Product manual | **11.11.2025**

Busch-Installationsbus® KNX

BMH/Ux - PMH/Ux -- Standard Movement detector HF - presence detector HF

BUSCH-JAEGER

1 Notes on the instruction manual

Please read through this manual carefully and observe the information it contains. This will assist you in preventing injuries and damage to property and ensure both reliable operation and a long service life for the device.

Please keep this manual in a safe place.

If you pass the device on, also include this manual along with it.

Busch-Jaeger accepts no liability for any failure to observe the instructions in this manual.

If you require additional information or have questions about the device, please contact Busch-Jaeger or visit our Internet site at:

www.BUSCH-JAEGER.de

2 Safety

The device has been constructed according to the latest valid regulations governing technology and is operationally reliable. It has been tested and left the factory in a technically safe and reliable state.

However, residual hazards remain. Read and adhere to the safety instructions to prevent hazards of this kind.

Busch-Jaeger accepts no liability for any failure to observe the safety instructions.

2.1 Information and symbols used

The following Instructions point to particular hazards involved in the use of the device or provide practical instructions:

Danger

Risk of death / serious damage to health

– The respective warning symbol in connection with the signal word "Danger" indicates an imminently threatening danger which leads to death or serious (irreversible) injuries.

Warning

Serious damage to health

– The respective warning symbol in connection with the signal word "Warning" indicates a threatening danger which can lead to death or serious (irreversible) injuries.

Caution

Damage to health

– The respective warning symbol in connection with the signal word "Caution" indicates a danger which can lead to minor (reversible) injuries.

Attention

Damage to property

– This symbol in connection with the signal word "Attention" indicates a situation which could cause damage to the product itself or to objects in its surroundings.

NOTE

This symbol in connection with the word "Note" indicates useful tips and recommendations for the efficient handling of the product.

This symbol alerts to electric voltage.

This symbol indicates information on the protection of the environment.

2.2 Intended use

The devices are designed only for interior areas of buildings. They serve for switching and regulating lighting systems and/or HVAC systems in dependence of brightness and/or movement.

The devices are not suitable for use as an intrusion or attack alarm since they lack the required security against sabotage in accordance with the German VdS (Authority on Safety and Security) regulations.

The devices are not intended for:

- Operation according to the listed technical data
- The installation in dry interior rooms
- The use with the connecting options available on the device

The intended use also includes adherence to all specifications in this manual.

2.3 Improper use

Each use not listed in Chapter 2.2 “Intended use“ on page 12 is deemed improper use and can lead to personal injury and damage to property.

Busch-Jaeger is not liable for damages caused by use deemed contrary to the intended use of the device. The associated risk is borne exclusively by the user/operator.

The device is not intended for the following:

- Unauthorized structural changes
- Repairs
- Insert with an additional bus coupler
- Substitute for an alarm system.
- Replacement for intrusion or attack alarms.

2.4 Target group / Qualifications of personnel

2.4.1 Operation

No special qualifications are needed to operate the device.

2.4.2 Installation, commissioning and maintenance

Installation, commissioning and maintenance of the device must only be carried out by trained and properly qualified electrical installers.

The electrical installer must have read and understood the manual and follow the instructions provided.

The electrical installer must adhere to the valid national regulations in his/her country governing the installation, functional test, repair and maintenance of electrical products.

The electrical installer must be familiar with and correctly apply the "five safety rules" (DIN VDE 0105, EN 50110):

1. Disconnect
2. Secure against being re-connected
3. Ensure there is no voltage
4. Connect to earth and short-circuit
5. Cover or barricade adjacent live parts

2.5 Cyber security

The industry faces intensifying cyber security risks. In order to increase stability, safety and robustness of its solutions, Busch-Jaeger has formally established cyber security robustness testing as part of the product development process.

The following measures are prerequisite for the safe operation of your system. Busch-Jaeger accepts no liability for non-observance.

Access control and limitation

The careful isolation of the system against unauthorized access is the basis for every protective concept. Only authorized persons (fitter, caretaker, tenant) are allowed physical access to the IP network or bus system and its components. This also includes the device described in this instruction manual.

The best possible protection of the IP or network media (WLAN) and the transfer nodes must be guaranteed already during planning and installation. Sub-distributions with fieldbus devices must be lockable or be in rooms to which only authorized persons have access.

Bus cabling

- The ends of the bus cables must not be visible, i.e. they must not project out of walls or channels, either inside or outside of the building.
- Bus cables in outdoor areas or in areas with limited protection represent an increased safety risk. The physical access should be made exceptionally difficult.

IP Network

The local network represents a sensitive component for safe communication. That is why unauthorized access to the local network should be prevented. The normal safety mechanisms for IP networks are to be used, e.g.:

- Safe encryption of wireless networks
- Use of complex passwords and protection of these against unauthorized persons
- Physical access to network interfaces (Ethernet interfaces) and network components (routers, switches) should only be possible in protected areas.
- MAC filter (table with certified device addresses)

Connection to the Internet or the local IP network

To prevent improper use, no router ports from the Internet into the building network or home network are to be opened to the display. A VPN tunnel is suitable for safe remote control.

The stable and reliable function of the device also depends on the reliability of the local IP network to which the server is connected. For this reason additional network components are to be used to repel the DoS attacks (denial of service) from the Internet. Such attacks can overload the local IP network or the individual components and make them inaccessible.

Safety of user accounts

Set a strong access password during initial commissioning. Use passwords that you have received from the administrator only for the first login.

Keep passwords secret and use a password manager with two-factor login as memory aid, e.g. Keepass.

Updates

The device supports various update options. A detailed overview is available in Chapter 8 “Updating options“ on page 37.

Backup / Restoration

The user can backup / restore device settings. To perform the backup the user must enter a password. This password is used as safety key to encrypt the backup information. If the user wants to restore the device settings via a backup file, he must first enter the defined password so that the backup information can be decrypted.

Solutions for protection against malware

The product is not susceptible to malware, because a user-defined code cannot be executed on the system. The only option of updating the software is the update of the firmware. Only a firmware signed by Busch-Jaeger is accepted.

Password rules

Preset passwords should be changed by the user during the first use of the device.

2.6 Safety instructions

Danger - Electric voltage!

Electric voltage! Risk of death and fire due to electric voltage of 100 … 240 V.
Dangerous currents flow through the body when coming into direct or indirect contact with live components. This can result in electric shock, burns or even death.

- Work on the 100 … 240 V supply system may only be performed by authorised and qualified electricians.
- Disconnect the mains power supply before installation / disassembly.
- Never use the device with damaged connecting cables.
- Do not open covers firmly bolted to the housing of the device.
- Use the device only in a technically faultless state.
- Do not make changes to or perform repairs on the device, on its components or its accessories.
- Keep the device away from water and wet surroundings.

Danger - Electric voltage!

Install the device only if you have the necessary electrical engineering knowledge and experience.

- Incorrect installation endangers your life and that of the user of the electrical system.
- Incorrect installation can cause serious damage to property, e.g. due to fire.

The minimum necessary expert knowledge and requirements for the installation are as follows:

- Apply the "five safety rules" (DIN VDE 0105, EN 50110):
  1. Disconnect
  2. Secure against being re-connected
  3. Ensure there is no voltage
  4. Connect to earth and short-circuit
  5. Cover or barricade adjacent live parts.
- Use suitable personal protective clothing.
- Use only suitable tools and measuring devices.
- Check the type of supply network (TN system, IT system, TT system) to secure the following power supply conditions (classic connection to ground, protective earthing, necessary additional measures, etc.).

