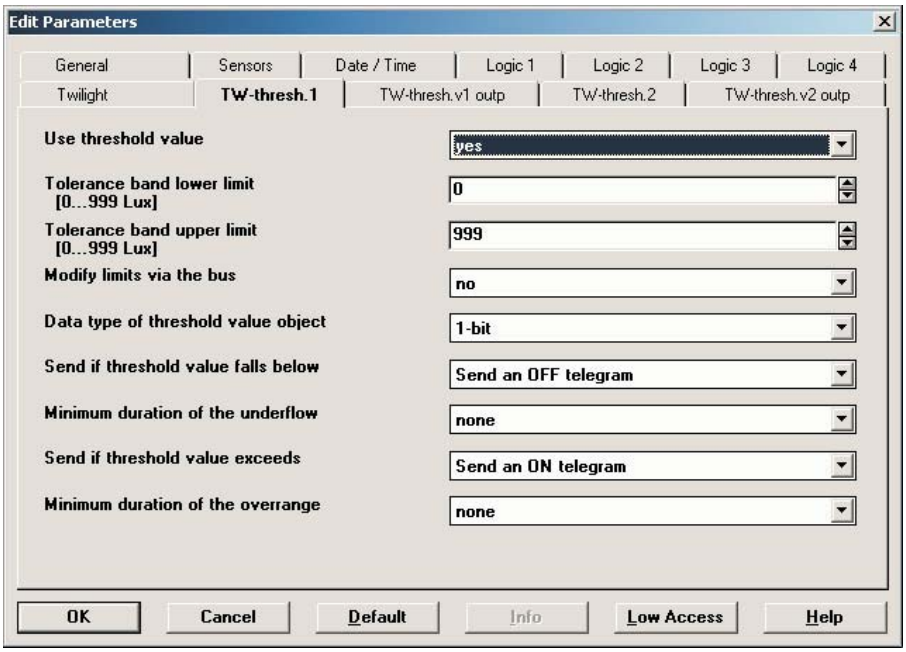



Fig. 22: Parameter window “Twilight threshold value 1”

**Use threshold value**
Options: no/yes

This parameter defines if *Threshold value 1* should be used. If *yes* is selected the communication object “Threshold value – brightness right threshold 1” appears.

**Tolerance band lower limit [0…999 Lux]**
Options: 0…999
**Tolerance band upper limit [0…999 Lux]**
Options: 0…999

The upper and lower limit is set via these two parameters.

Note Further parameter descriptions should be taken from the “Brightness sensor right” description.

### 3.2.7 Parameter window “Day/Night”

In the following the parameters for Logic are presented and described, which differ from the description of the sensor “Brightness right”.

Note The parameter window for the day/night sensor is only active if “yes” has been selected in the “use day/night sensor” parameter. The parameter can be found in the “Sensors” parameter window.

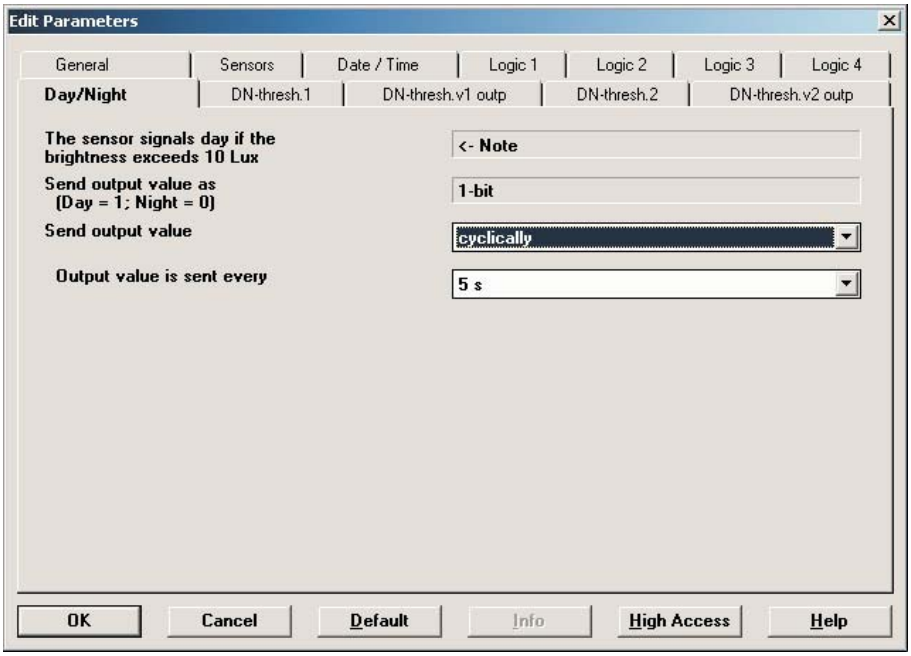



Fig. 23: Parameter window “Day/Night”

Note The sensor signals day if the brightness exceeds 10 Lux.

**Send output value as (Day = 1; Night = 0)**
This parameter is fixed to 1-bit.

Note Further parameter descriptions should be taken from the “Brightness sensor right” description.

### 3.2.8 Parameter window “Temperature”

In the following the parameters for Logic are presented and described, which differ from the description of the sensor “Brightness right”.

Note The parameter window for the temperature sensor is only active if “yes” has been selected in the “Temperature sensor” parameter. The parameter can be found in the “Sensors” parameter window.

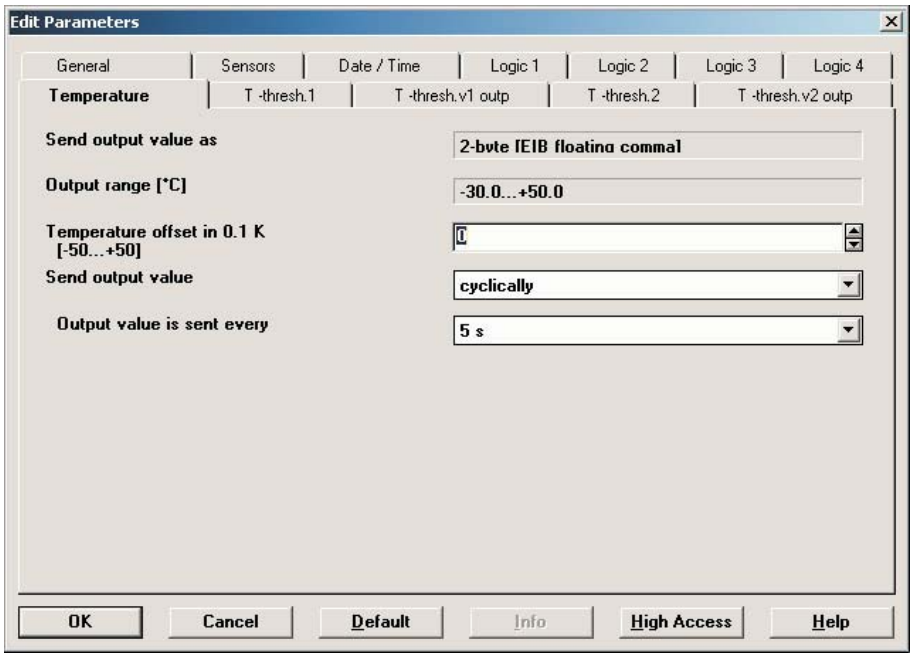



Fig. 24: Parameter window “Temperature”

**Send output value as**
This parameter is fixed to 2-bytes [EIB floating point].

**What is the output value?**
The output value designates the value which the Weather Unit sends on the bus. The Weather Unit records a sensor value, converts it according to the set parameters and sends it on the bus.

**Output range [°C]**
The output range is fixed to – 30.0…+ 50.0 °C.

**Temperature offset in 0.1 K – 50…+ 50]**
Options: – 50…0…+ 50

An additional maximum offset of + /– 5 K (Kelvin) can be added to the recorded temperature with this parameter.

Note By a calibration at the required operating point (e.g. with frost protection function + 2 °C) the accuracy in the range +/– 10 °C at the operating point is enhanced to +/– 1 °C.

### 3.2.8.1 Parameter window “Temperature threshold 1”

In the following the parameters for Logic are presented and described, which differ from the description of the sensor “Brightness right”.

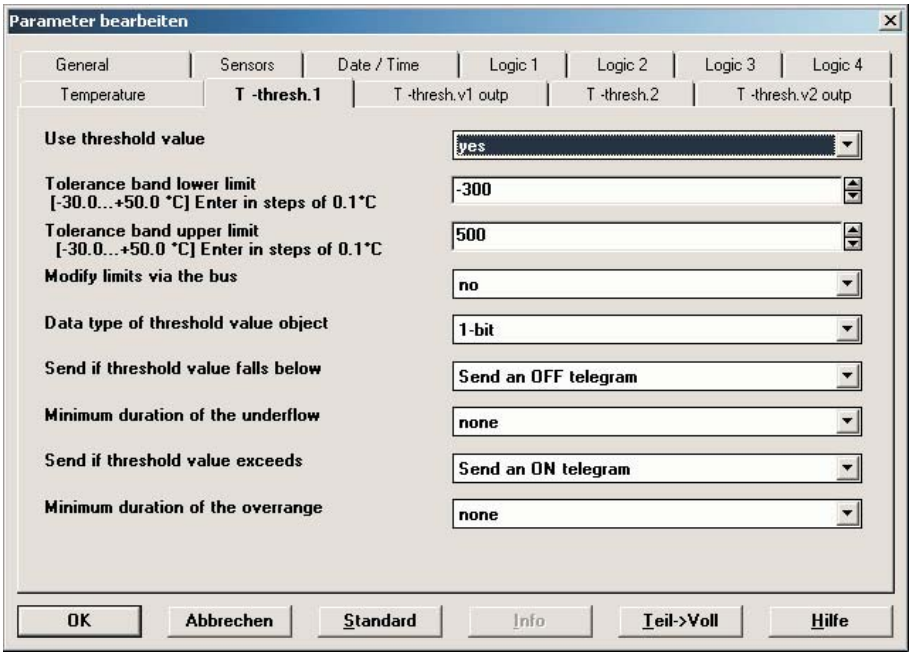



Fig. 25: Parameter window “Temperature threshold 1”

**Use threshold value**
Options: no/yes

This parameter defines if *Threshold value 1* should be used. If *yes* is selected the communication object “Threshold value – temperature threshold 1” appears.

**Tolerance band lower limit [– 30.0…+ 50.0 °C] Enter in steps of 0.1 °C**
Options: – 300…+ 500
**Tolerance band upper limit [– 30.0…+ 50.0 °C] Enter in steps of 0.1 °C**
Options: – 300…+ 500

The upper and lower limit is set via these two parameters.

Note Further parameter descriptions should be taken from the “Brightness sensor right” description.

### 3.2.9 Parameter window “Rain”

The parameters for the rain sensor are presented and described in the following.

Note The parameter window for the rain sensor is only active if “yes” has been selected in the “Rain sensor” parameter. The parameter can be found in the “Sensors” parameter window.

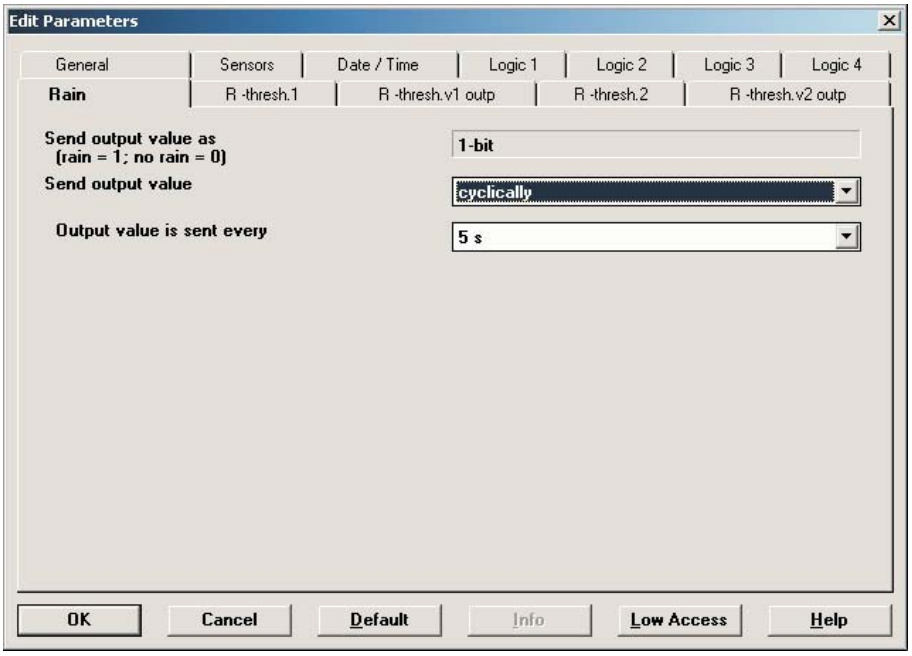



Fig. 26: Parameter window “Rain”

**Send output value as (rain = 1; no rain = 0)**
This parameter is fixed to 1-bit.

**Send output value**
Options: on request
after a change
cyclically
after a change and cyclically

This parameter defines how the output value should be sent.

Option *on request* = send output value on request

If the option *on request* is selected, the communication object "Request output value – rain" appears.

As soon as a "1" is received at this communication object, the current output value is sent once to the communication object "Output value – rain".

Option *after a change* = Send output value after a change

Option *cyclically* = Send output value cyclically

Option *after a change and cyclically* = Send output value after a change and cyclically.

In the options *after a change, cyclically* and *after a change and cyclically* have been selected with the output value parameter, the following parameters become visible.

**Output value is sent every**
Options: 5s/10s/30s/1min/5min/10min/30min/1h/6h/12h/24h

The interval for cyclical sending is set with this additional parameter.

### 3.2.9.1 Parameter window “Rain threshold 1”

In the following the parameters for Threshold value 1 are described, and also apply to threshold 2.

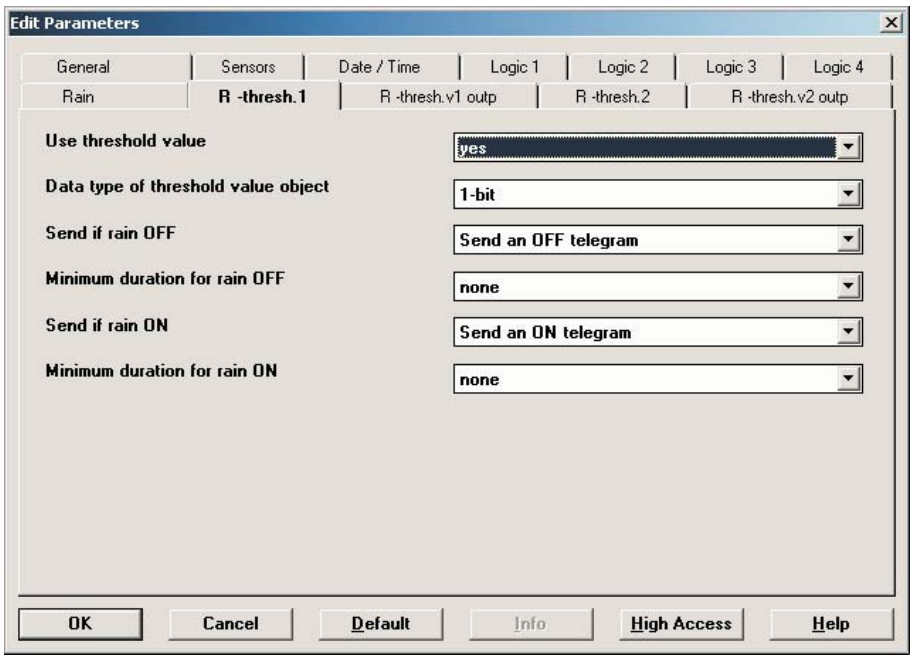



Fig. 27: Parameter window “Rain threshold 1”

**Use threshold value**
Options: no/yes

This parameter defines if *Threshold value 1* should be used. If *yes* is selected the communication object “Threshold value – Channel A” appears.

**Data type of threshold value object**
Options: 1-bit/1-byte [0…255]

If the option *1 bit* is set for the parameter *Data type of threshold value object*, the following parameters appear.

**Send if rain OFF**
Options: do not send a telegram
send an ON telegram
send an OFF telegram
**Send if rain ON**
Options: do not send a telegram
send an ON telegram
send an OFF telegram

Option *do not send a telegram* = No reaction occurs
Option *send an ON telegram* = Send telegram value “1”
Option *send an OFF telegram* = Send telegram value “0”

**Minimum duration for rain OFF**
**Minimum duration for rain ON**
Options: none/5s/10s/30s/1min/5min/10min/30min/1h/6h/12h/24h

Option none = Send threshold value directly

With the further time options, a minimum duration can be selected.
If the send condition reverts during the minimum duration, nothing is sent.