Caution! - Risk of damaging the device due to external factors!

Moisture and contamination can damage the device.

- Protect the device against humidity, dirt and damage during transport, storage and operation.

3 Information on protection of the environment

3.1 Environment

Consider the protection of the environment!

Used electric and electronic devices must not be disposed of with domestic waste.

– The device contains valuable raw materials which can be recycled. Therefore, dispose of the device at the appropriate collecting depot.

All packaging materials and devices bear the markings and test seals for proper disposal. Always dispose of the packaging material and electric devices and their components via the authorized collecting depots and disposal companies.

The products meet the legal requirements, in particular the laws governing electronic and electrical devices and the REACH ordinance.

(EU Directive 2012/19/EU WEEE and 2011/65/EU RoHS)

(EU REACH ordinance and law for the implementation of the ordinance (EC) No.1907/2006).

All packaging materials and devices bear the markings and test seals for proper disposal. Always dispose of the packaging material and electric devices and their components via the authorized collecting depots and disposal companies.

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(EU Directive 2012/19/EU WEEE and 2011/65/EU RoHS and 2009/125 Ecodesign)

(EU REACH ordinance and law for the implementation of the ordinance (EC) No.1907/2006)

4 Product description

4.1 Device overview

The devices are presence or movement detectors which are designed only for interior areas of buildings. Depending on the type of use of the movement and/or presence monitoring, the detectors serve for switching lighting systems in dependence of brightness and movement. It makes possible the specific deactivation and activation of light rows in dependence of the brightness of the room. Also dimming/regulating the brightness to a defined value in a designated detection range with the corresponding device is possible.

The HF presence and movement detectors use a frequency from 5.8 GHz or 24 GHz according to the version. Both operate in the high frequency range to ensure a precise and reliable detection. The high frequency technology uses electro-magnetic waves that are radiated from the sensor and reflected back. The reflection of these waves changes when an object or person moves. The sensor recognises these changes and detects them as movement. This technology is especially effective since it can be used through materials such as glass, wood or lightweight construction walls.

Advantages of the KNX HF presence detector:

- Precise detection: The sensors are unaffected by temperature and can detect movement even behind partitioning walls
- Versatile applications: Ideal for rooms such as toilets, changing rooms, stairwells or offices
- Seamless integration: Thanks to the KNX interfaces the detector can be easily integrated into existing building control systems
- Flexibility: Coverage and sensitivity can be set electronically and so adjusted to the room sizes and requirements
- Efficiency: Due to the precise control of lighting and HVAC system the presence detector contributes to the saving of energy

The integrated bus coupler makes possible the connection of a KNX bus line. The device can be mounted either in the ceiling via hollow-wall mounting, via the optionally available surface-mounting box (PMA/A1.11-88x) on the ceiling or mounted with the available flush-mounted mounting set (PMA/K2.11-88x). The mounting instructions are enclosed with the respective accessories.

The overall function of the device also depends on the mounting height.

4.2 Scope of supply

The scope of supply only contains the device insert. The surface-mounted housing (Surface-mounting box 10") for surface-mounting and the flush-mounting set (FM Mounting set (round box)) must be ordered separately!

4.3 Overview of types

Article no.	Product name	Detection range	Usage	Mounting height
BMH/U2.1.1x-88x	Movement detector HF, standard	12 m max.	Single rooms (e.g. office, living room, etc.). Suited for areas in which no large demands are made on the functionality.	2.5 m, 3 m, 4 m
BMH/U2.55.1x-88x	Movement detector HF, IP55	12 m max.	Single rooms (e.g. office, living room, etc.). Suited for areas in which large demands are made on the functionality.	2.5 m, 3 m, 4 m
PMH/U2.1.11-88x	Presence detector HF, standard	10 m max.	Single rooms (e.g. office, living room, etc.). Suited for areas in which a precise presence detection is necessary. Basic function.	2.5 m, 3 m, 4 m

Table. 1: Overview of types

4.4 Functional overview

	Standard **BMH/U2.1.1x-88x** **PMH/U2.1.11-88x**	**IP55** **BMH/U2.55.1x-88x**
[1]	Detector including surveillance	Detector including surveillance
[2]	Constant light switch	Constant light switch
[3]	Brightness detection	Brightness detection
[4]	Temperature detection	-
[5]	Moisture detection	-
[6]	Logic function	Logic function

Table. 2: Functional overview

[1] Detector application with two-stage switch-off function, with integrated surveillance function and day/night function.

[2] Constant light switch with up to two independent channels or with a maximum of two outputs for brightness-dependent switching of two light rows in the room.

[3] For the specific switch-off and switch-on of light rows dependent on room brightness.

[4] Temperature detection application.

[5] Moisture detection and extra function for dew point calculation.

[6] General functions (Telegram cyclical, priority, logic functions, gates, staircase lighting, delay, min./max., scene actuator, sequence).

4.5 Description of functions

Notice
A detailed description of the individual functions is contained in the “Description of application and parameters“ on page 40

HF presence and movement detectors use radar technology to detect movement and presence. These devices send high-frequency electro-magnetic waves and measure the reflected signals to detect movement. They are in a position to detect even the smallest movements such as breathing.

HF presence and movement detectors can pass through different materials, which makes them suitable for applications without visual line of sight (NLOS). The effect of different materials are explained in the following:buttons are explained in greater detail in the following:

- Glass: HF waves can pass through glass with a minimum of attenuation. The detection range is reduced by approximately 10-20%, yet remains effective.
- Wood: HF waves can pass through wood, yet the detection range can be reduced by 20-30%
- Walls: The passing through walls depends on their thickness and material. HF waves can pass through thin walls and partition walls, yet thicker walls or those with denser materials reduce the detection range considerably. Depending on the thickness and density of the wall, the reduction can amount to 50% or more.

Low frequencies can pass through materials better than high frequencies. BMH/XUxx devices with 5.8 GHz are therefore better suited for applications in which partitioning walls or other obstacles are present in the detection range. The passing through materials with 24 GHz devices is clearly lower.

The devices described here can, depending on the device type, be used either as presence and/or movement detector.

4.5.1 The difference between movement detectors / presence detectors

- Both movement detectors and presence detectors are based on the same detection principle, yet presence detectors operate in a higher m frequency range which allows them to detect finer movement. The PMH/Uxx versions are therefore definitely more precise and can detect small movements better than the BMH/Uxx devices that serve for movement detection.
- The lower the frequency range, the wider is the detection range of the detector. The BMH/Uxx versions (5.8 GHz) therefore have a higher detection range when compared to the PMH/Uxx versions (24 GHz).
- Presence detectors, different to movement detectors, can distinguish between artificial light (which has been activated by it) and natural light; which makes functions such as constant light control possible, for which the amount of artificial light is added to obtain a certain overall brightness.
- The higher the frequency range, the finer the movements the detector can detect. The PMH/Uxx versions are therefore definitely more precise and can detect small movements better than the BMH/Uxx devices that serve for movement detection.
- While the BMH/Uxx versions can only be adjusted in their sensitivity, the 24 GHz technology (PMH/Uxx) offers the option of setting not only the sensitivity, but also to reduce the range and to divide the detection range into two different zones.