If the option *1 byte [0…255]* is set for the parameter *Data type of threshold value object* the following parameters appear.

**Send if rain OFF [0…255]**
Options: 0…255
**Send if rain ON [0…255]**
Options: 0…255

A value of 0 to 255 can be entered in single steps.

**Minimum duration for rain OFF**
**Minimum duration for rain ON**
Options: none/5s/10s/30s/1min/5min/10min/30min/1h/6h/12h/24h

Option *none* = Send threshold value directly

With the further time options, a minimum duration can be selected.
If the send condition reverts during the minimum duration, nothing is sent.

### 3.2.9.2 Parameter window “Rain threshold 1 output”

The parameters for the output of threshold 1 are described in the following. They also apply to the output of threshold 2.

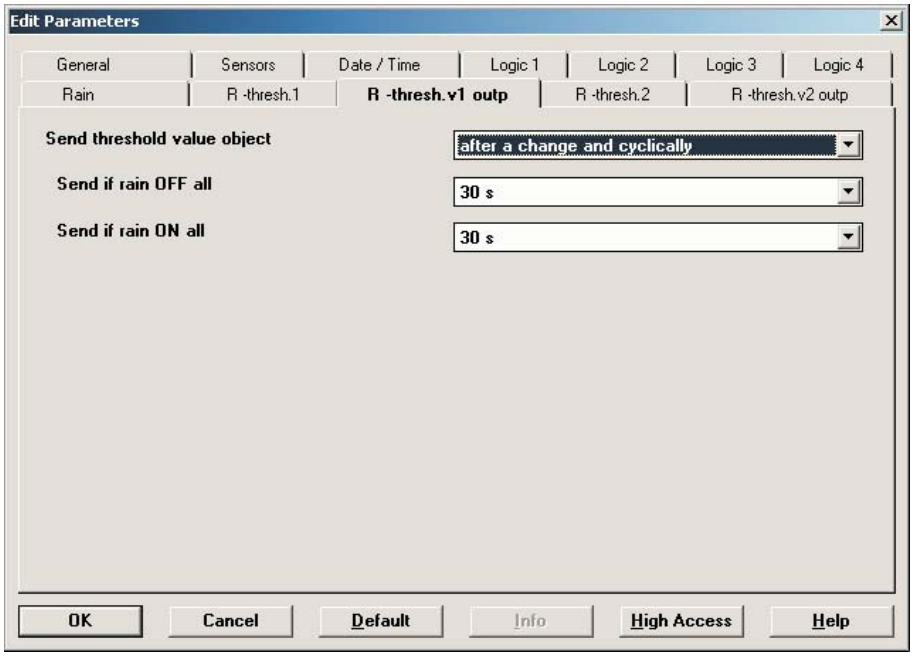



Fig. 28: Parameter window “Rain threshold 1 output”

**Send threshold value object**
Options: after a change
after a change and cyclically

This parameter is used to specify the send behaviour of the threshold value object.

Option *after a change* = Send threshold value object after a change

Option *after a change and cyclically* = Send threshold value object after a change and cyclically.

Note The threshold value object is sent cyclically until the value falls below or exceeds the other limit.

The following parameters appear with this option.

**Send if rain OFF all**
**Send if rain ON all**
Options: 5s/10s/30s/1min/5min/10min/30min/1h/6h/12h/24h

These two parameters are used to define the point at which cyclical sending should take place after an underflow in the lower limit or an overrange in the upper limit.

### 3.2.10 Parameter window “Wind speed”

In the following the parameters for Logic are presented and described, which differ from the description of the sensor “Brightness right”.

Note The parameter window for the windspeed sensor is only active if “yes” has been selected in the “Wind speed sensor” parameter. The parameter can be found in the “Sensors” parameter window.

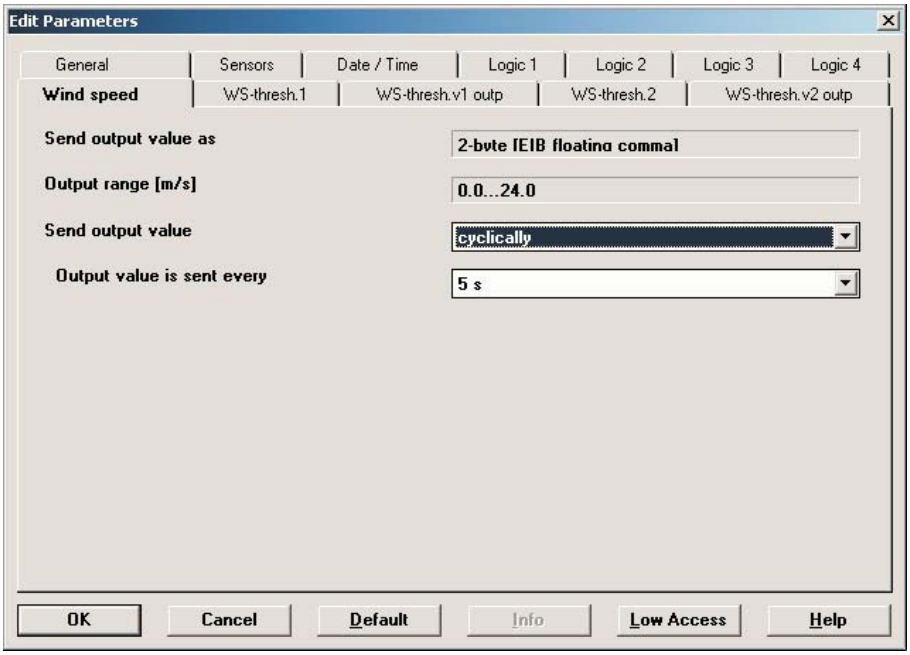



Fig. 29: Parameter window “Wind speed”

**Send output value as**
This parameter is fixed to 2-byte [EIB floating point].

**What is the output value?**
The output value designates the value which the Weather Unit sends on the bus. The Weather Unit records a sensor value, converts it according to the set parameters and sends it on the bus.

**Output range [m/s]**
The output range is fixed to 0.0…+ 24.0 m/s.

### 3.2.10.1 Parameter window “Wind speed threshold 1”

In the following the parameters for the threshold 1 are described and also apply to threshold 2.

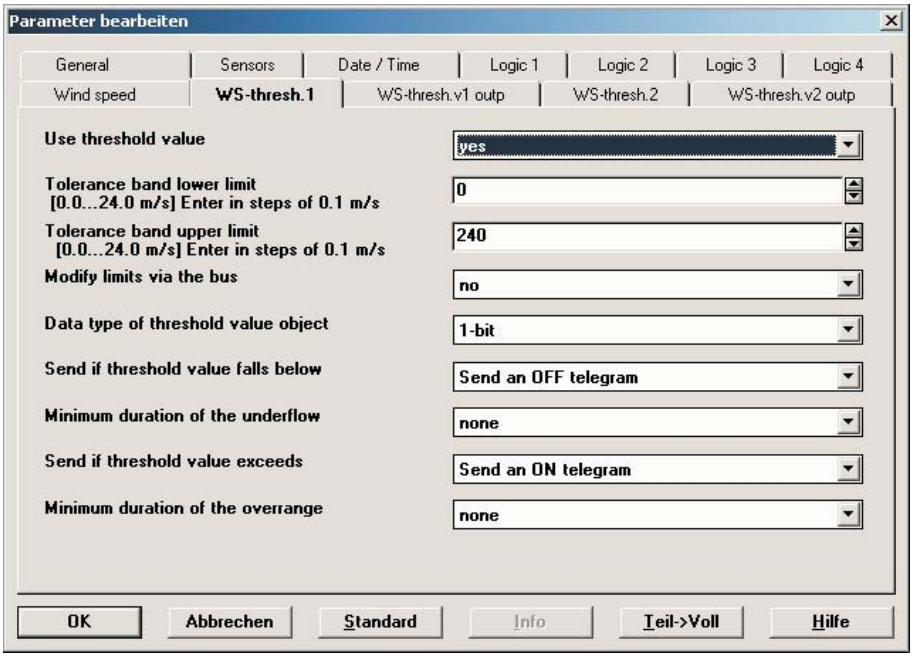



Fig. 30: Parameter window “Wind speed threshold 1”

**Use threshold value**
Options: no/yes

This parameter defines if *Threshold value 1* should be used. If *yes* is selected the communication object “Threshold value – wind speed threshold 1” appears.

**Tolerance band lower limit [– 0.0…+ 24.0 m/s] Enter in steps of 0.1 m/s**
Options: 0…+ 240
**Tolerance band upper limit [– 0.0…+ 24.0 m/s] Enter in steps of 0.1 m/s**
Options: 0…+ 240

The upper and lower limit is set via these two parameters.

Note Further parameter descriptions should be taken from the “Brightness sensor right” description.

### 3.2.11 Parameter window “Value memory 1”

In the following the parameters for the “value memory 1”are described. The explanations also apply for value memory 2, 3 and 4.

Note The parameter window for the value memory 1 is only active if “yes” has been selected in the “value memory” parameter. The parameter can be found in the Parameter window “General”. The following values are lost with a mains voltage failure.

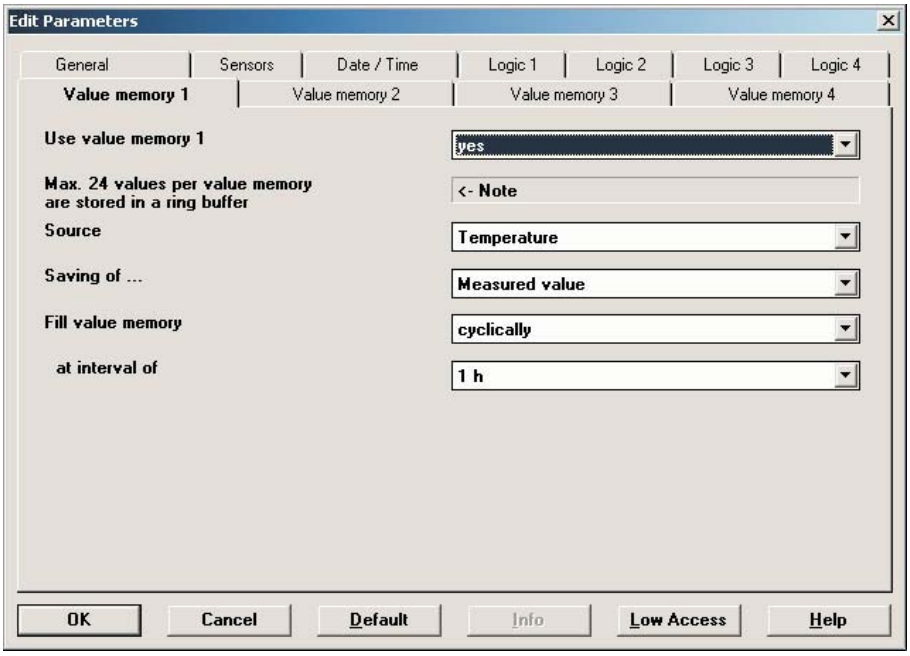



Fig. 31: Parameter window “Value memory 1”

**Use value memory 1**
Options: no/yes

This parameter defines if *Memory value 1* should be used. With the selection *yes* the communication object “Save value – value memory 1” appears.

**Max. 24 values per value memory are stored in a ring buffer.**
This parameter serves as a note or remark.

Note The values are saved in 2-byte-values [EIB floating point] and sent on the bus as 2-byte-values [EIB floating point].
The value memory can save up to 24 entries. If the value memory is already full during a memory process, the oldest entry will be overwritten.
One value can be saved per minute.

A time is also saved for every saved value.
The seconds value is not considered.

An example: A value is saved at 12:41:30. The time saved is 12:41:00.

Note The value memory does not function without time synchronisation.

**Source**
Options: Brightness right/
Brightness centre/
Brightness left/
Twilight/
Temperature/
Wind

With this parameter the sensor whose values are to be placed in the value memory are selected.

Note Rain and day/night can not be saved!

**Saving of …**
Options: Measured value/
Minimum value/
Maximum value/
Average value

With this parameter you can set if the average value, minimum value or maximum value is to be saved.

**What is the measured value?**
The current measurement value which is on the input at the time of saving is saved.

**What is the minimum value/maximum value?**
The minimum/maximum value from the last save interval is saved.
If for example, every hour is selected, the minimum / maximum value of the last hour is saved.

**What is the average value?**
The average value of the last saving interval is saved. If for example, every 10 minutes is selected, the average value of the 10 minutes hour is saved.

**Fill value memory**
Options: on request/cyclical

This parameter defines how the value memory is to be filled.

Option *on request* = fill value memory on request

One value is stored per request.

If the option *cyclical* with parameter *fill memory value* is selected, the following parameters become visible.

**At an interval of**
Options: 10 minutes/30 minutes/1 hour

With this parameter the interval at which a value should be stored is set.

The starting point for saving the values always commences on the hour, i.e. for example if the selection *10 minutes* is made saving will commence at xx:00 and the next value will be saved at xx:10.

If for example, the application program of the Weather Unit is loaded into the device at 08:20, the parameter *fill value memory* is set to *cyclical* in intervals of *10 minutes*, the first value will be transferred commencing on the hour at 09:00 followed by the second at 09:10, etc..

Using the option *1 hour* it is possible to save a daily rhythm.

### 3.2.11.1 Read out value memory

| | no. | Function | Object name | C | R | W | T | U | Type |
|---|---|---|---|---|---|---|---|---|---|
| | 70 | Memory number | Memory value selection | ✓ | | ✓ | | | 1 Byte |
| | 71 | Number of values in memory | Memory value acknowledgement with selection | ✓ | ✓ | | ✓ | | 1 Byte |
| | 72 | Time and value | Value memory read request | ✓ | | ✓ | | | 1 Bit |
| | 73 | Time | Value memory response | ✓ | ✓ | | ✓ | | 3 Byte |
| | 74 | Value | Value memory response | ✓ | ✓ | | ✓ | | 2 Byte |

Fig. 32: Communication objects “Read value memory”

The value memory can be read out via the communication objects.
The saved value is sent on the bus in 2-byte format [EIB floating point].

**Selection**
Via communication object “Memory number – Select memory value” memory value 1 to 4 is selected.

**Response**
With the communication object “Number of values – value memory status response with selection” the current number of saved values for the selected value memory is transmitted.

Note If a non-existent value memory (0, 5…255) or a non-activated value memory is selected, the communication object “Number of values – value memory status response with selection” responds with the value 255.

**Sending first value and time**
After selection of the value memory the first saved value and the corresponding time are automatically sent to the communication object “Time – value memory response” and the “Value – value memory response” value is sent on the bus.

**Sending further values and times**
Further values and times can be requested via the communication object “Time and Value – Value memory read request”.
After a successful read request the saved time is sent to the communication object “Time – value memory response” and the communication object “Value – value memory response” is sent. A “1” ensures reading in the forward direction and a “0” in the reverse direction.

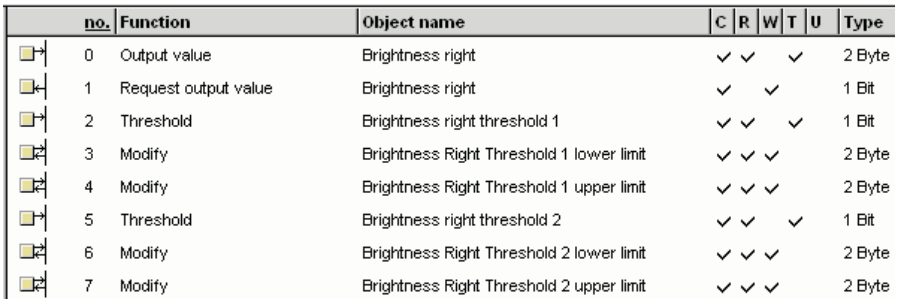
Note If at the time of a request only 8 of the 24 memory elements are used and the first 8 values have been requested, the first saved value will again be displayed at the next read request. The values in the memory can not be overwritten, they can not be erased.