Main applications:

- Movement detector:

  Switching of light at the detection of walking persons, area surveillance.
- Presence detector:

  Presence control (also activities while seated) for switching of light, heating or similar.

4.5.2 Constant light

The devices can operate either in "Automatic" or "Semi-automatic" mode. If semi-automatic is selected, for example, the light must be switched on manually via a control element. The light remains on as long as movement is detected and daylight is not sufficient. If no movement is detected, the switch-off delay expires. Only then an OFF telegram is sent to the bus via the output. In automatic mode the movement sensor also takes over the switch-on function as soon as someone enters the room.

Constant light switch

The constant light switch switches on lamps in the room as soon as movement of a person is detected and the desired brightness value is not attained by the entering daylight alone. The setpoint value minus hysteresis is kept at least as long as people remain in the detection area. The application automatically detects when the daylight is sufficient. The lamps are then switched off again to save energy.

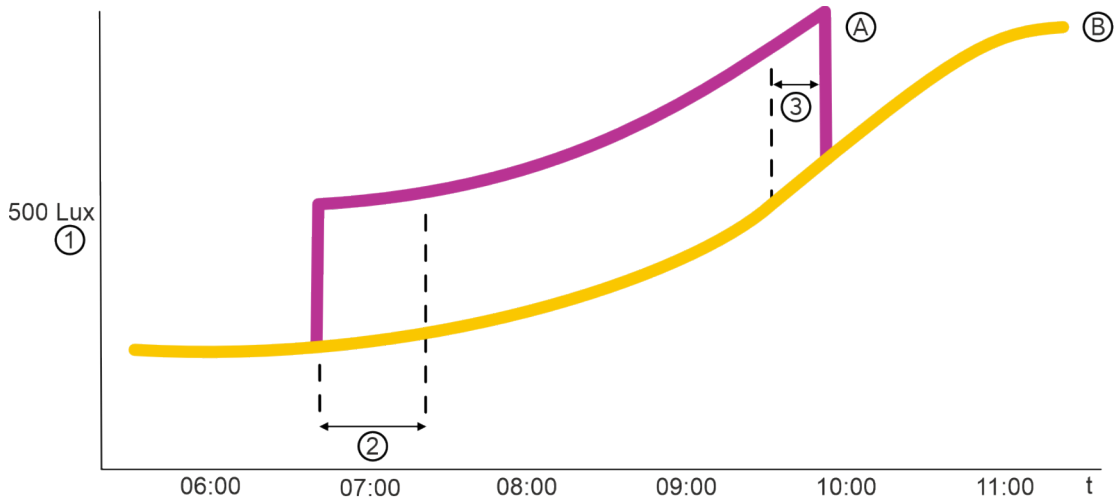


Fig. 1: Control parameters constant light switch with one light strip

[A] Artificial light curve

[B] Sunlight curve

Control parameters:

[1] Setpoint (lux)

[2] Used light source (delay time given: LED / Halogen = no delay time; (compact) fluorescent lamp = delay time 4 minutes)

[3] Minimum time above the switch-off threshold (min.) → parameter setting no longer available (automatically specified ba the light source used: LED / Halogen = 1 minute; (compact) fluorescent lamp = 4 minutes)

To implement a constant light control function, certain parameter settings must be configured, which create dependencies. These dependencies are illustrated in the diagram above.

A switch-off delay can be set. This time expires when the presence detector can no longer detect any movement. Once this time has elapsed, an OFF telegram is sent on the output. Connected lights are switched off. The switch-off delay should always be greater than the "delay after switching on until the artificial light component is measured" ([2] Light source used). In the worst case, the light sensor would measure the artificial light component when the lights are switched off. Since the entire constant light circuit is based on this value, this should be avoided. The "delay after switching on until the artificial light component is measured" ([2] light source used) is particularly important for light sources that only reach their full brightness after a few seconds. Fluorescent lamps, for example, need up to approx. 250 seconds. Incandescent lamps, on the other hand, reach their full brightness almost immediately. The "minimum time above the switch-off threshold" [3] ensures that the proportion of natural light in the room reaches a stable value before the artificial light is switched off. If the time is too short, the lights in the room may switch on and off unintentionally. This parameter is automatically set by selecting the light source used.

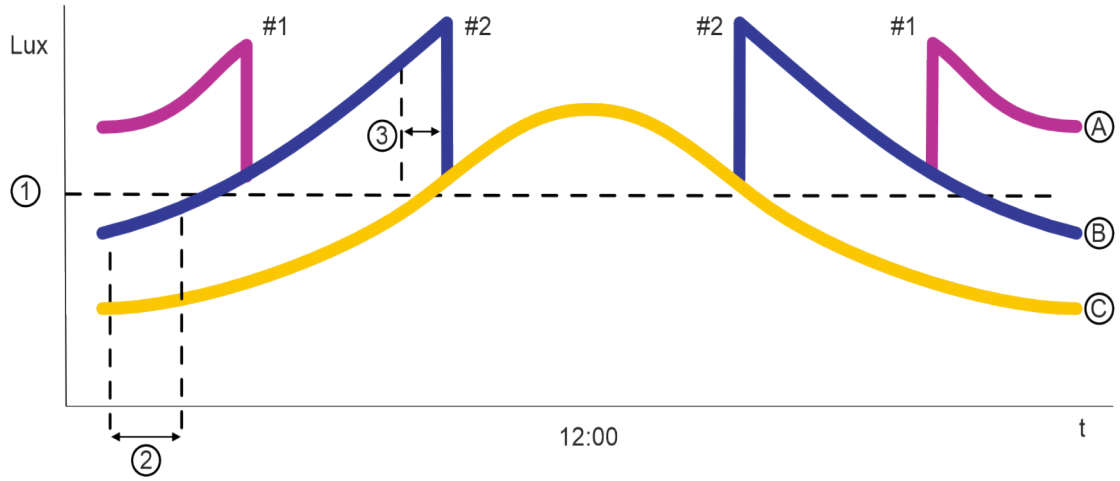


Fig. 2: Control parameters constant light switch with two light strips

[A] Artificial light curve light strip 1

[B] Artificial light curve light strip 2

[C] Sunlight curve

Control parameters:

[1] Setpoint (lux)

[2] Used light source (delay time given: LED / Halogen = no delay time; (compact) fluorescent lamp = delay time 4 minutes)

[3] Minimum time above the switch-off threshold (min.) → parameter setting no longer available (automatically specified ba the light source used: LED / Halogen = 1 minute; (compact) fluorescent lamp = 4 minutes)

Notice

Hysteresis should also be taken into account. However, for reasons of simplicity, this is not shown.

The special parameter settings for two light strips must be observed for this purpose.

4.6 Detection range

Apart from the installation height, the detection range also depends on the reflection intensity of the electromagnetic waves in the environment. The specified values refer to a free environment (without electromagnetic reflection). The detection range changes at different electromagnetic wave reflection in the environment.

Detection range seated

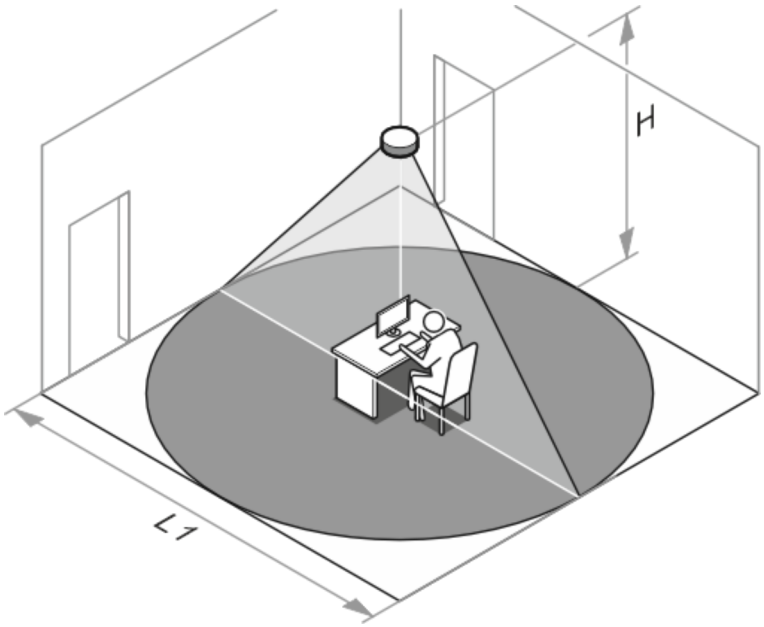


Fig. 3: Detection range seated

Presence detectors are required for movement detection of seated persons. Only presence detectors have the necessary detection sensitivity for this.

Seated persons must be completely within the detection range.

With higher installation, the detection range becomes larger, but the detection density smaller.

The shorter the distance between the person to be detected and the presence detector, the smaller the movement can be that is still detected. Ideally the maximum mounting height is 3.5 m.

Detection range lateral and frontal

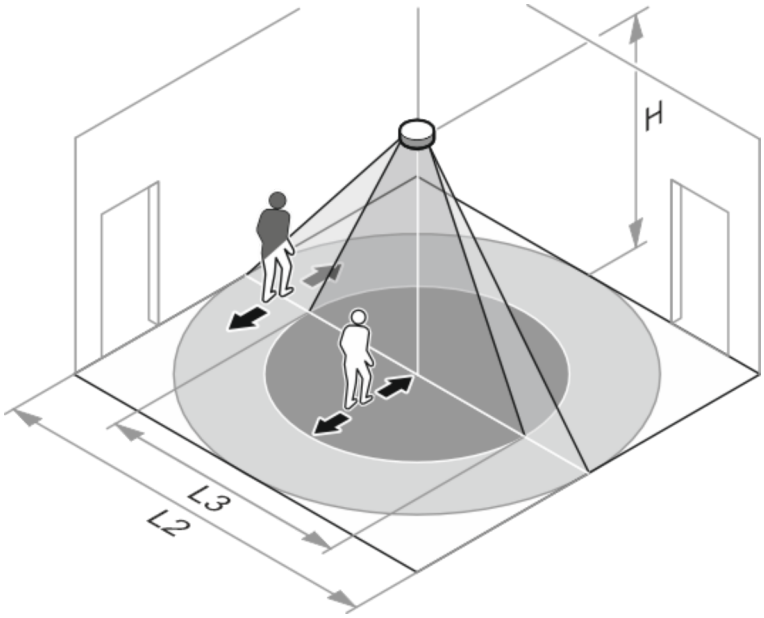


Fig. 4: Detection range lateral and frontal

The detection range is at its highest when the person to be detected moves crosswise toward the device (lateral).

The detection range is physically dependent smaller when the person to be detected moves directly toward the device (frontal)

Mounting height (H)	Maximum detection range Seated (L1), lateral (L2), frontal (L3)
BMH/U2.1.1x-88x	
2.5 m	Seated: -/ Frontal: 8 m Lateral: 10 m
3 m	Seated: -/ Frontal: 10 m Lateral: 12 m
4 m	Seated: -/ Frontal: 8 m Lateral: 10 m

Mounting height (H)	Maximum detection range Seated (L1), lateral (L2), frontal (L3)
BMH/U2.55.1x-88x	
2.5 m	Seated: -/ Frontal: 8 m Lateral: 10 m
3 m	Seated: -/ Frontal: 10 m Lateral: 12 m
4 m	Seated: -/ Frontal: 8 m Lateral: 10 m
PMH/U2.1.11-88x	
2.5 m	Seated: 8 m Frontal: 8 m Lateral: 10 m
3 m	Seated: 8 m Frontal: 8 m Lateral: 10 m
4 m	Seated: 8 m Frontal: 8 m Lateral: 10 m

5 Technical data

5.1 Overview

Technical data（BMH/Uxx）		
Supply voltage KNX		21 - 32 V DC, <18 mA
KNX	Type of connection	Screwless
	Bus connection terminal	4 x 0.5 mm^2
	Line type	J-Y(St)Y, 4 x 0.6 - 0.8 mm
Type of protection	IP 20	EN 60529
	IP 55 in connection with BMH/U2.55.1x-88x	EN 60529
Protection class	II	EN 61140
Overvoltage category	III	EN 60664-1
Degree of contamination	II	EN 60664-1
Ambient conditions	Operating temperature	-5°C to +45°C
	Storage temperature	-15°C to +55°C
	Humidity	95%, no development of dew permissible
	Height	<2000 m
Dimensions		40 mm x 80 mm (H x D)

Technical data（PMH/Uxx）		
Supply voltage KNX		21 - 32 V DC, <5 mA
Auxiliary voltage		12 -.30 V DC (+10% / -15%)
Power consumption		Max. 0.6 W
KNX connection Bus connection terminal Line type		Screwless 4 x 0.5/mm2 J-Y(St)Y, 4 x0.6 - 0.8 mm
Type of protection	IP 20	EN 60529
Protection class	II	EN 61140
Overvoltage category	III	EN 60664-1
Degree of contamination	II	EN 60664-1
Ambient conditions	Operating temperature	-5°C to +45°C
	Storage temperature	-15°C to +55°C
	Humidity	95%, no development of dew permissible
	Height	<2000 m
Dimensions		40 mm x 80 mm (H x D)

6 Connection, installation / mounting

6.1 Safety instructions

Danger - Electric shock due to short-circuit!

Risk of death due to electrical voltage of 100 to 240 V during short-circuit in the low-voltage line.

– Low-voltage and 100 - 240 V lines must not be installed together in a flush-mounted box!
– Observe the spatial division during installation (> 10 mm) of SELV electric circuits to other electric circuits.
– If the minimum distance is insufficient, use electronic boxes and insulating tubes.
– Observe the correct polarity.
– Observe the relevant standards.

Danger - Electric voltage!

Install the device only if you have the necessary electrical engineering knowledge and experience.

- Incorrect installation endangers your life and that of the users of the electrical system.
- Incorrect installation can cause serious damage to property, e.g. due to fire.

The minimum necessary expert knowledge and requirements for the installation are as follows:

- Apply the "five safety rules" (DIN VDE 0105, EN 50110):
  1. Disconnect
  2. Secure against being re-connected
  3. Ensure there is no voltage
  4. Connect to earth and short-circuit
  5. Cover or barricade adjacent live parts
- Use suitable personal protective clothing.
- Use only suitable tools and measuring devices.
- Check the type of supply network (TN system, IT system, TT system) to secure the following power supply conditions (classic connection to ground, protective earthing, necessary additional measures, etc.).
- Observe the correct polarity.