**Workflow**

| | | |
|---|---|---|
| 1 | Select | 1 ,2 ,3 or 4 (0, 5…255 or non activated value memory) |
| 2 | Response | 0…24 (value 255 = value memory not available) |
| 3 | First value | automatically sent |
| | corresponding time | automatically sent |
| 4 | Read request | further values and time read<br>Telegram “1” read forward<br>Telegram “0” read backwards |

## 3.3 Communication objects

### 3.3.1 Brightness right



| | no. | Function | Object name | C | R | W | T | U | Type |
|---|---|---|---|---|---|---|---|---|---|
| | 0 | Output value | Brightness right | ✓ | ✓ | | ✓ | | 2 Byte |
| | 1 | Request output value | Brightness right | ✓ | | ✓ | | | 1 Bit |
| | 2 | Threshold | Brightness right threshold 1 | ✓ | ✓ | | ✓ | | 1 Bit |
| | 3 | Modify | Brightness Right Threshold 1 lower limit | ✓ | ✓ | ✓ | | | 2 Byte |
| | 4 | Modify | Brightness Right Threshold 1 upper limit | ✓ | ✓ | ✓ | | | 2 Byte |
| | 5 | Threshold | Brightness right threshold 2 | ✓ | ✓ | | ✓ | | 1 Bit |
| | 6 | Modify | Brightness Right Threshold 2 lower limit | ✓ | ✓ | ✓ | | | 2 Byte |
| | 7 | Modify | Brightness Right Threshold 2 upper limit | ✓ | ✓ | ✓ | | | 2 Byte |

Fig. 33: Communication objects “Brightness right”

| No. | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **0** | **Output value** | **Brightness right** | **EIS 5, 2 Byte DPT 9.004** | **C, R, T** |
| This communication object is used to send the output value to the bus. | | | | |
| **1** | **Request output value** | **Brightness right** | **EIS 1, 1 Bit DPT 1.017** | **C, W** |
| This communication object appears if the output value “on request” is to be sent.<br>If a “1” is received by this communication object, the current output value is sent once to the “communication object – brightness right”. | | | | |
| **2** | **Threshold** | **Brightness right threshold value 1** | **EIS variable DPT variable** | **C, R, T** |
| As soon as the set threshold value is exceeded or below the limit, it is possible to send a<br>1-bit-value [0/1] EIS 1 DPT 1.001<br>1-byte-value [0…+ 255] EIS 6 DPT 5.010<br>The object value depends on the parameter “Data type of threshold value object” (1-bit, 1-byte).<br>The parameter can be found in the parameter window “BR – Threshold value 1”. | | | | |
| **3**<br><br><br><br>**4** | **Modify**<br><br><br><br>**Modify** | **Brightness right threshold value 1 lower limit**<br><br><br><br>**Brightness right threshold value 1 upper limit** | **EIS 5, 2 Byte DPT 9.004** | **C, R, T** |
| The upper and lower limit of threshold value 1 can be changed via the bus.<br>In case of bus- and/or main voltage failure the changed threshold value limits are stored. With a new download of the application program the threshold value limits will be overwritten. | | | | |

Table 5: Communication objects 0 to 4 “brightness right”

| No. | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **5** | **Threshold** | **Brightness right one threshold value 2** | **EIS variable DPT variable** | **Data type** |
| As soon as the set threshold value is exceeded or below the limit, it is possible to send a<br>1-bit-values [0/1] EIS 1 DPT 1.001<br>1-byte-values [0…+ 255] EIS 6 DPT 5.010<br>The object value depends on the parameter “Data type of threshold value object” (1-bit, 1-byte).<br>The parameter can be found in the parameter window “BR – Threshold value 2”. | | | | |
| **6** | **Modify** | **Brightness right one threshold value 2 lower limit** | **EIS 5, 2 Byte DPT 9.004** | **C, R, T** |
| **7** | **Modify** | **Brightness right threshold value 2 upper limit** | | |
| The upper and lower limit of threshold value 2 can be changed via the bus.<br>In case of bus- and/or main voltage failure the changed threshold value limits are stored. With a new download of the application program the threshold value limits will be overwritten. | | | | |

Table 6: Communication objects 5 to 7 “brightness right”

### 3.3.2 Brightness centre

| | no. | Function | Object name | C | R | W | T | U | Type |
|---|---|---|---|---|---|---|---|---|---|
| | 8 | Output value | Brightness centre | ✓ | ✓ | | ✓ | | 2 Byte |
| | 9 | Request output value | Brightness centre | ✓ | | ✓ | | | 1 Bit |
| | 10 | Threshold | Brightness centre threshold 1 | ✓ | ✓ | | ✓ | | 1 Bit |
| | 11 | Modify | Brightness Centre Threshold 1 lower limit | ✓ | ✓ | ✓ | | | 2 Byte |
| | 12 | Modify | Brightness Centre Threshold 1 upper limit | ✓ | ✓ | ✓ | | | 2 Byte |
| | 13 | Threshold | Brightness centre threshold 2 | ✓ | ✓ | | ✓ | | 1 Bit |
| | 14 | Modify | Brightness Centre Threshold 2 lower limit | ✓ | ✓ | ✓ | | | 2 Byte |
| | 15 | Modify | Brightness Centre Threshold 2 upper limit | ✓ | ✓ | ✓ | | | 2 Byte |

Fig. 34: Communication objects “Brightness centre”“

| No. | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| 8<br>…<br>15 | See<br>communication objects<br>0…7 | Brightness centre | | |

Table 7: Communication objects 8 to 15 “brightness centre”

### 3.3.3 Brightness left

| | no. | Function | Object name | C | R | W | T | U | Type |
|---|---|---|---|---|---|---|---|---|---|
| | 16 | Output value | Brightness left | ✓ | ✓ | | ✓ | | 2 Byte |
| | 17 | Request output value | Brightness left | ✓ | | ✓ | | | 1 Bit |
| | 18 | Threshold | Brightness left threshold 1 | ✓ | ✓ | | ✓ | | 1 Bit |
| | 19 | Modify | Brightness Left Threshold 1 lower limit | ✓ | ✓ | ✓ | | | 2 Byte |
| | 20 | Modify | Brightness Left Threshold 1 upper limit | ✓ | ✓ | ✓ | | | 2 Byte |
| | 21 | Threshold | Brightness left threshold 2 | ✓ | ✓ | | ✓ | | 1 Bit |
| | 22 | Modify | Brightness Left Threshold 2 lower limit | ✓ | ✓ | ✓ | | | 2 Byte |
| | 23 | Modify | Brightness Left Threshold 2 upper limit | ✓ | ✓ | ✓ | | | 2 Byte |

Fig. 35: Communication objects “Brightness left”

| No | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| 16<br>…<br>23 | See<br>communication objects<br>0…7 | Brightness left | | |

Table 8: Communication objects 16 to 23 “brightness left”

### 3.3.4 Twilight

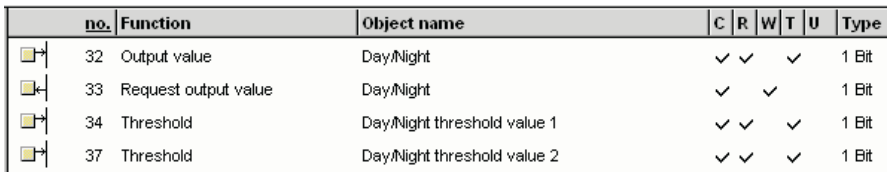
| | no. | Function | Object name | C | R | W | T | U | Type |
|---|---|---|---|---|---|---|---|---|---|
| | 24 | Output value | Twilight | ✓ | ✓ | | ✓ | | 2 Byte |
| | 25 | Request output value | Twilight | ✓ | | ✓ | | | 1 Bit |
| | 26 | Threshold | Twilight threshold value 1 | ✓ | ✓ | | ✓ | | 1 Bit |
| | 27 | Modify | Twilight threshold value 1 lower limit | ✓ | ✓ | ✓ | | | 2 Byte |
| | 28 | Modify | Twilight threshold value 1 upper limit | ✓ | ✓ | ✓ | | | 2 Byte |
| | 29 | Threshold | Twilight threshold value 2 | ✓ | ✓ | | ✓ | | 1 Bit |
| | 30 | Modify | Twilight threshold value 2 lower limit | ✓ | ✓ | ✓ | | | 2 Byte |
| | 31 | Modify | Twilight threshold value 2 upper limit | ✓ | ✓ | ✓ | | | 2 Byte |

Fig. 36: Communications objects “twilight ”

| No. | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| 24<br>…<br>31 | See<br>communication objects<br>0…7 | Twilight | | |

Table 9: Communication objects 24 to 31 “twilight ”

### 3.3.5 Day / Night



| | no. | Function | Object name | C | R | W | T | U | Type |
|---|---|---|---|---|---|---|---|---|---|
| → | 32 | Output value | Day/Night | ✓ | ✓ | | ✓ | | 1 Bit |
| ← | 33 | Request output value | Day/Night | ✓ | | ✓ | | | 1 Bit |
| → | 34 | Threshold | Day/Night threshold value 1 | ✓ | ✓ | | ✓ | | 1 Bit |
| → | 37 | Threshold | Day/Night threshold value 2 | ✓ | ✓ | | ✓ | | 1 Bit |

Fig. 37: Communication objects “Day/Night”

| No. | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **32** | **Output value** | **Day/Night** | **EIS 1, 1 Bit DPT 1.001** | **C, R, T** |
| This communication object is used to send the output value to the bus.<br>The output value is fixed to 1-bit.<br>Telegram value “0” = day<br>Telegram value “1” = night | | | | |
| **33** | **Request output value** | **Day/Night** | **EIS 1, 1 Bit DPT 1.017** | **C, W** |
| This communication object appears if the output value “on request” is to be sent.<br>If a “1” is received by this communication object, the current output value is sent once to the communication object “Output value – Day/Night”. | | | | |
| **34** | **Threshold** | **Day/Night threshold value 1** | **EIS variable DPT variable** | **C, R, T** |
| As soon as the set threshold value is exceeded or below the limit, it is possible to send a<br>1-bit-value [0/1] EIS 1 DPT 1.001<br>1-byte-value [0...+ 255] EIS 6 DPT 5.010<br>The object value depends on the parameter “Data type of threshold value object” (1-bit, 1-byte).<br>The parameter can be found in the parameter window “Day/Night–Threshold value 1”. | | | | |
| **35<br>36** | **Communication objects not used** | | | |
| | | | | |
| **37** | **see communication object 34** | **Day/Night threshold value 2** | | |
| | | | | |
| **38<br>39** | **Communication objects not used** | | | |

Table 10: Communication objects 32 to 39 “Day/Night”

### 3.3.6 Temperature

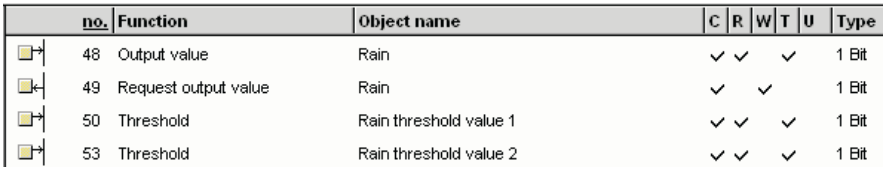
| | no. | Function | Object name | C | R | W | T | U | Type |
|---|---|---|---|---|---|---|---|---|---|
| | 40 | Output value | Temperature | ✓ | ✓ | | ✓ | | 2 Byte |
| | 41 | Request output value | Temperature | ✓ | | ✓ | | | 1 Bit |
| | 42 | Threshold | Temperature threshold value 1 | ✓ | ✓ | | ✓ | | 1 Bit |
| | 43 | Modify | Temperature threshold value 1 lower limit | ✓ | ✓ | ✓ | | | 2 Byte |
| | 44 | Modify | Temperature threshold value 1 upper limit | ✓ | ✓ | ✓ | | | 2 Byte |
| | 45 | Threshold | Temperature threshold value 2 | ✓ | ✓ | | ✓ | | 1 Bit |
| | 46 | Modify | Temperature threshold value 2 lower limit | ✓ | ✓ | ✓ | | | 2 Byte |
| | 47 | Modify | Temperature threshold value 2 upper limit | ✓ | ✓ | ✓ | | | 2 Byte |

Fig. 38: Communications objects “Temperature”

| No. | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **40** | **Output value** | **Temperature** | **EIS 5, 2 Byte DPT 9.001** | **C, R, T** |
| This communication object is used to send the output value to the bus.<br>The output value is fixed to 2-bytes. | | | | |
| **41** | **Request output value** | **Temperature** | **EIS 1, 1 Bit DPT 1.017** | **C, W** |
| This communication object appears if the output value “on request” is to be sent.<br>If a “1” is received by this communication object, the current output value is sent once to the communication object “Output value – Temperature”. | | | | |
| **42** | **Threshold** | **Temperature threshold value 1** | **EIS variable DPT variable** | **C, R, T** |
| As soon as the set threshold value is exceeded or below the limit, it is possible to send<br>1-Bit-values [0/1] EIS 1 DPT 1.001<br>1-Byte-values [0…+255] EIS 6 DPT 5.010<br>The object value depends on the parameter “Data type of threshold value object” (1-bit, 1-byte).<br>The parameter can be found in the parameter window “Temperature–Threshold value 1”. | | | | |
| **43**<br>**44** | **Modify**<br>**Modify** | **Temperature threshold value 1 lower limit**<br>**Temperature threshold value 1 upper limit** | **EIS 5, 2 Byte DPT 9.001** | **C, R, T** |
| The upper and lower limit of threshold value 1 can be changed via the bus.<br>In case of bus- and/or main voltage failure the changed threshold value limits are stored. With a new download of the application program the threshold value limits will be overwritten.<br>The data type of these communication objects has a fixed setting to 2-bytes. | | | | |
| **45** | **See communication object 42** | | | |
| **46**<br>**47** | **See communication object 43 and 44** | | | |

Table 11: Communication objects 40 to 47 “Temperature”

### 3.3.7 Rain



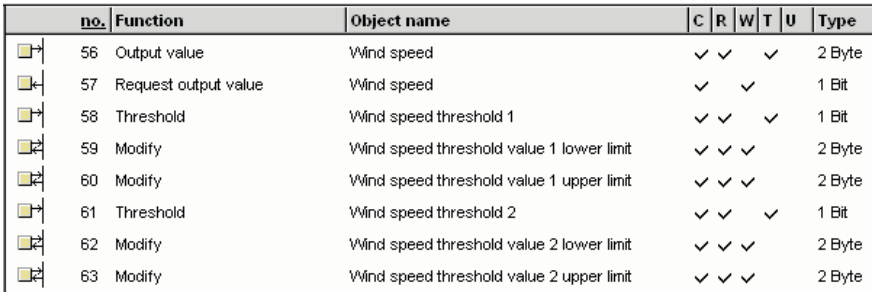
| | no. | Function | Object name | C | R | W | T | U | Type |
|---|---|---|---|---|---|---|---|---|---|
| → | 48 | Output value | Rain | ✓ | ✓ | | ✓ | | 1 Bit |
| ← | 49 | Request output value | Rain | ✓ | | ✓ | | | 1 Bit |
| → | 50 | Threshold | Rain threshold value 1 | ✓ | ✓ | | ✓ | | 1 Bit |
| → | 53 | Threshold | Rain threshold value 2 | ✓ | ✓ | | ✓ | | 1 Bit |

Fig. 39: Communication objects “Rain”

| No. | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **48** | **Output value** | **Rain** | **EIS 1, 1 Bit<br>DPT 1.001** | **C, R, T** |
| This communication object is used to send the output value to the bus.<br>The output value is fixed to 1-bit.<br>Telegram value “0” = no rain<br>Telegram value “1” = rain | | | | |
| **49** | **Request output value** | **Rain** | **EIS 1, 1 Bit<br>DPT 1.017** | **C, W** |
| This communication object appears if the output value “on request” is to be sent.<br>If a “1” is received by this communication object, the current output value is sent once to the communication object “Output value – Rain”. | | | | |
| **50** | **Threshold** | **Rain threshold value 1** | **EIS variable<br>DPT variable** | **C, R, T** |
| As soon as the set threshold value is exceeded or below the limit, it is possible to send<br>1-bit-values [0/1] EIS 1 DPT 1.001<br>1-byte-values [0…+ 255] EIS 6 DPT 5.010<br>The object value depends on the parameter “Data type of threshold value object” (1-bit, 1-byte).<br>The parameter can be found in the parameter window “Rain–Threshold value 1”. | | | | |
| **51<br>52** | **Communication objects<br>not used** | | | |
| | | | | |
| **53** | **See<br>communication object 50** | **Rain threshold value 2** | | |
| | | | | |
| **54<br>55** | **Communication objects<br>not used** | | | |

Table 12: Communication objects 48 to 55 “Rain”