6.2 Installation site

The devices are active, temperature-dependent movement/presence detectors. The devices send out high-frequency electromagnetic waves (5.8 GHz or 24GHz) and receive their echo, A change of the echo in the detection zone is recognised by the sensor as movement/presence.

Precautionary measures for the use of the product:

- The devices can, for example, pass through glass, thin wooden panels and dry walls, but not materials such as concrete walls and metals. That is why it is necessary during local installation to position the sensors appropriately and to adjust the suitable sensitivity parameters based on the size of the room and the conditions of the walls to obtain optimum detection.
- Wireless devices such as 5G routers and high-performance radio transmitters could interfere with the operation of the movement/presence detectors. That is why a distance of at least 3 m to such wireless devices should be ensured to during the installation . Also the sensitivity should be adjusted to the actual local situation.
- If several detectors are used in the same environment, a distance of more than 1.5 m between the devices should be ensured since close positioning can at times lead to false alarms.
- The HF movement/presence detectors should be installed at the largest possible distance to large metal devices, pipe lines, air-conditioning outlets, exhaust air openings, smoke flaps and similar areas, to prevent the vibrations of these objects from impairing the detection function.
- During the installation the sensor of these products should not be covered by obstacles (such as chandeliers, pipes, etc.) since this could impair the normal operation of the devices.

Based on the above-mentioned precautionary measures there are additional interference factors when used in outdoor areas and increased probability for false alarms. That is why the sensitivity should be adjusted accordingly to prevent this.

6.3 Mounting

Caution! The device can sustain damage when coming into contact with hard objects!

The plastic parts of the device are sensitive.

– Pull the attachment off only with your hands.
– Do not lever parts off with screwdrivers or similar hard objects.

Preparation:

- Drill a recess with a minimum diameter of approx. 68 mm into the ceiling. The thickness of the ceiling must amount to 9 - 25 mm for the installation.
- A sufficient length of the bus line must project from the hole.

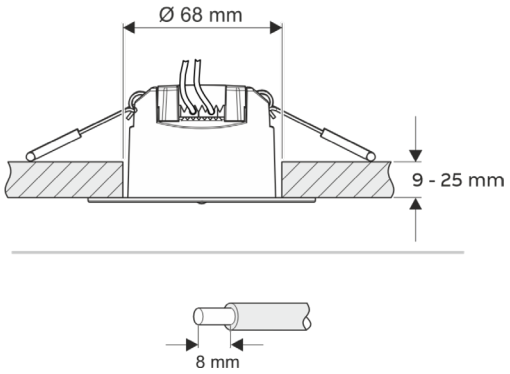


Fig. 5: Dimensions

Connection of the integrated bus coupler (rear of the device):

- Connect the bus line with the enclosed 4-pin bus connection terminal. The connection is reverse polarity protected!
- Slide the bus connection terminal into the push-on fixture provided.
  Fold the strain relief down as an option.

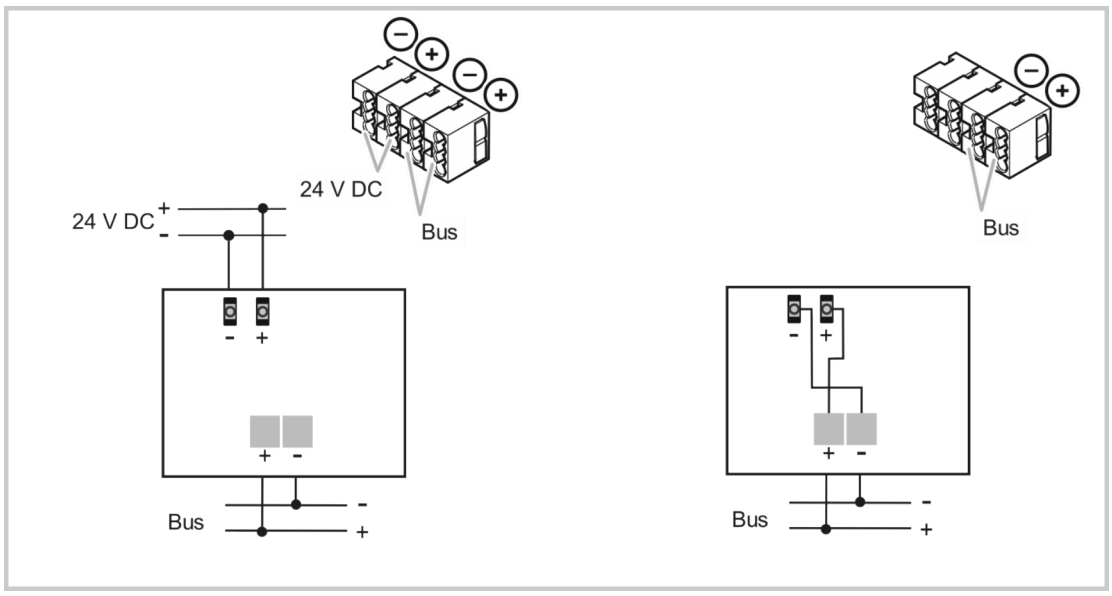


Fig. 6: Bus connection terminal PMH/Ux (left), BMH/Ux (right)

Notice
Due to the increased information content of the 24GHz technology an additional power supply for the PMH/Uxx versions is required, while the BMH/Uxx versions are energised via the bus line. Yet, both versions use the same bus connection terminal.

- Carefully insert the connected device into the recess. For this the spring clamps must be pressed toward the top.
- For the installation with the Surface-mounting box 10" (PMA/A1.11-88x) the clamps are not required and can be pulled off.

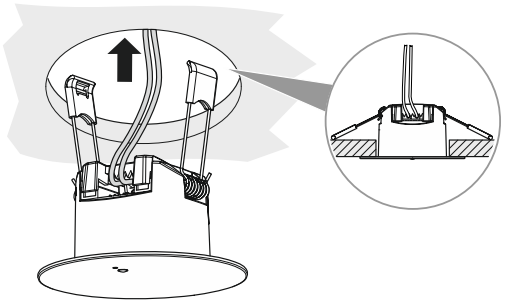


Fig. 7: Position of the spring clamps

- After the insertion of the device the spring clamps automatically fold down and hold the device in the correct position.
- A subsequent alignment is still possible.

6.4 Dismantling

Notice
Disassembly is carried out in reverse order!

7 Commissioning

7.1 Hardware

Notice
Please observe the mounting instructions (Page 32)

7.2 Software

To start operating the device a physical address must be assigned first. The physical address is assigned and the parameters are set with the commissioning software ETS (from version ETS 5/ only native application).

7.3 Preparatory steps

Notice
The devices are a product of the KNX system and meet KNX guidelines. Detailed expert knowledge by means of KNX training sessions for a better understanding is assumed.