### 3.3.8 Wind speed



| | no. | Function | Object name | C | R | W | T | U | Type |
|---|---|---|---|---|---|---|---|---|---|
| | 56 | Output value | Wind speed | ✓ | ✓ | | ✓ | | 2 Byte |
| | 57 | Request output value | Wind speed | ✓ | | ✓ | | | 1 Bit |
| | 58 | Threshold | Wind speed threshold 1 | ✓ | ✓ | | ✓ | | 1 Bit |
| | 59 | Modify | Wind speed threshold value 1 lower limit | ✓ | ✓ | ✓ | | | 2 Byte |
| | 60 | Modify | Wind speed threshold value 1 upper limit | ✓ | ✓ | ✓ | | | 2 Byte |
| | 61 | Threshold | Wind speed threshold 2 | ✓ | ✓ | | ✓ | | 1 Bit |
| | 62 | Modify | Wind speed threshold value 2 lower limit | ✓ | ✓ | ✓ | | | 2 Byte |
| | 63 | Modify | Wind speed threshold value 2 upper limit | ✓ | ✓ | ✓ | | | 2 Byte |

Fig. 40: Communication objects “Wind speed”

| No. | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **56** | **Output value** | **Wind speed** | **EIS 5, 2 Byte DPT 9.005** | **C, R, T** |
| This communication object is used to send the output value to the bus. | | | | |
| **57** | **Request output value** | **Wind speed** | **EIS 1, 1 Bit DPT 1.017** | **C, W** |
| This communication object appears if the output value “on request” is to be sent.<br>If a “1” is received by this communication object, the current output value is sent once to the “communication object – Wind speed”. | | | | |
| **58** | **Threshold** | **Wind speed threshold value 1** | **EIS variable DPT variable** | **C, R, T** |
| As soon as the set threshold value is exceeded or below the limit, it is possible to send a<br>1-bit-value [0/1] EIS 1 DPT 1.001<br>1-byte-value [0…+ 255] EIS 6 DPT 5.010<br>The object value depends on the parameter “Data type of threshold value object” (1-bit, 1-byte).<br>The parameter can be found in the parameter window “WS – Threshold value 1”. | | | | |
| **59**<br><br>**60** | **Modify**<br><br>**Modify** | **Wind speed threshold value 1 lower limit**<br><br>**Wind speed threshold value 1 upper limit** | **EIS 5, 2 Byte DPT 9.005** | **C, R, T** |
| The upper and lower limit of threshold value 1 can be changed via the bus.<br>In case of bus- and/or main voltage failure the changed threshold value limits are stored. With a new download of the application program the threshold value limits will be overwritten. | | | | |

Table 13: Communication objects 56 to 60 “Wind speed”

| No. | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **61** | **See communication object 58** | **Wind speed one threshold value 2** | | |
| | | | | |
| **62**<br><br><br>**63** | **See communication object 59, 60** | **Wind speed one threshold value 2 lower limit**<br>**Wind speed threshold value 2 upper limit** | | |
| | | | | |

Table 14: Communication objects 61 to 63 “Wind speed”

### 3.3.9 Logic 1, 2, 3 and 4

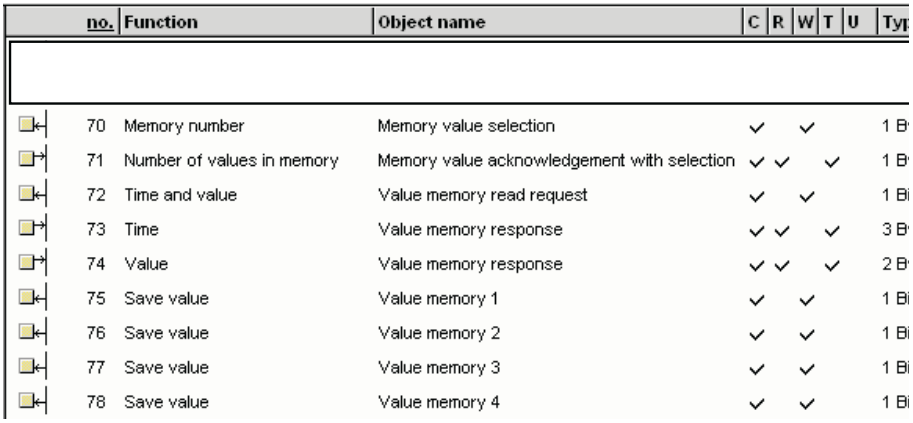
| | no. | Function | Object name | C | R | W | T | U | Type |
|---|---|---|---|---|---|---|---|---|---|
| → | 64 | Send output | Logic 1 | ✓ | ✓ | | ✓ | | 1 Bit |
| → | 65 | Send output | Logic 2 | ✓ | ✓ | | ✓ | | 1 Bit |
| → | 66 | Send output | Logic 3 | ✓ | ✓ | | ✓ | | 1 Bit |
| → | 67 | Send output | Logic 4 | ✓ | ✓ | | ✓ | | 1 Bit |
| ← | 68 | Input 1 | Logic | ✓ | | ✓ | | ✓ | 1 Bit |
| ← | 69 | Input 2 | Logic | ✓ | | ✓ | | ✓ | 1 Bit |

Fig. 41: Communication objects “Logic”

| No. | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **64** | **Send output** | **Logic 1** | **EIS 1, 1 Bit DPT 1.002** | **C, R, T** |
| The logical result of logic 1 is sent with this communication object. | | | | |
| **65** | **See communication object 64** | **Logic 2** | | |
| | | | | |
| **66** | **See communication object 64** | **Logic 3** | | |
| | | | | |
| **67** | **See communication object 64** | **Logic 4** | | |
| | | | | |
| **68**<br>**69** | **Input 1**<br>**Input 2** | **Logic**<br>**Logic** | **EIS 1, 1 Bit DPT 1.002** | **C, W, Upd** |
| Both of these communication objects can be used as external inputs for the internal logic.<br>If a telegram with the value “0” or “1” is received with these communication objects the internal logic is assigned with the value “0” or “1”. | | | | |

Table 15: Communication objects 64 to 69 “Logic”

### 3.3.10 Value memory



| no. | Function | Object name | C | R | W | T | U | Typ |
|---|---|---|---|---|---|---|---|---|
| 70 | Memory number | Memory value selection | ✓ | | ✓ | | | 1 B |
| 71 | Number of values in memory | Memory value acknowledgement with selection | ✓ | ✓ | | ✓ | | 1 B |
| 72 | Time and value | Value memory read request | ✓ | | ✓ | | | 1 Bi |
| 73 | Time | Value memory response | ✓ | ✓ | | ✓ | | 3 B |
| 74 | Value | Value memory response | ✓ | ✓ | | ✓ | | 2 B |
| 75 | Save value | Value memory 1 | ✓ | | ✓ | | | 1 Bi |
| 76 | Save value | Value memory 2 | ✓ | | ✓ | | | 1 Bi |
| 77 | Save value | Value memory 3 | ✓ | | ✓ | | | 1 Bi |
| 78 | Save value | Value memory 4 | ✓ | | ✓ | | | 1 Bi |

Fig. 42: Communication objects “Value memory”

| No. | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **70** | **Memory number** | **Memory value selection** | **EIS 6, 1 Byte DPT 5.010** | **C, W** |
| This communication object is used to select the value memories 1 to 4.<br>Telegram value “1” = value memory 1<br>Telegram value “2” = value memory 2<br>Telegram value “3” = value memory 3<br>Telegram value “4” = value memory 4<br>If a non available value memory (0, 5…255) or a non-activated value memory is selected, the communication object “Number of values – value memory status response with selection” responds with the value 255. | | | | |
| **71** | **Number of values in memory** | **Value memory feedback on selection** | **EIS 6, 1 Byte DPT 5.010** | **C, R, T** |
| With the communication object the maximum number of saved values for the selected value memory is transferred. | | | | |
| **72** | **Time and value read request** | **Value memory** | **EIS 1, 1 Bit DPT 1.017** | **C, W** |
| The communication object is used to read out the saved values from the selected value memory.<br>Telegram value “1” = read forwards<br>Telegram value “0” = read backwards | | | | |
| **73** | **Time** | **Value memory response** | **EIS 3, 3 Byte DPT 10.001** | **C, R, T** |
| After a successful read request the saved time sends this communication object on the bus. | | | | |
| **74** | **Value** | **Value memory response** | **EIS 5, 2 Byte DPT variable** | **C, R, T** |
| After a successful read request the saved time is sent to this communication object on the bus.<br>If a non available value memory (0, 5…255) or a non-activated value memory is selected, the communication object “Number of values – value memory status response with selection” responds with the value 255. | | | | |

Table 16: Communication objects 70 to 74 “Value memory”

| Nr. | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **75** | **Save value** | **Value memory 1** | **EIS 1, 1 Bit DPT 1.003** | **C, W** |
| This communication object is only visible if in parameter “fill value memory” on request has been selected. With this communication object values can be saved on request. | | | | |
| **76** | **See communication object 75** | **Value memory 2** | | |
| | | | | |
| **77** | **See communication object 75** | **Value memory 3** | | |
| | | | | |
| **78** | **See communication object 75** | **Value memory 4** | | |

Table 17: Communication objects 75 to 78 “Value memory”

### 3.3.11 Date/Time (master)

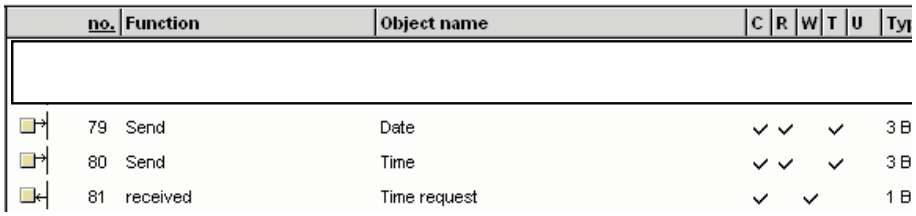



Fig. 43: Communication objects “Date/time (master)”

| No. | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **79** | **Send** | **Date** | **EIS 4, 3 Byte DPT 10.001** | **C, R, T** |
| This communication object is used to send the date on the bus. | | | | |
| **80** | **Send** | **Time** | **EIS 3, 3 Byte DPT 11.001** | **C, R, T** |
| This communication object is used to send the time on the bus. | | | | |
| **81** | **Received** | **Time request** | **EIS 3, 1 Bit DPT 1.001** | **C, T** |
| This communication is used to receive the time request.<br>Telegram value “1” = receive<br>Telegram value “0” = do not receive | | | | |

Table 18: Communication objects 79 to 81 “Date/time (master)”

### 3.3.12 Date/Time (slave))

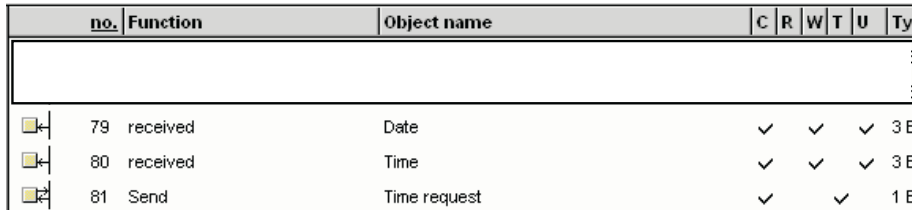
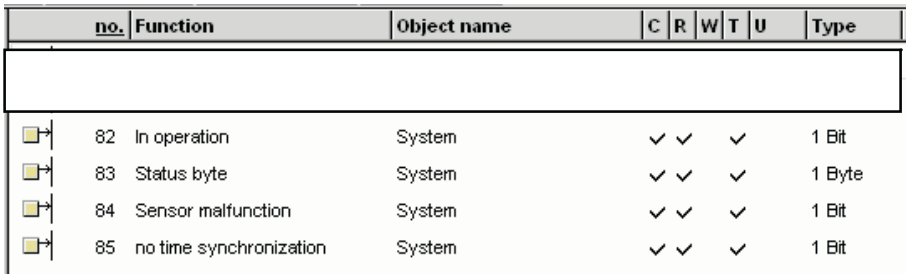



Fig. 44: Table 18: Communication objects “Date/time (slave)”

| No. | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **79** | **Received** | **Date** | **EIS 4, 3 Byte DPT 10.001** | **C, W, Upd** |
| This communication is used to receive the date. | | | | |
| **80** | **Received** | **Time** | **EIS 3, 3 Byte DPT 11.001** | **C, W, Upd** |
| This communication is used to receive the time. | | | | |
| **81** | **Send** | **Time request** | **EIS 3, 1 Bit DPT 1.001** | **C, T** |
| This communication object is used to request the date and time after voltage recovery and programing.<br>Telegram value “1” = send<br>Telegram value “0” = do not send | | | | |

Table 19: Communication objects 79 to 81 “Date/time (slave)”

### 3.3.13 General



| no. | Function | Object name | C | R | W | T | U | Type |
|---|---|---|---|---|---|---|---|---|
| 82 | In operation | System | ✓ | ✓ | | ✓ | | 1 Bit |
| 83 | Status byte | System | ✓ | ✓ | | ✓ | | 1 Byte |
| 84 | Sensor malfunction | System | ✓ | ✓ | | ✓ | | 1 Bit |
| 85 | no time synchronization | System | ✓ | ✓ | | ✓ | | 1 Bit |

Fig. 45: Communication objects “General”

| No. | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **82** | **In operation** | **System** | **EIS 1, 1 Bit<br>DPT 1.003** | **C, R, T** |
| This communication object is active if “yes” has been selected for the parameter cyclic “In operation – send telegram”.<br>If the communication object is active, it cyclically sends a “1” telegram. This communication object is sent once when the device is started and then cyclically after the set send delay.<br>The presence of the Weather Unit can be monitored with this communication object. | | | | |
| **83** | **Status byte** | **System** | **EIS none<br>DPT none** | **C, R, T** |
| The communication object is used to determine if the Weather Sensor has failed, if a communication fault has occurred between the Weather Unit and Weather Sensor exists, if<br>Bit sequence: 76543210<br>Bit 7: not assigned always “0”<br>Bit 6: not assigned always “0”<br>Bit 5: under voltage V+ < 20V<br>„0“: OK > 20V<br>“1”: not OK < 20V<br>Bit 4: communication with Weather Unit interrupted.<br>“0”: communication available<br>“1”: no communication available<br>Bit 3: not assigned always “0”<br>Bit 2: no valid time information (device has not yet been synchronised)<br>Telegram value “0”: time available<br>“1”: no time available<br>Bit 1: no time synchronisation (after the start or a failure exceeding more than 24h), Time may diverge<br>Telegram value “0”: time synchronisation available<br>“1”: no time synchronisation available<br>Bit 0: no DCF signal<br>Telegram value “0”: DCF signal available<br>“1”: no DCF signal available<br>The communication object sends with changes and can be read via the Value-Read command. This communication object is sent once when the device is started and after the set send delay.<br>A table of values is located in the Appendix.<br>If malfunction free the value of the status byte is zero. | | | | |

Table 20: Communication objects 82 and 83 “General”

| No. | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **84** | **Weather Sensor malfunction** | **System** | **EIS 1, 1 Bit DPT 1.003** | **C, R, T** |
| The communication object is used to determine if the Weather Sensor has failed.<br>Telegram value “0” = Weather Sensor has not failed<br>Telegram value “1” = Weather Sensor has failed<br>This communication object should always be read and displayed, to ensure that downstream systems can be protected if the weather sensor fails, e.g. shutters. | | | | |
| **85** | **no time synchronisation** | **System** | **EIS 1, 1 Bit DPT 1.003** | **C, R, T** |
| This communication object is active, if the options in the parameter mode<br>‚Master (synchronising via sensor)‘<br>‚Internal (synchronising via sensor)‘<br>‚Slave (synchronising via bus)‘<br>are selected in the date/time parameter window.<br>Telegram value “0” = time synchronisation available<br>Telegram value “1” = no time synchronisation available | | | | |

Table 21: Communication objects 84 and 85 “General”

Note

After successful commissioning of the Weather Unit and Weather Sensor, the communication object “No time synchronisation” should be read. This verifies if the radio receiver can receive a valid DCF signal.
With good reception, the sensor will required about 2-3 minutes to synchronise to the signal.

# 4 Planning and application

## 4.1 Weather Unit

The Weather Unit WZ/S 1.1 can be used wherever parts of installations need to be protected against climatic influences or monitored. The recorded data can e.g., be displayed on a visualisation terminal and the operating personnel are thus informed precisely about the weather conditions.

The following sensors are used to protect, monitor and control a building:

- Twilight sensor for switching external and interior lighting systems on and off and for targeted use as an energy-saving measure through the detection of the start and end of the day.
- Brightness sensor for shading windows and facades (if necessary a direction-dependent brightness sensor for controlling several facades and for lighting control).
- Rain sensor for protecting awnings, roller blinds and shutters as well as fanlights and ventilation flaps.
- Temperature sensor for regulating heating and air conditioning systems.
- Wind speed sensor for protecting shutter systems.

## 4.2 Weather Sensor

When planning a Weather Unit with sensors, specific requirements should be taken into account and checked on site:

- Where can the Weather Sensors be fixed on the building e.g. on roof structures of lifts, air conditioning plants?
- Can the sensors be “disrupted” by the structures e.g. by an extraction system?
- Is the mounting position of the Weather Sensors free of shadows e.g. caused by the growth of a tree?
- Are additional structures required for fixing?
- Is an installation of the cables on the building guaranteed?
- Is the cable routing from the Weather Unit to the sensor ensured e.g. are the cables protected from UV rays?
- The onsite lightning protection measures must be considered during mounting.

Note The points above are a selection of the criteria required to install Weather Sensors, without claiming to be fully comprehensive. Further descriptions can be found in chapter 2.

## 4.3 Description of the threshold value function

### How does the threshold value function?

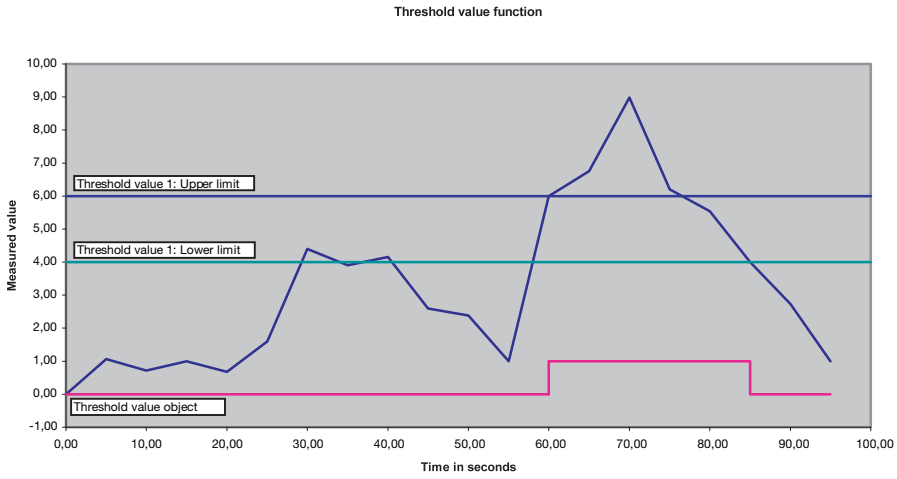



Fig. 46: Threshold value function

In the example diagram above, it can be seen that the measured value begins with a zero value and the communication object for the threshold value 1 has the value „0“. This value can be cyclically sent onto the bus if the relevant parameter in the application program is set.

As long as the measured value **does not** exceed the upper limit of the threshold value 1, the communication object threshold value 1 will remain „0“.

As soon as the measured value exceeds the upper limit of the threshold value 1, the communication object threshold will change value to „1“.

The communication object threshold value 1 will remain „1“, until the measured value once again falls below the lower limit of the threshold value 1.

## 4.4 Planning example 1

1. A user wishes to control the shutter in dependance on the position of the sun (east, south and west). At more than 30 kLux the shutters in the east should move down, those in the south at more than 25 kLux and those in the west at more than 35 kLux. All shutters should open under 15 kLux. The respective signals should be present for at least 5 minutes.

2. At a wind speed exceeding 9 m/s all shutters in the house must open and close again when the wind speed drops below 6 m/s. The signal should be present for at least 1 minute.

3. The sunblinds on the terrace should retract when it rains. The “rain” signal should be present for at least 30 seconds. It should be rain free for at least 5 minutes before the sunblinds re-emerge.

4. The information day/night should be used for reducing the heating temperature at night. The signal should be present for at least 10 minutes.

5. In the open the garden and pond lighting should be switched on after twilight when the following values are present:
   When the value falls below 300 Lux, a 1-byte value of 200 should be sent in order to dim the pond lighting to approx. 80 %. Otherwise the pond lighting should be set to the maximum brightness value.
   When the value falls below 850 Lux, the lights for the walnut tree should be switched on and switched off when the value exceeds 850 Lux.
   The signals for the threshold values should be fixed for at least 1 minute.

6. The shutters should be protected from minus temperatures (less than 3 °C), i.e. they should be retracted. The shutters should automatically move into place at + 20 °C to prevent the house from “heating up” unnecessarily. Furthermore, the fanlights should open automatically in the staircase at + 30 °C. The fanlights should not be continually closed and opened but only if the temperature is fixed above 30 °C for longer than 1 minute. They should be automatically closed as soon as the temperature drops to + 25 °C again for longer than 30 seconds.

7. The recorded weather data should update on the display every 10 seconds. All set threshold values must be changeable by the user via the bus and should be sent every minute to the bus.

8. Furthermore, the user can save the weather data over the course of the day. The values for brightness centre is used as the average value, the temperature is used as the minimum value and the wind speed as the maximum value stored once an hour. The values should be individually readable at the push of a button.

### Settings for the parameter windows “General and Sensors”

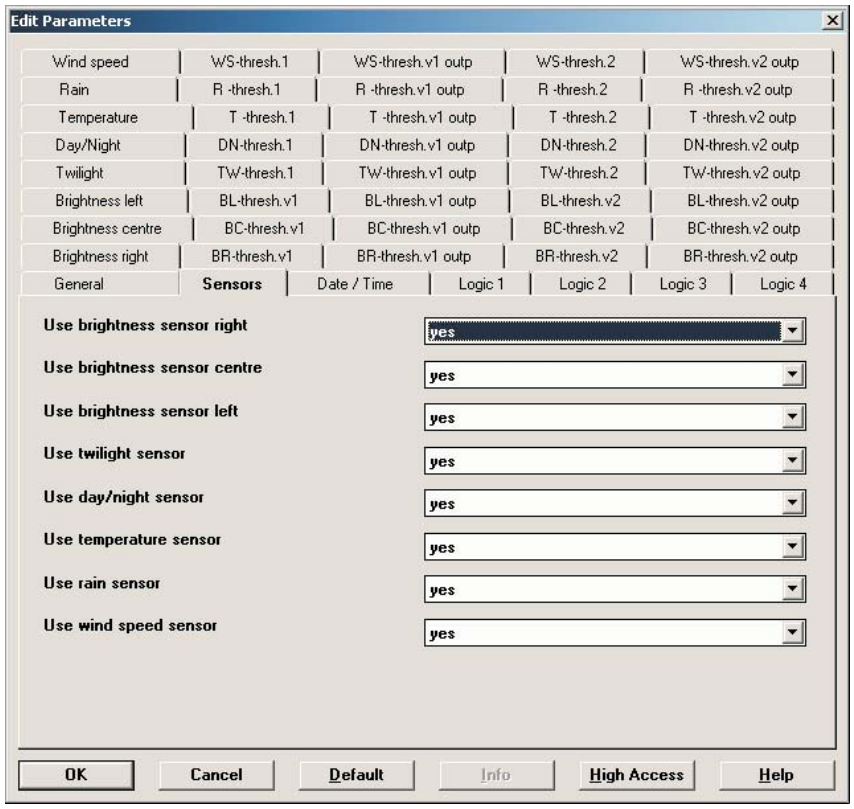



Fig. 47: Planning example 1 settings for the parameter window “Sensor”

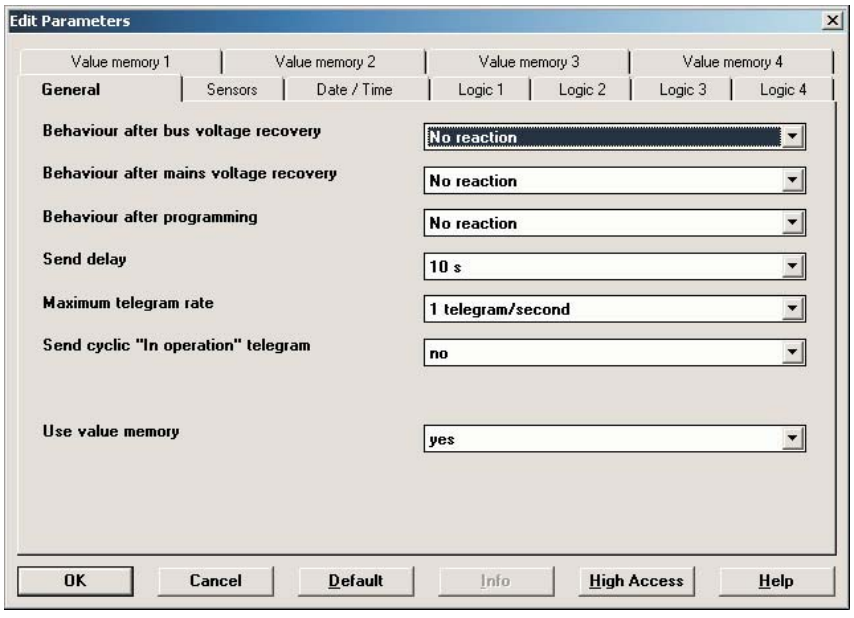



Fig. 48: Planning example 1 settings for the parameter window “General”

**For point 1:**

**Settings for the parameter window “Brightness left (east)”, “Threshold value 1” and “Threshold value 1 output”**

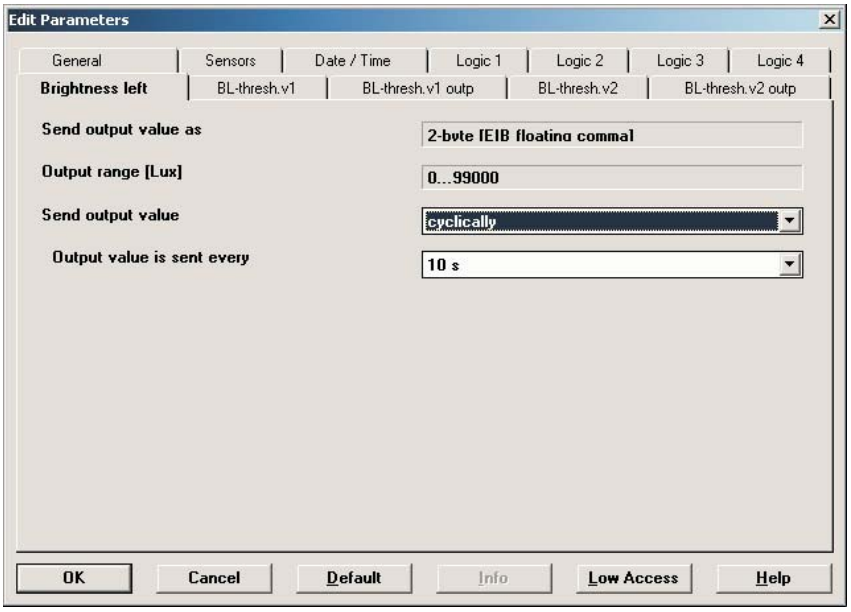



Fig. 49: Planning example 1 settings for the parameter window “Brightness left”

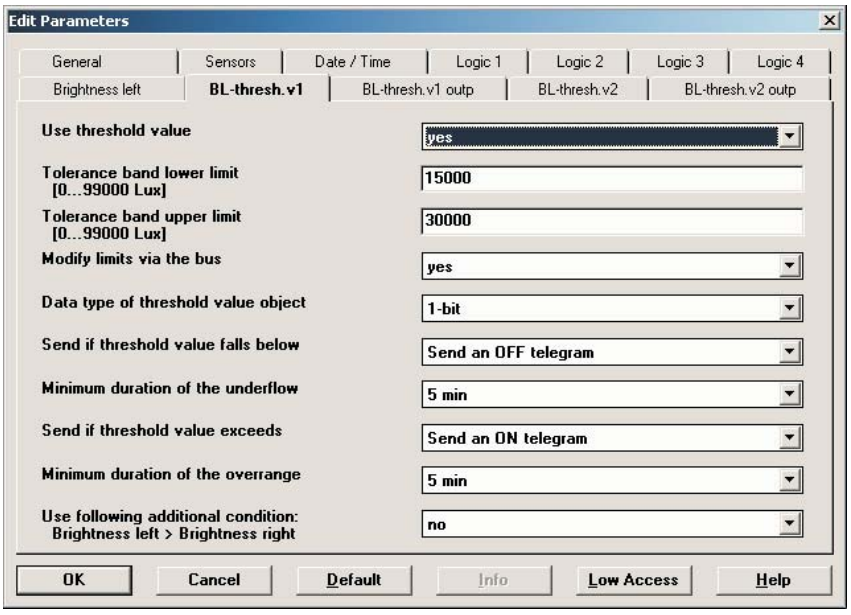



Fig. 50: Planning example 1 settings for the parameter window “Brightness left threshold 1”

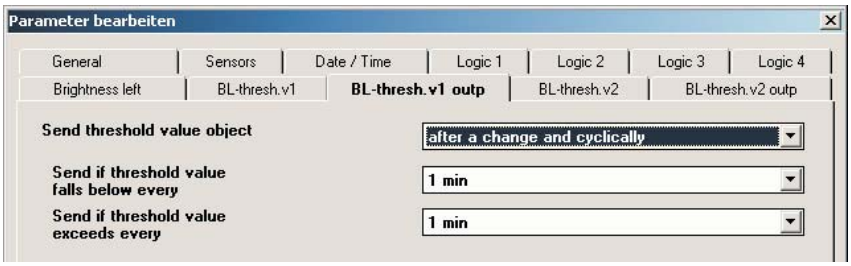



Fig. 51: Planning example 1 settings for the parameter window “Brightness left threshold 1 output”

### Settings for the parameter window “Brightness centre (south)”, “Threshold value 1” and “Threshold value 1 output”

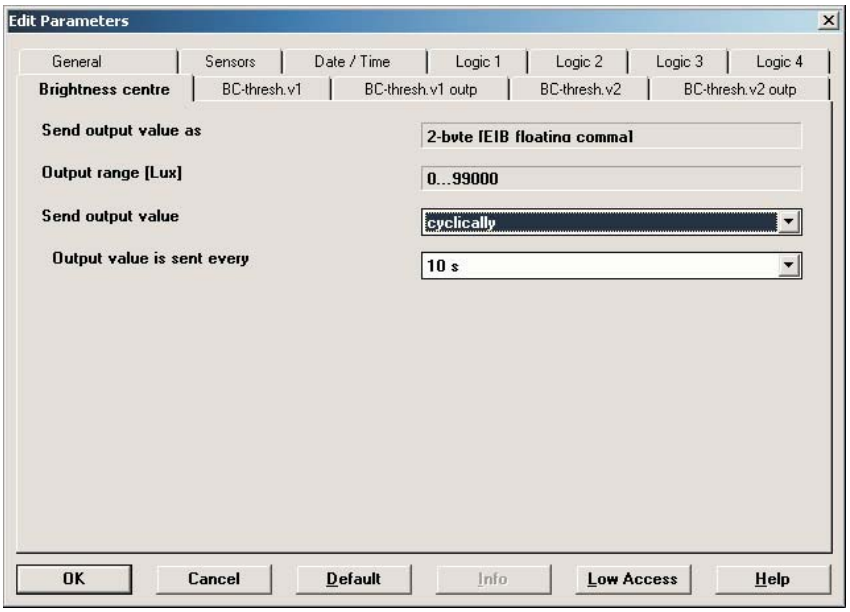



Fig. 52: Planning example 1 settings for the parameter window “Brightness centre”

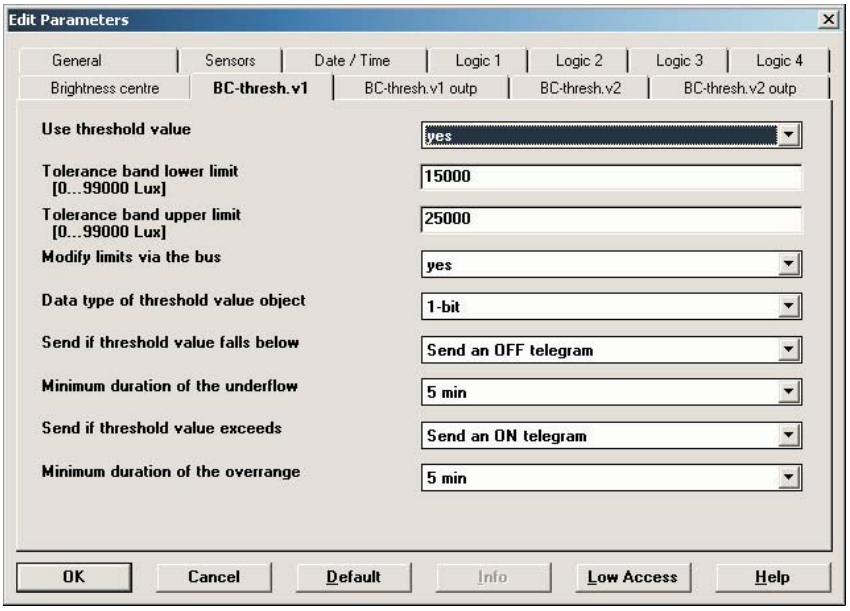



Fig. 53: Planning example 1 settings for the parameter window “Brightness centre threshold 1”