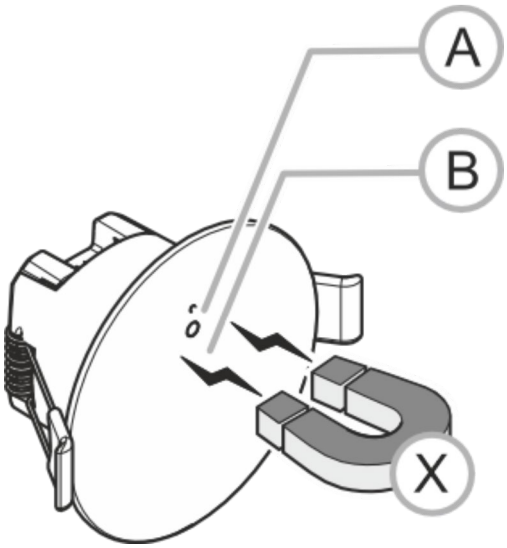
1. Connect a PC via the KNX interface to the KNX bus line. Start the commissioning software ETS (from version ETS 5).
2. Switch on the bus voltage.

7.3.1 Assigning a physical address

Programming is started via the software application (ETS). For this the device must be set into the programming mode.

Switchover to programming mode:

- Hold a magnet [X] on the sensor [B].
- The LED [A] lights up and the device is in programming mode.
- The red LED lights up during the process. If the device is not programmed, the programming mode is ended automatically after 15 minutes.



Notice
The small opening below the LED is the temperature/moisture sensor. Do not insert any objects, otherwise the device becomes defective.

Notice
The magnet is not included in the scope of delivery

7.3.2 Assigning the group address(es)

The group addresses are assigned in connection with the ETS.

7.3.3 Selection of software application

Please contact our Internet support unit (www.BUSCH-JAEGER.de). The application is loaded into the device via the ETS.

7.3.4 Description of software applications

Various functions can be implemented via the ETS commissioning software. The function of the device is dependent on the parameters selected in the respective software application. Detailed description of applications with explanation of parameters is available in Page 40 (only in the following languages: DE, EN, ES, FR, NL, IT).

7.3.5 Additional information

Notice
The following information is relevant only if no adjustment of brightness has been carried out.

Setpoint

Please note that the lux value to be set in the parameters does not correspond to the value required at the height of the desk. The light sensor is installed on the ceiling and can only measure the luminosity that is reflected from the opposite surfaces. The setpoint to be entered is therefore lower than the light value at the height of the work station. Dim the lights to the desired intensity. Then save the measured light value via the memory object of the presence detector. The stored value can also be read via the object for the setpoint.

Outputs

The presence detector can also regulate two independent light circuits per channel via the two outputs. The value of output 2 results from the value of output 1 and the respective proportionality factor. If the required setpoint is not reached, control continues beyond the factor.

Example:

An office is fitted with two light rows. Output 1 controls the light row in the darker part of the room. Light row 2 in the front window area is connected to output 2. For the maximum brightness during the day a proportional factor of 70% is sufficient for output 2. During the night the full brightness in the room is not sufficient for output 1 and output 2. Output 2 would now control beyond the proportional factor until the set value or the full brightness of the lamp has been reached.

Switch-off delay

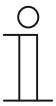
The presence detector will switch off or dim the lamps in the room if no movement is detected. A switch-off delay can be set to prevent the lamp from being switched off immediately. This time starts as soon as movement is no longer detected. If movement is detected again within this period, the switch-off delay is reset.

Hysteresis

The hysteresis is a percentage value (+/-) that is related to the setpoint in lux. The hysteresis is a tolerance for maintaining the setpoint. The preset value is sufficient for most applications.

8 Updating options

Use the ETS app “KNX Bus Update” for updating the firmware.



Notice
Please adhere to the current information about the download files. These also contain instructions for the installation of the firmware update.

9 Operation

9.1 LED status display

Display	Function
▪ Red LED - flashes once	Starting the device when it has already been programmed via ETS
▪ Red LED flashes fast (5 Hz)	Movement detection in test mode
▪ Red LED lights up permanently	Programming mode
▪ Red LED flashes slowly for 5 s (1 Hz) and then the LED flashes fast for 30 s (5 Hz)	Master reset

Table:3 LED status display

9.2 Individual operating functions

Test mode / Activation test

The activation test serves for checking the detection range via pacing off. During the activation test a switch-off delay is activated for seven seconds, and the device operates independent of brightness.

Activating the activation test

The test mode is activated in the first minutes after commissioning (10 minutes). This also applies when the device is not yet configured (no specification of stages for the individual sensors). At a detection of movement in test mode the red status LED flashes fast (5 Hz). After expiry the movement detector must be activated via app or ETS or via a master reset.

- When the standard settings for your activation test are suitable, you can perform the activation test and do not need to make any adjustments.
- The movement detector operates during the activation test brightness-independent. The switch-off delay at a trigger amounts to seven seconds.
- When the device has already been configured, only configured movement is detected during the activation test. Otherwise all sensors are considered regarding maximum sensitivity.
- When the activation test is manually ended before the expiry of 10 minutes (via object or app), the device no longer starts in test mode.

The test mode can be activated at a later point in time via the app or in the ETS.

Performing the activation test

1. Pace off the detection range.
   – Each detection is indicated by the status LED flashing quickly.
2. Adjust the detection range according to your needs and test the adjustment by means of renewed pacing off.

9.3 RESET (Resetting the device)

Master reset via magnet

1. Disconnect the device from power for at least 10 seconds.
2. Connect the device to the power again while holding the magnet at the device.

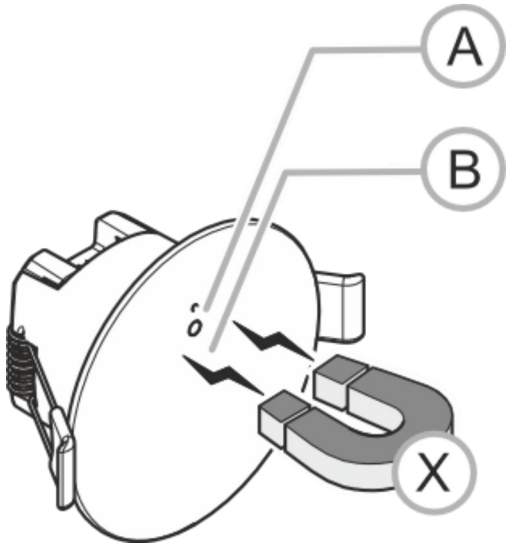
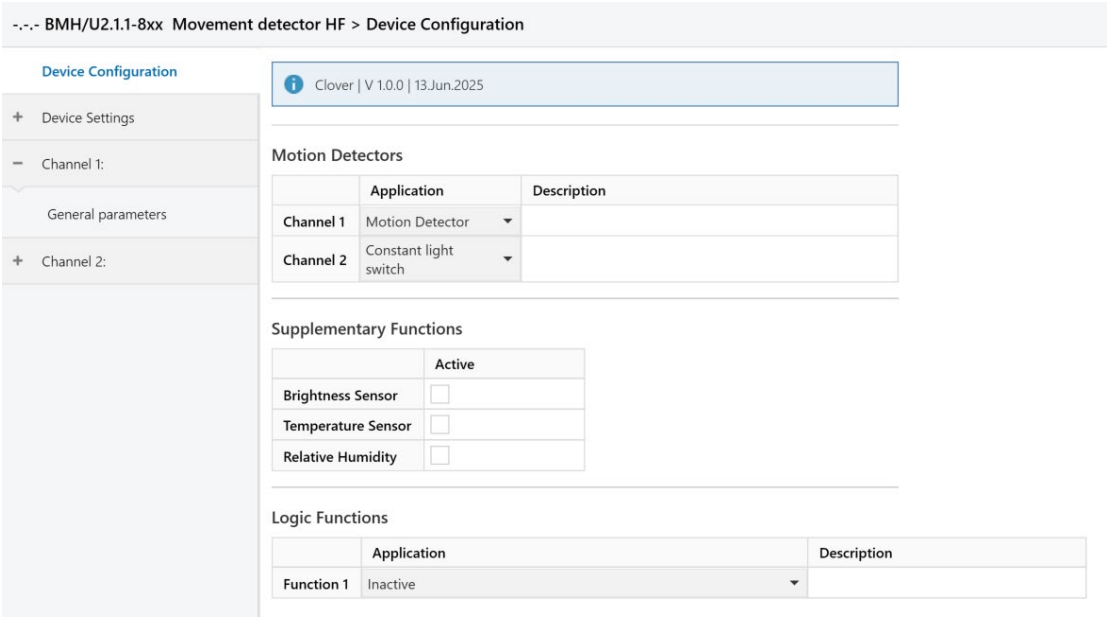