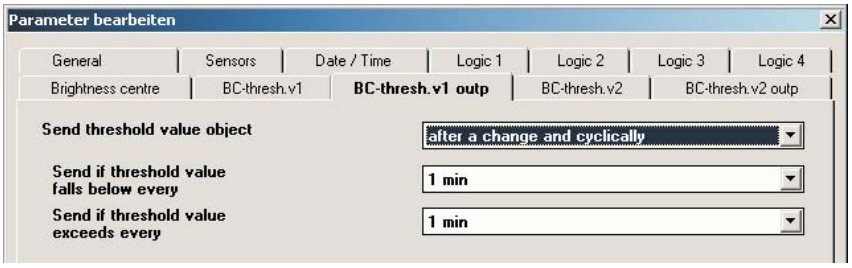



Fig. 54: Planning example 1 settings for the parameter window “Brightness centre threshold 1 output”

### Settings for the parameter window “Brightness right (west)”, “Threshold value 1” and “Threshold value 1 output”

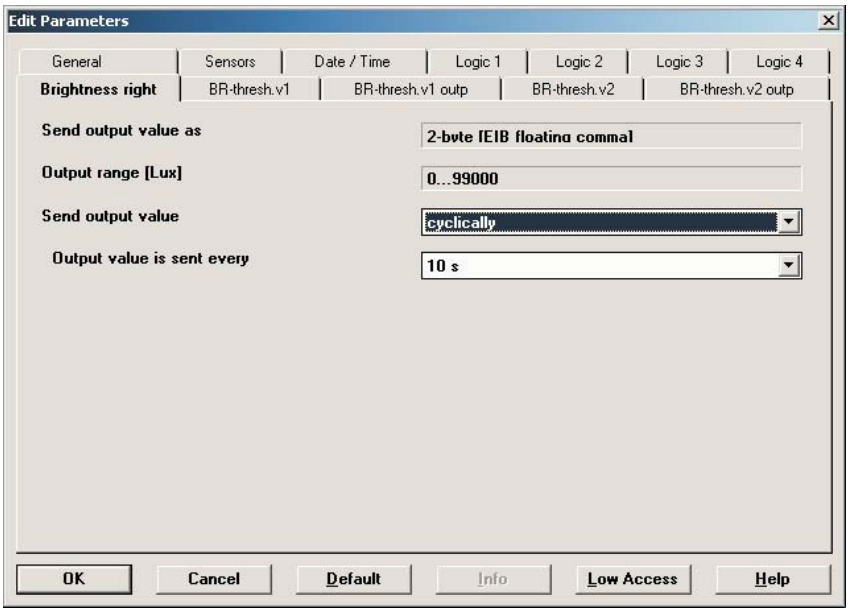



Fig. 55: Planning example 1 settings for the parameter window “Brightness right”

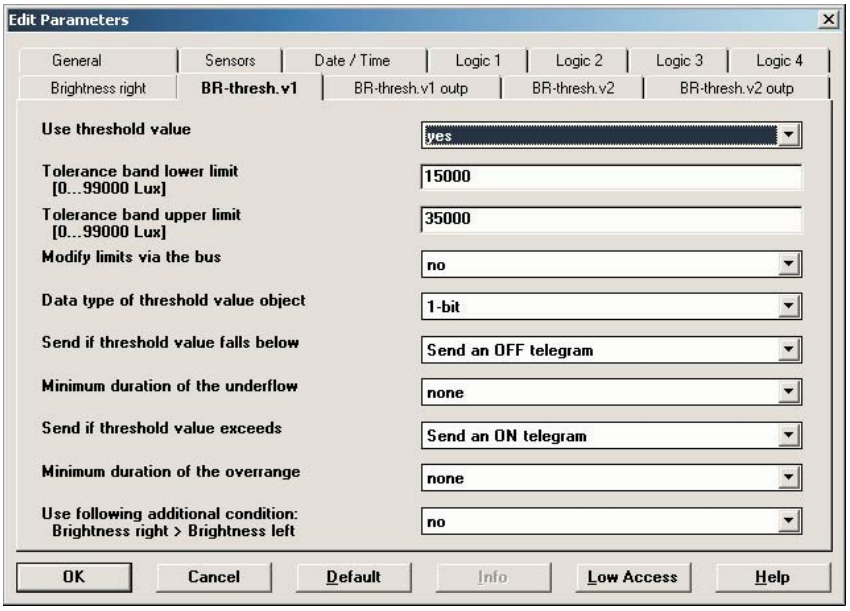



Fig. 56: Planning example 1 settings for the parameter window “Brightness right threshold 1”

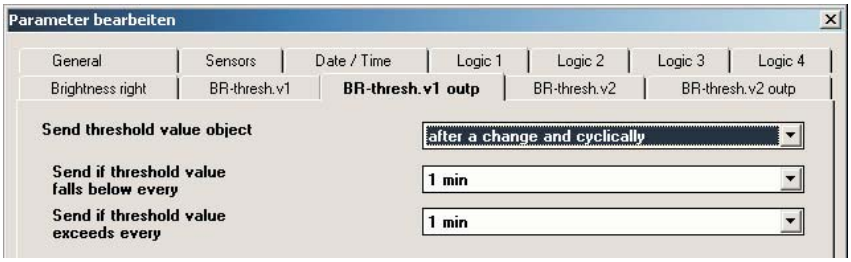



Fig. 57: Planning example 1 settings for the parameter window “Brightness right threshold 1 output”

**For point 2:**

**Settings for the parameter window “Wind speed”, “Threshold value 1” and “Threshold value 1 output”**

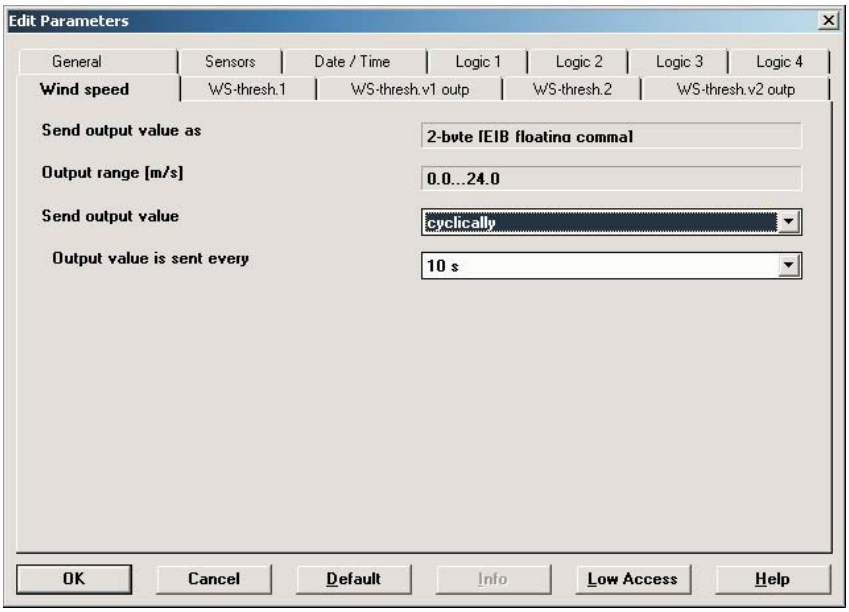



Fig. 58: Planning example 1 settings for the parameter window “Wind speed”

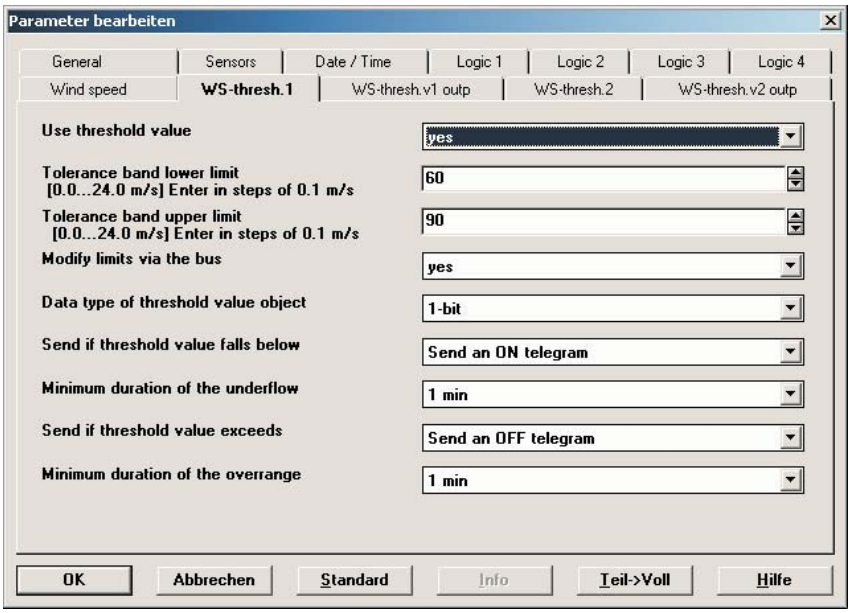



Fig. 59: Planning example 1 settings for the parameter window “Wind speed threshold 1”

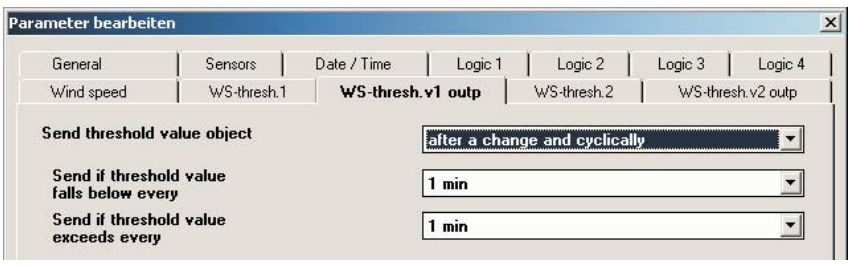



Fig. 60: Planning example 1 settings for the parameter window “Wind speed threshold 1 output”

**For point 3:**

**Settings for the parameter window “Rain”, “Threshold value 1” and “Threshold value 1 output”**

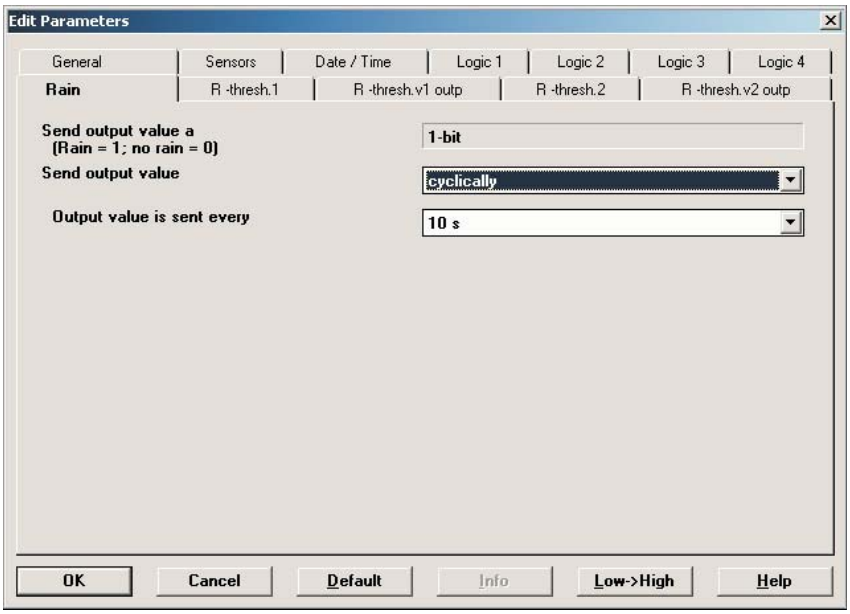



Fig. 61: Planning example 1 settings for the parameter window “Rain”

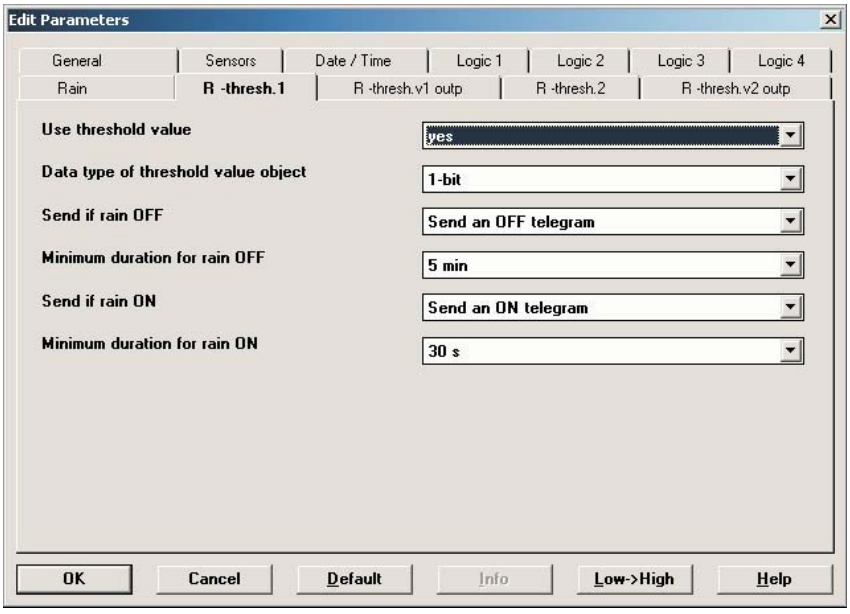



Fig. 62: Planning example 1 settings for the parameter window “Day/Night threshold 1”

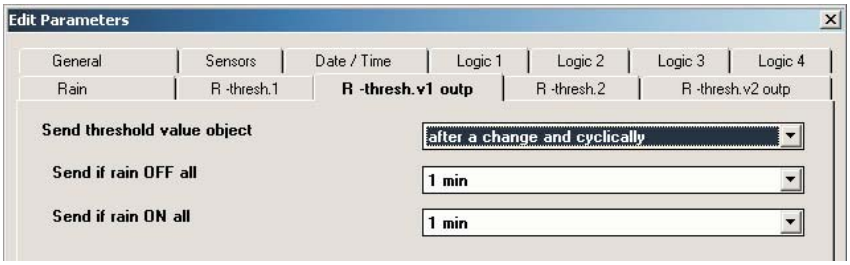



Fig. 63: Planning example 1 settings for the parameter window “Day/Night threshold 1 output”

**For point 4:**

**Settings for the parameter window “Day/Night”, “Threshold value 1” and “Threshold value 1 output”**

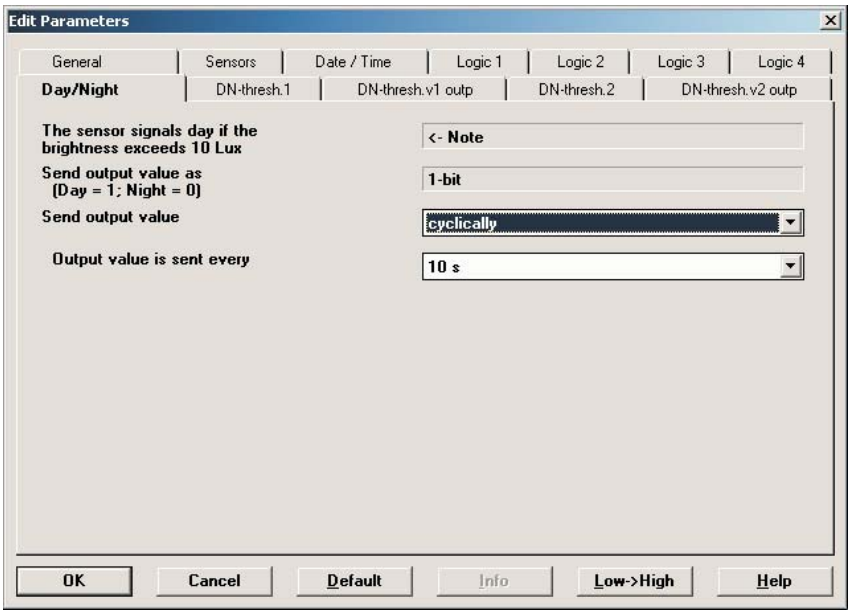



Fig. 64: Planning example 1 settings for the parameter window “Day/Night”

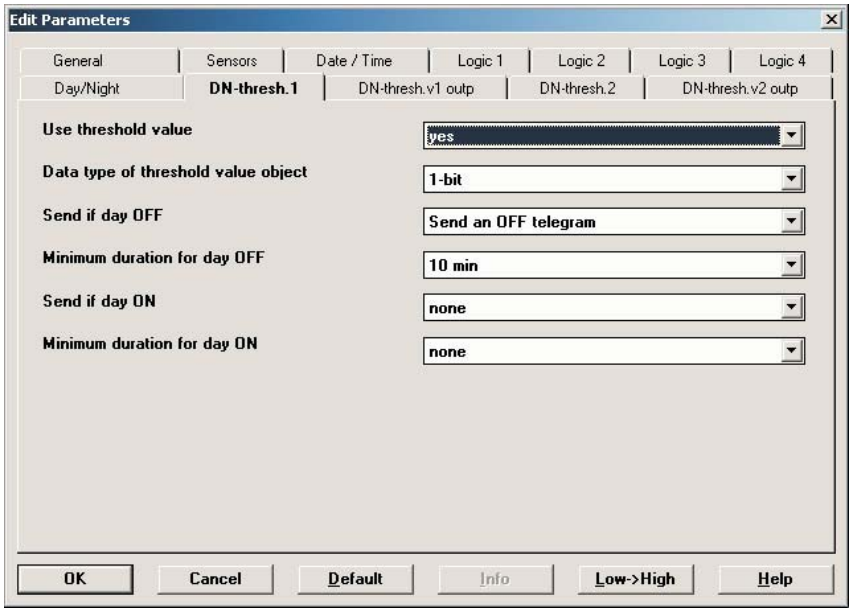



Fig. 65: Planning example 1 settings for the parameter window “Day/Night threshold 1”

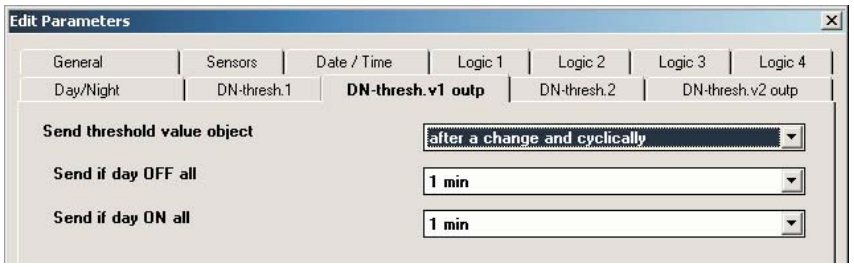



Fig. 66: Planning example 1 settings for the parameter window “Day/Night threshold 1 output”

**For point 5:**

**Settings for the parameter window “Twilight”, “Threshold value 1/2” and “Threshold value 1/2 output”**

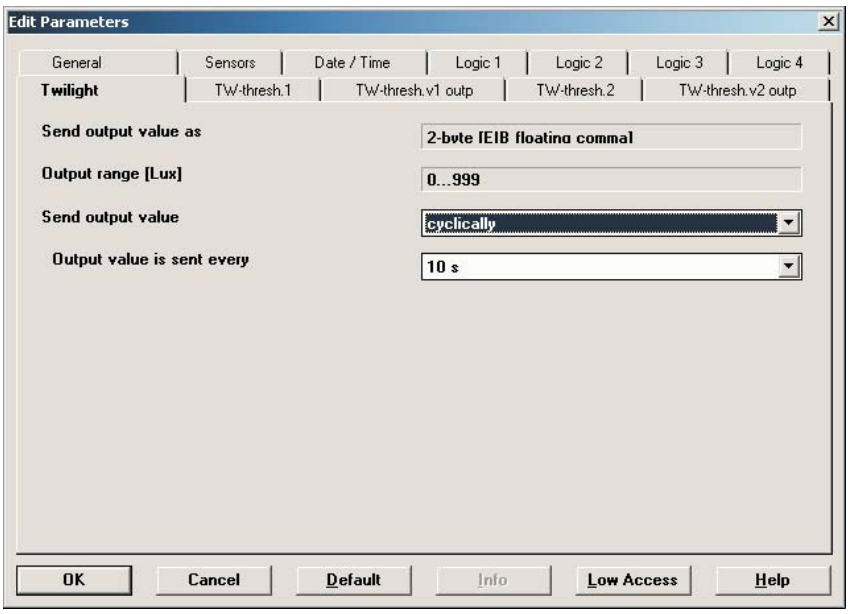



Fig. 67: Planning example 1 settings for the parameter window “Twilight”

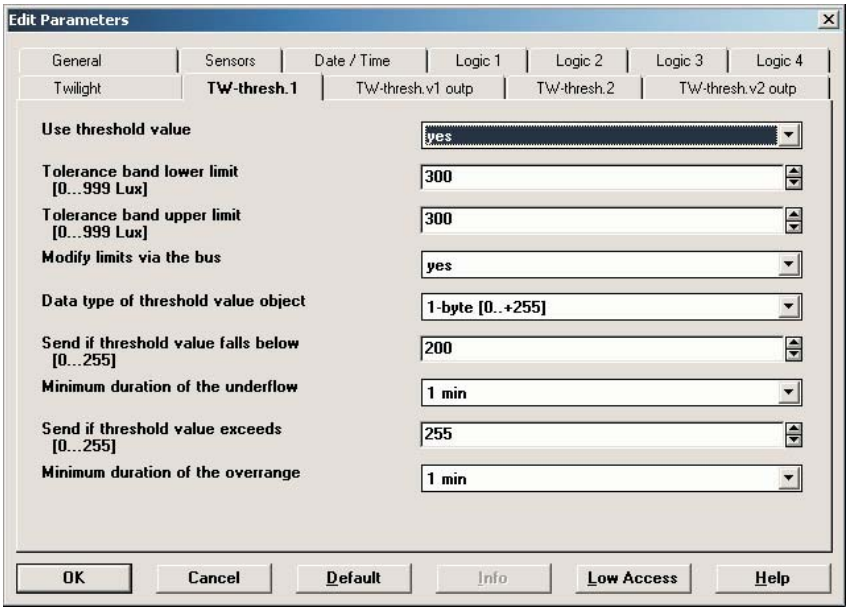



Fig. 68: Planning example 1 settings for the parameter window “Twilight threshold 1”

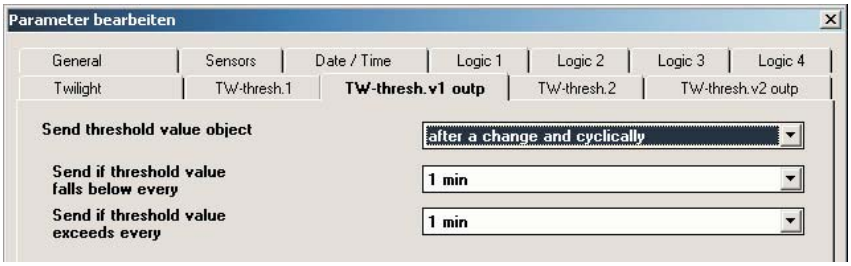



Fig. 69: Planning example 1 settings for the parameter window “Twilight threshold 1 output”

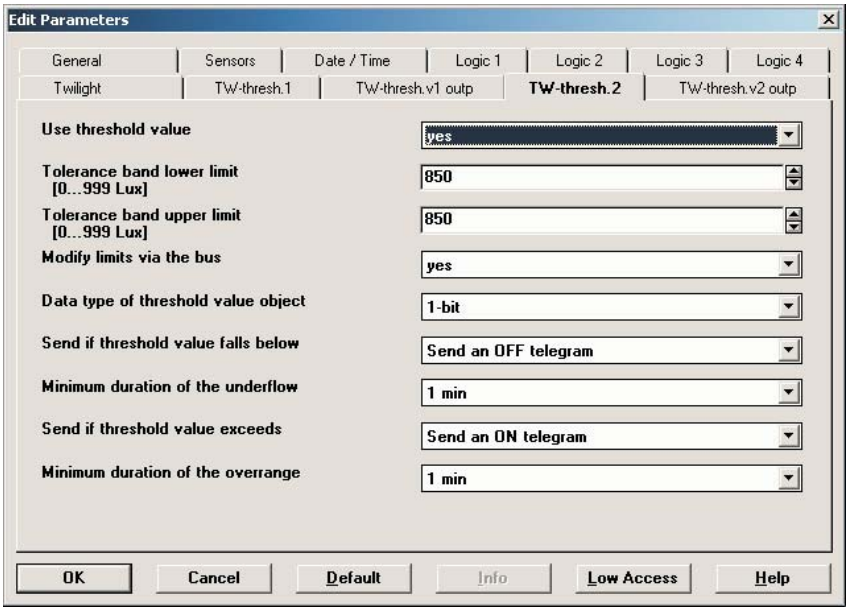



Fig. 70: Planning example 1 settings for the parameter window “Twilight threshold 2”

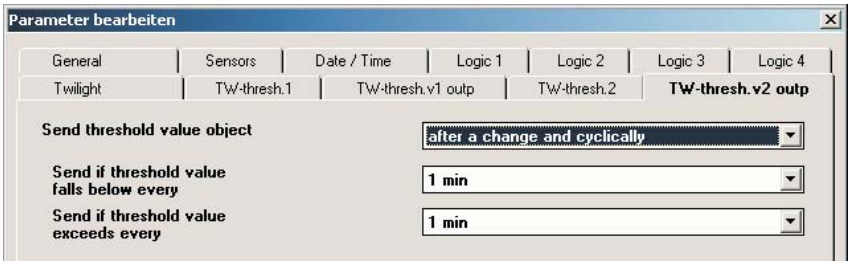



Fig. 71: Planning example 1 settings for the parameter window “Twilight threshold 2 output”

**For point 6:**

**Settings for the parameter window “Temperature threshold value 1/2” and “Threshold value 1/2 output”**

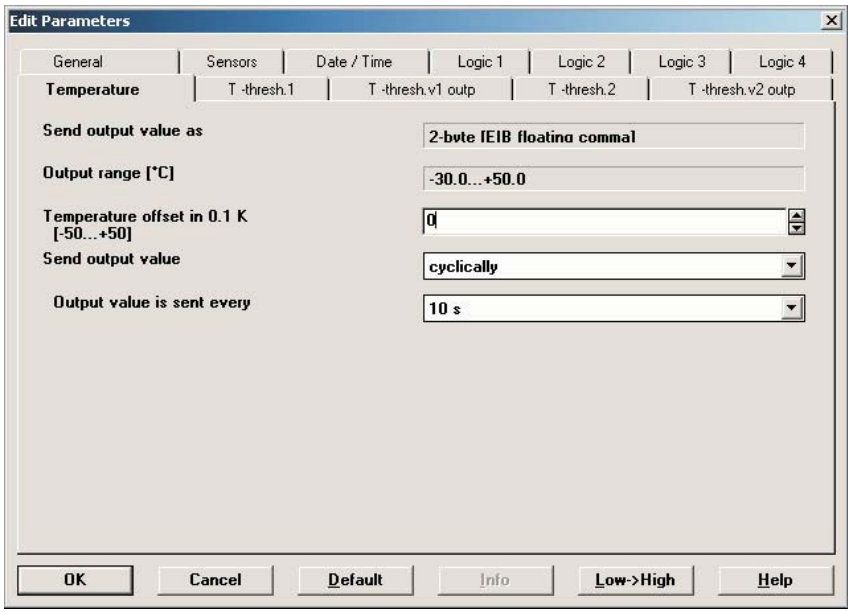



Fig. 72: Planning example 1 settings for the parameter window “Temperature”

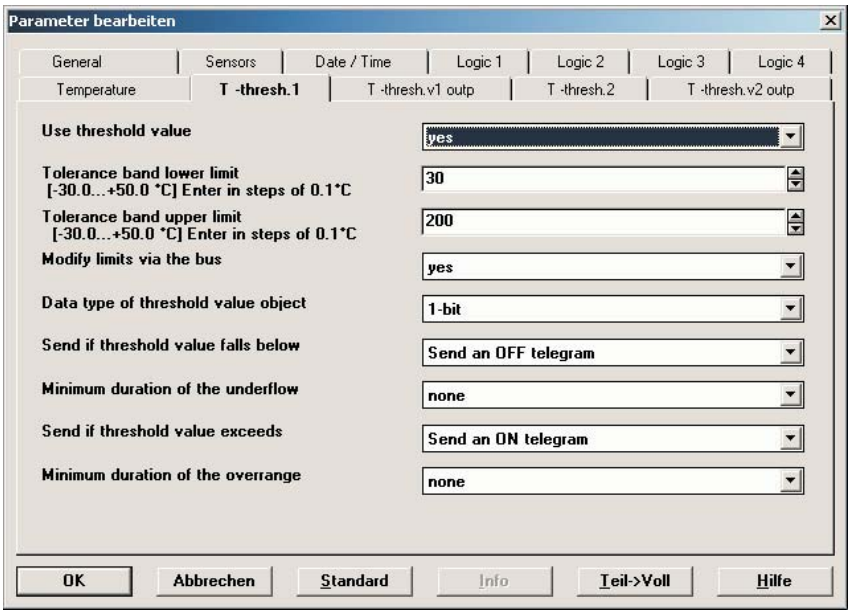



Fig. 73: Planning example 1 settings for the parameter window “Twilight threshold 1”

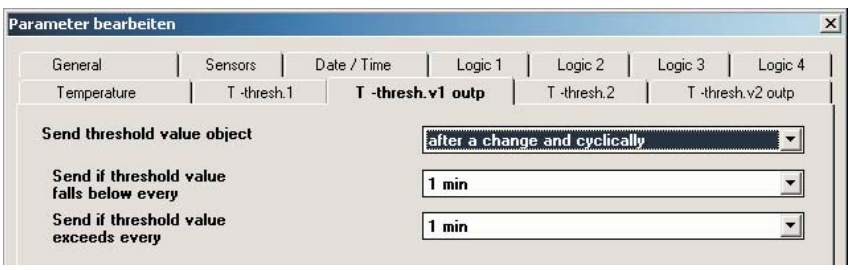



Fig. 74: Planning example 1 settings for the parameter window “Twilight threshold 1 output”

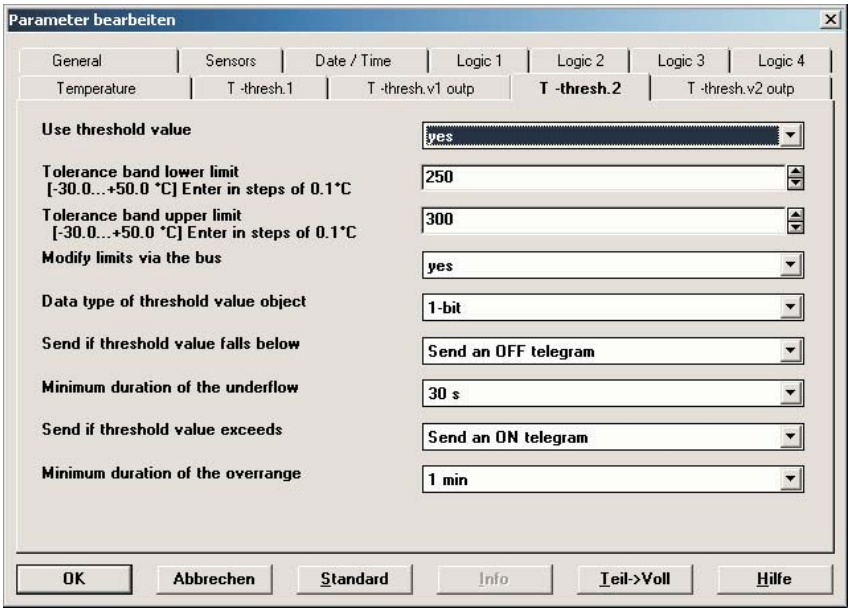



Fig. 75: Planning example 1 settings for the parameter window “Temperature threshold 2”

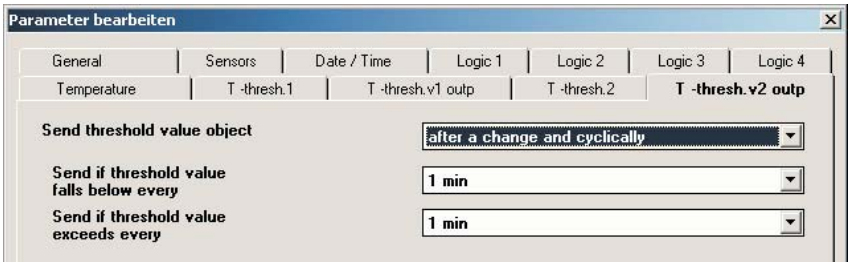



Fig. 76: Planning example 1 settings for the parameter window “Temperature threshold 2 output”

**For point 7:**

It is considered in each of the points 1 to 6.