Fig. 8: Reset via magnet

3. Hold the magnet (X) for at least 5 seconds at the sensor (B) of the device, as illustrated above.
   - The red LED (A) flashes slowly for 5 seconds.
   - The red LED then flashes fast for 30 seconds.
   - Then the LED goes out.
   - The reset has then been performed

10 Description of application and parameters

10.1 Application “Device configuration”



In the device configuration the user can select the applications he wishes to use.

Movement detector

- The device has two channels available for movement detectors.
- Available applications: Movement detector, constant light switch.

Additional functions:

- Brightness sensor
- Temperature sensor
- Relative humidity

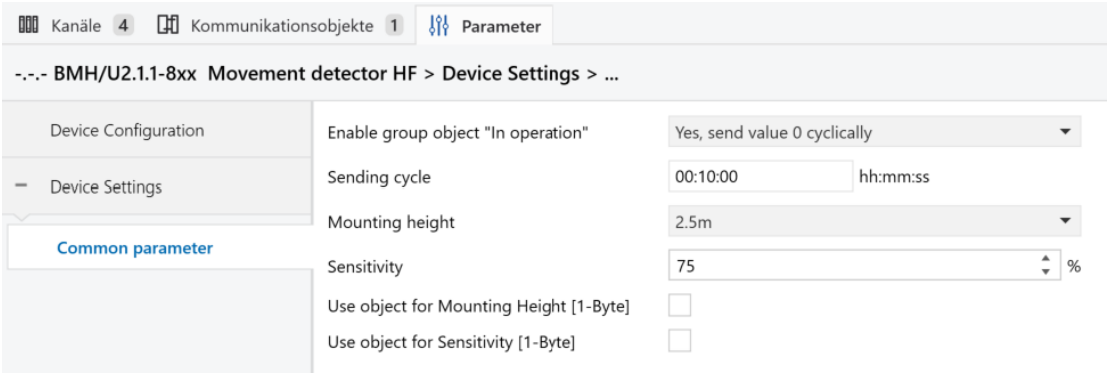
Notice
The brightness sensor application is available only for the IP55 version.

Logic functions:

- The device has a logic channel.
- The user can select from nine different logic functions.

10.2 Application "Device settings"

10.2.1 General device settings



10.2.1.1 Activate object for "In operation"

Options:	No
	Yes, send value 0 cyclic
	Yes, send value 1 cyclic

The user can activate the group object “In operation” to receive a feedback signal about it from the device as to whether it is still connected and supplied with power.

Notice
The following parameter is only available when "Yes, send value 0 cyclic" or "Yes, send value 1 cyclic"is selected.

10.2.1.2 Send cyclic (hh:mm:ss)

Options:	00:00:01 ... 00:10:00 ... 18:12:15

Here the time interval between the sending of two telegrams is described. This function is only visible when “Yes, send value 0 cyclic” or "Yes, send value 1 cyclic” is selected.

10.2.1.3 Mounting height

Options:	2.5 m
	3 m
	4 m

The selection of the correct mounting height improves the detection performance of the sensor.

10.2.1.4 Sensitivity

Options:	1% ... 75% ... 100%

Here the user can adjust the sensitivity of the movement detector.

10.2.1.5 Using object for mounting height

Options:	No
	Yes

By setting the checkbox, the object “Mounting height” is activated. If the checkbox is not set, the standard value (2.5 m) is used.

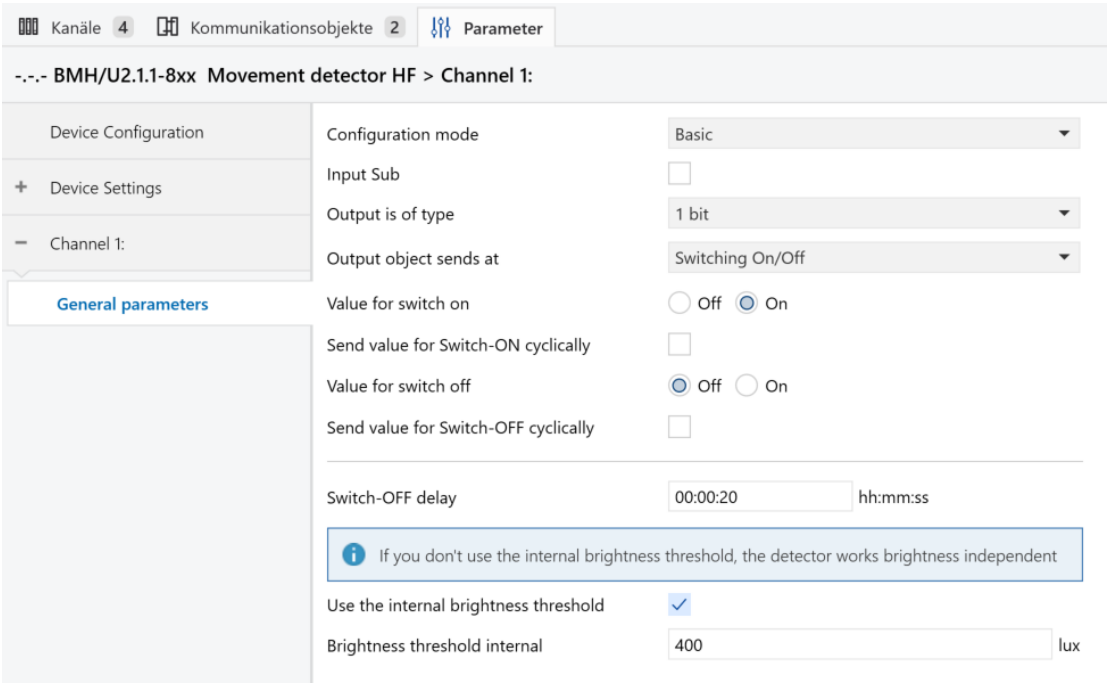
.