**For point 8:**

**Settings for the parameter window “Value memory 1 and 2”**

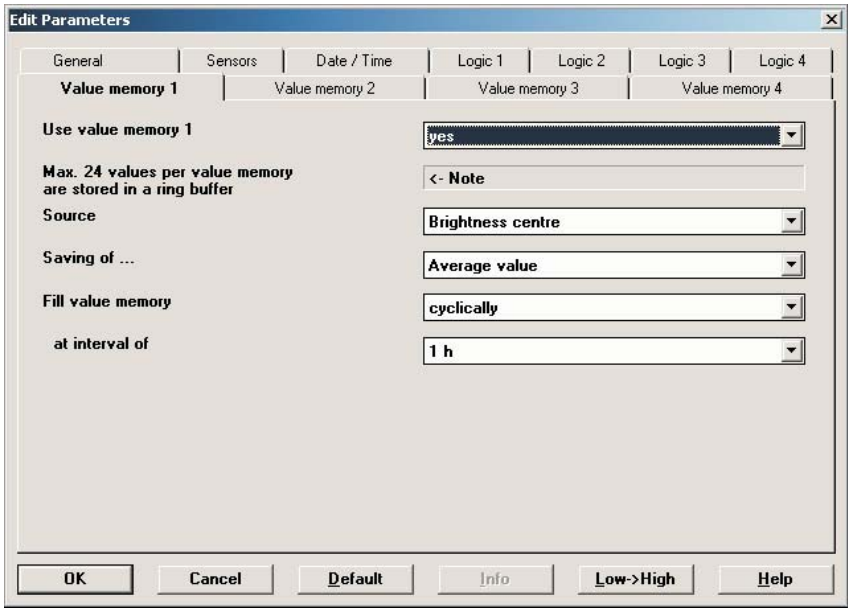



Fig. 77: Planning example 1 settings for the parameter window “Value memory threshold 1”

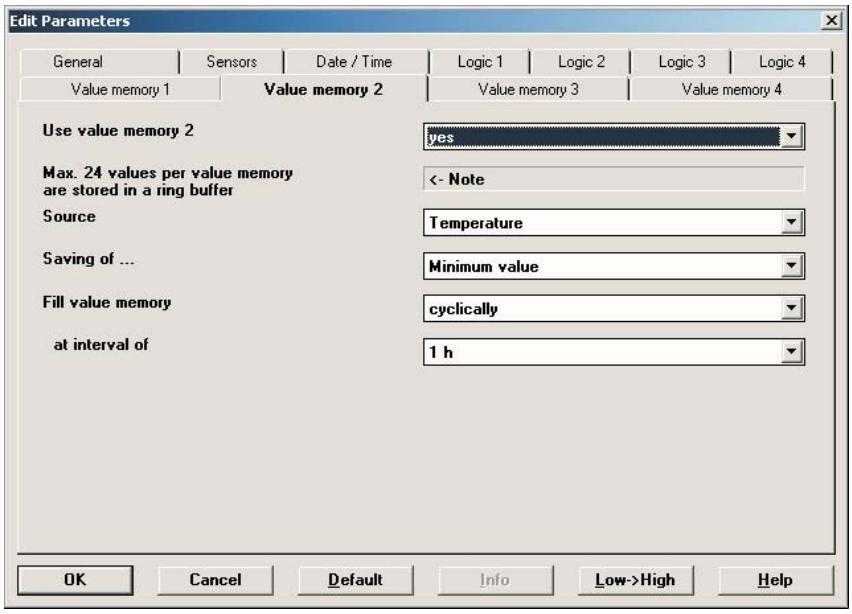



Fig. 78: Planning example 1 settings for the parameter window “Value memory threshold 2”

### Settings for the parameter window “Value memory 3 and 4”

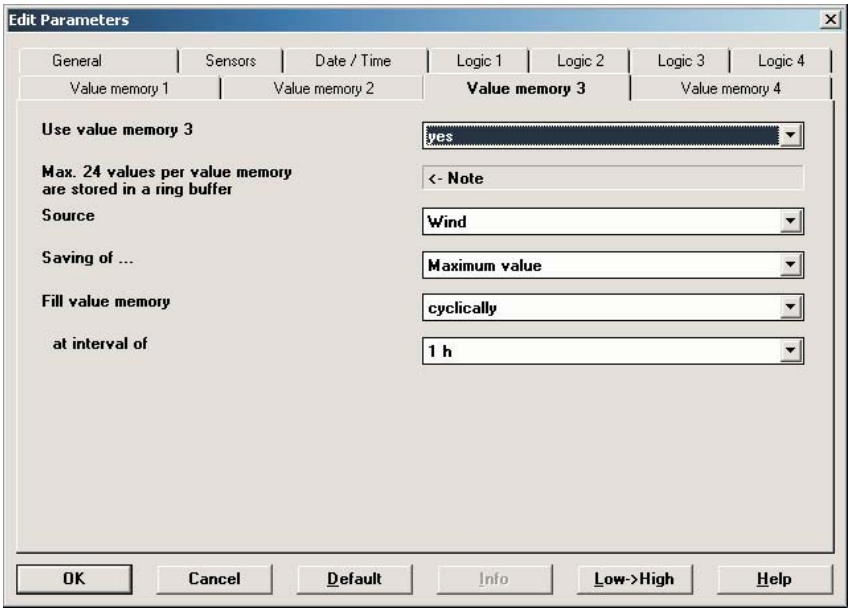



Fig. 79: Planning example 1 settings for the parameter window “Value memory threshold 3”

It is possible to individually read the values at the touch of a button via communication object 72.

## Notes

# Appendix

## A.1 Scope of delivery Weather Unit

The Weather Unit WZ/S 1.1 is supplied with the following parts.
Please check the items received using the following list.

– 1 pc. WZ/S 1.1, Weather Unit, 1-fold, MDRC
– 1 pc. installation and operating instructions
– 1 pc. Bus Connection Terminal (red/black)

## A.2 Scope of delivery Weather Sensor

The Weather Sensor WES/A 1.1 is supplied with the following parts.
Please check the items received using the following list.

– 1 pc. WES/A 1.1, Weather Sensor, AP
– 1 pc. installation and operating instructions
– 1 pc. wall bracket

## A.3 Logic truth table

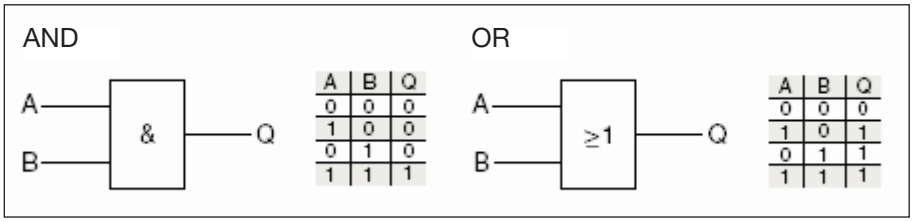



Table 22: Truth table

The gates and the tables describe the input and output states for 2 inputs.
For several inputs, the tables must be extended accordingly.

## A.4 Overview “Wind speeds”

Representation of various units of wind speed and their values.

| Wind speed (Beaufort) | m/s | | km/h | | Knots (nm/h) | | mi/h | | ft/min | |
|---|---|---|---|---|---|---|---|---|---|---|
| | from | to | from | to | from | to | from | to | from | to |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0.3 | 1.5 | 1 | 5 | 1 | 3 | 1 | 4 | 59 | 295 |
| 2 | 1.6 | 3.3 | 6 | 11 | 4 | 6 | 4 | 7 | 315 | 650 |
| 3 | 3.4 | 5.4 | 12 | 19 | 7 | 10 | 8 | 12 | 669 | 1063 |
| 4 | 5.5 | 7.9 | 20 | 28 | 11 | 15 | 12 | 18 | 1083 | 1555 |
| 5 | 8 | 10.7 | 29 | 38 | 16 | 21 | 18 | 25 | 1575 | 2106 |
| 6 | 10.8 | 13.8 | 39 | 49 | 22 | 27 | 25 | 32 | 2126 | 2717 |
| 7 | 13.9 | 17.1 | 50 | 61 | 28 | 33 | 32 | 38 | 2736 | 3366 |
| 8 | 17.2 | 20.7 | 62 | 74 | 34 | 40 | 39 | 47 | 3386 | 4075 |
| 9 | 20.8 | 24.4 | 75 | 87 | 41 | 47 | 47 | 55 | 4094 | 4803 |
| 10 | 24.5 | 28.4 | 88 | 102 | 48 | 55 | 55 | 64 | 4823 | 5591 |
| 11 | 28.5 | 32.6 | 103 | 117 | 56 | 63 | 64 | 73 | 5610 | 6417 |
| 12 | 32.7 | 36.9 | 118 | 132 | 64 | 72 | 74 | 83 | 6437 | 7264 |
| 13 | 37 | 41.4 | 133 | 149 | 73 | 80 | 85 | 93 | 7283 | 8150 |
| 14 | 41.5 | 46.1 | 149 | 165 | 81 | 90 | 94 | 104 | 8169 | 9075 |
| 15 | 46.2 | 50.9 | 166 | 183 | 90 | 99 | 104 | 114 | 6094 | 10020 |
| 16 | 51 | 56 | 184 | 201 | 99 | 109 | 114 | 126 | 10039 | 11024 |
| 17 | 56 | | 202 | | 109 | | 126 | | 11024 | |

Table 23: Wind speeds

## A.5 Value table for communication object "Status byte – System"

| Bit-No. | | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|---|---|
| 8-bit-value | Hexadecimal | Not assigned | Not assigned | Undervoltage | No communication | Not assigned | No time | No time synchronisation | No DCF signal |
| 0 | 00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2 | 02 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 3 | 03 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 4 | 04 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 5 | 05 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 6 | 06 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 7 | 07 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 8 | 08 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 9 | 09 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 10 | 0A | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 11 | 0B | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 12 | 0C | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 13 | 0D | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 |
| 14 | 0E | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
| 15 | 0F | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 16 | 10 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 17 | 11 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 18 | 12 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| 19 | 13 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 20 | 14 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 21 | 15 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 |
| 22 | 16 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| 23 | 17 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |
| 24 | 18 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| 25 | 19 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 |
| 26 | 1A | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 |
| 27 | 1B | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| 28 | 1C | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 |
| 29 | 1D | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 |
| 30 | 1E | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 |
| 31 | 1F | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 32 | 20 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 33 | 21 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 34 | 22 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 35 | 23 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| 36 | 24 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 37 | 25 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| 38 | 26 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 39 | 27 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 40 | 28 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 41 | 29 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 42 | 2A | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 43 | 2B | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |
| 44 | 2C | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| 45 | 2D | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| 46 | 2E | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 |
| 47 | 2F | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 |
| 48 | 30 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| 49 | 31 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 50 | 32 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 |
| 51 | 33 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| 52 | 34 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| 53 | 35 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 |
| 54 | 36 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| 55 | 37 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 |
| 56 | 38 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| 57 | 39 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 |
| 58 | 3A | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 0 |
| 59 | 3B | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 |
| 60 | 3C | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 |
| 61 | 3D | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 |
| 62 | 3E | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 |
| 63 | 3F | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 64 | 40 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65 | 41 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 66 | 42 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 67 | 43 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| 68 | 44 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 69 | 45 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| 70 | 46 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |
| 71 | 47 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 72 | 48 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 73 | 49 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| 74 | 4A | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| 75 | 4B | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 |
| 76 | 4C | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 77 | 4D | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 |
| 78 | 4E | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 |
| 79 | 4F | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 |
| 80 | 50 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 81 | 51 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 82 | 52 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |
| 83 | 53 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 |
| 84 | 54 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| 85 | 55 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 86 | 56 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| 87 | 57 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |
| 88 | 58 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |
| 89 | 59 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 |
| 90 | 5A | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 |
| 91 | 5B | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| 92 | 5C | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 |
| 93 | 5D | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 |
| 94 | 5E | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 0 |
| 95 | 5F | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
| 96 | 60 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 97 | 61 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| 98 | 62 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 99 | 63 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |
| 100 | 64 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| 101 | 65 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| 102 | 66 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
| 103 | 67 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 |
| 104 | 68 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| 105 | 69 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| 106 | 6A | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 107 | 6B | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 |
| 108 | 6C | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| 109 | 6D | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| 110 | 6E | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 |
| 111 | 6F | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| 112 | 70 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 113 | 71 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 114 | 72 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 |
| 115 | 73 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 |
| 116 | 74 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 |
| 117 | 75 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 |
| 118 | 76 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 |
| 119 | 77 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 120 | 78 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| 121 | 79 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 |
| 122 | 7A | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 |
| 123 | 7B | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 124 | 7C | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 |
| 125 | 7D | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| 126 | 7E | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 127 | 7F | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 128 | 80 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 129 | 81 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 130 | 82 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 131 | 83 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 132 | 84 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 133 | 85 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 134 | 86 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 135 | 87 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 136 | 88 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 137 | 89 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 138 | 8A | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 139 | 8B | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 140 | 8C | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 141 | 8D | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 |
| 142 | 8E | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 |
| 143 | 8F | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 144 | 90 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 145 | 91 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 146 | 92 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| 147 | 93 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 148 | 94 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 149 | 95 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 |
| 150 | 96 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| 151 | 97 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |
| 152 | 98 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| 153 | 99 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 |
| 154 | 9A | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 0 |
| 155 | 9B | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| 156 | 9C | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 |
| 157 | 9D | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 |
| 158 | 9E | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 |
| 159 | 9F | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 160 | A0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 161 | A1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 162 | A2 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 163 | A3 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| 164 | A4 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| 165 | A5 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| 166 | A6 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 167 | A7 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 168 | A8 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 169 | A9 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 170 | AA | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 171 | AB | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |
| 172 | AC | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| 173 | AD | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |
| 174 | AE | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 |
| 175 | AF | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 |
| 176 | B0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| 177 | B1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 178 | B2 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 |
| 179 | B3 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| 180 | B4 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| 181 | B5 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 |
| 182 | B6 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| 183 | B7 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 |
| 184 | B8 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| 185 | B9 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 |
| 186 | BA | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 |
| 187 | BB | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 |
| 188 | BC | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 |
| 189 | BD | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 |
| 190 | BE | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 |
| 191 | BF | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 192 | C0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 193 | C1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 194 | C2 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 195 | C3 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| 196 | C4 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 197 | C5 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| 198 | C6 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |
| 199 | C7 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 200 | C8 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 201 | C9 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 |
| 202 | CA | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| 203 | CB | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 |
| 204 | CC | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 205 | CD | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 |
| 206 | CE | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 |
| 207 | CF | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 |
| 208 | D0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| 209 | D1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 210 | D2 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |
| 211 | D3 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 1 |
| 212 | D4 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 |
| 213 | D5 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 214 | D6 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| 215 | D7 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |
| 216 | D8 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |
| 217 | D9 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 |
| 218 | DA | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 |
| 219 | DB | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| 220 | DC | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 |
| 221 | DD | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 |
| 222 | DE | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 |
| 223 | DF | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |
| 224 | E0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 225 | E1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| 226 | E2 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 227 | E3 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |
| 228 | E4 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| 229 | E5 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 |
| 230 | E6 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
| 231 | E7 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 |
| 232 | E8 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| 233 | E9 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| 234 | EA | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 235 | EB | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 |
| 236 | EC | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| 237 | ED | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 |
| 238 | EE | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 |
| 239 | EF | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| 240 | F0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 241 | F1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 242 | F2 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 |
| 243 | F3 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 |
| 244 | F4 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 |
| 245 | F5 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 |
| 246 | F6 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 |
| 247 | F7 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 248 | F8 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| 249 | F9 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 |
| 250 | FA | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 |
| 251 | FB | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 252 | FC | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 |
| 253 | FD | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| 254 | FE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 255 | FF | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

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## A.9 Ordering details Weather Unit WZ/S 1.1

| **Type** | Description | Order Code | **bbn 40 16779 EAN** | Price group | Weight 1 pc. [kg] | Pack unit [Pcs] |
|---|---|---|---|---|---|---|
| **WZ/S 1.1** | Weather Unit, 1 fold, MDRC | 2CDG 110 034 R0011 | **58612 2** | 26 | 0.2 | 1 |

Table 24: Ordering details for the Weather Unit WZ/S 1.1, MDRC

## A.10 Ordering details Weather Sensor WES/A 1.1

| **Type** | Description | Order Code | **bbn 40 16779 EAN** | Price group | Weight 1 pc. [kg] | Pack unit [Pcs] |
|---|---|---|---|---|---|---|
| **WES/A 1.1** | Weather Sensor, AP | 2CDG 120 003 R0011 | **58611 5** | 20 | 0.2 | 1 |

Table 25: Ordering details for the Weather Sensor WES/A 1.1, AP

### A.11 Notes

The technical details in this publication are subject to change without notice.

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