10.2.1.6 Using object for sensitivity

Options:	No
	Yes

By setting the checkbox, the object “Sensitivity” is activated. If the checkbox is not set, the standard value (75%) is used

10.3 "Detector" application



10.3.1 General parameters

10.3.1.1 Configuration mode

Options:	Basic
	Premium
	Sub unit

- Basic:
  - Configuration mode “Basic” encompasses simple movement detector applications and shows only the necessary parameters for them. In this mode only the output objects, the switch-off delay and the brightness threshold can be parameterised.
- Premium:
  - Configuration mode “Premium” encompasses the entire scope of functions. (Selection of operating mode, extended communication objects, extra functions such as day/night operation or two-stage switch-off).
- Sub:
  - In mode “Sub” the movement detector channel operates as extension unit and sends detected movement cyclic to the main movement detector,

10.3.1.2 Extension Unit Input

Options:	No
	Yes

When activated, the selected movement detector functions as main unit for an extension unit.

- No:
  - Telegrams sent from an extension unit cannot be received.
- Yes:
  - A 1-bit communication object (input) "Extension unit" is activated. Via this input the master movement detector receives the (On) telegrams of the connected extension unit or of a push-button. The On telegram of an extension unit is comparable with a detected movement.

10.3.1.3 Output is of type

Options:	1 bit
	1 byte 0 - 100%
	1 byte 0 - 255
	Scene number 1 - 64
	RTC operating mode [1 byte]
	Forced operation

The parameter us used to specify the type of the output telegram. Depending on the setting made, the setting value of the parameter “Value for switching on” and “Value for switching off” changes.

- 1 Bit:
  - The telegram is sent as 1-bit telegram. The option is useful for switch actuators.
- 1-byte 0 - 100%:
  - The telegram is sent as 1-bit telegram in a range from 0 to 100%. The option is useful for the activation of dimmers.
- 1 byte 0 - 255:
  - The telegram is sent as 1-byte telegram in a numerical range from 0 to 255. The option is useful for actuators that are activated with a value of between 0 and 255.
- Scene number 1 - 64:
  - The telegram is sent in the form of a scene number between 1 to 64. The option is useful for the activation of light scenes.
- RTC operating mode switchover [1 byte]:
  - The telegram is sent as 1-byte telegram and serves for the switchover of the RTC operating mode. The option serves for the direct switching of room temperature controllers in a specific operating mode.
    - Auto
    - Comfort
    - Standby
    - ECO
    - Frost/heat protection

- Forced operation:
  - For setting of actuators with a defined status that cannot be superimposed by other telegrams.
  - ON, forced operation active
  - OFF, forced operation inactive

Notice

When the output type is changed, also the available parameter options change.

- Value for switching on
- Value for switching off

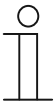
In this manual only settings for the 1-bit setting are described.

10.3.1.4 Output object sends at

Options:	Switch-on / switch-off
	Only switching on
	Switch only off

The parameter is used to specify the switching process at which the output object is to send a telegram.

- Switch-on / switch-off:
  - A telegram is sent at the start of movement and at the end of the switch-off delay.
- Only switching on:
  - The telegram is only sent at he start of a movement.
- Switch only off:
  - A telegram is sent only at the end the switch-off delay.



Notice

If only “Switch only on” or Switch only off” has been selected, the following parameters are not displayed:

- Value for switching on
- Send switch-on value cyclic
- Value for switching off
- Send switch-off value cyclic

10.3.1.5 Value for switching on

Options:	Off
	On

The parameter is used to specify the value for switching the device on.

- Off:
  - When the movement detector detects movement, value 0 is sent via the bus.
- On:
  - When the movement detector detects movement, value 1 is sent via the bus.

10.3.1.6 Send switch-on value cyclic

Options:	No
	Yes

- No:
  - The set value is sent only once via the bus.
- Yes:
  - The setpoint is sent cyclic via the bus. Parameter "Cyclic repeat time" is also displayed.

10.3.1.7 Value for switching off

Options:	On
	Off

- Off:
  - If the movement detector no longer detects movement and the switch-off delay has expired, value 0 is sent via the bus.
- On:
  - If the movement detector no longer detects movement and the switch-off delay has expired, value 1 is sent via the bus.

10.3.1.8 Send switch-off value cyclic

Options:	Yes
	No

- No:
  - The set value is sent only once via the bus.
- Yes:
  - The setpoint is sent cyclic via the bus. Parameter "Cyclic repeat time" is also displayed.

10.3.1.9 Cyclic repeat time (hh:mm:ss)

Options:	00:00:10 ... 00:00:30 ... 18:12:15

Here the time interval between the sending of two telegrams is described. This function is only visible if the checkbox for cyclic sending has been set beforehand.

10.3.1.10 Switch-off delay (hh:mm:ss)

Options:	00:00:10 ... 00:00:20 ... 18:12:15

The switch-off delay is the time period after the last movement detected and the sending of the telegram "Value for switch-off". If movement is detected again within this period, the switch-off delay is started again.

10.3.1.11 Use internal brightness threshold

Options:	Yes
	No

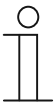
By setting the checkbox the internal brightness threshold is activated in the activated channel. If the checkbox is not set, the movement detector channel operates independent of brightness.

Notice
This function is only active when under “Device configuration” in section “Movement detection” the checkbox “EXT” has NOT been set for the corresponding channel.
In addition, the visibility of the function also depends on other settings in the extra parameters, e.g. switch-off automatic and monitoring.

10.3.1.12 Brightness threshold internal (lux)

Options:	0.5 - 400 ... 100,000

The brightness threshold is used to specify the lux value at which the movement detector is to respond. If the measured value is above the parameterised switching threshold, no telegram is sent.



Notice
The function is not visible when the operating mode has been parameterised to “Switch-off automatic” and “Monitoring” under “Movement detector” > “Extra parameters”.

10.3.2 Extra parameters

Notice
The following parameters are available only when “Premium” has been selected as configuration mode.

10.3.2.1 Operating mode

Options:	Automatic mode
	Automatic switch-off
	Automatic switch-on
	Monitoring

- Automatic:
  - Automatic switch-on and switch-off.
    The detector switches on automatically when detecting a movement. In automatic mode the movement detector switches on automatically when it detects movement. The switch-off is carried out after the switch-off delay after the last movement.
- Automatic switch-off:
  - Manual switch-on and automatic switch-off. With the switch-off automatic the movement detector is switched on by the object “External push-button". The switch-off is carried out automatically or under consideration of the switch-off delay. In this operating mode the parameter “Internal brightness threshold” cannot be used.
- Automatic switch-on:
  - Automatic switch-on and manual switch-off. With the switch-on automatic the movement detector switches automatically when detecting a movement. The object “External push-button is created automatically. The movement detector switches off automatically after 6 hours.
- Monitoring:
  - In "Monitoring" mode, the movement detector switches on brightness-dependent if movement was detected within the specified time. The switch-off occurs 2 seconds after the switch-on and the last detection of movement. In this operating mode the parameter “Internal brightness threshold” cannot be used.

Notice
Manual switch-on and switch-off is possible in operating modes “Automatic”, “Automatic switch-on” and “Automatic switch-off” via the “External push-button” parameter. This external push-button is activated under the "Push-button parameter”. During manual switch-off the detection of movement is suppressed for the pause time. But it can also be overridden manually with the external push-button. The pause time serves to prevent an immediate switch-on.

For example:
A person switches the light off manually when leaving the room. Without the pause time the detected movement would cause a renewed switch-on during exiting.

The following two parameters relate to the “Monitoring” operating mode.

Notice
The operating mode “Monitoring” can be set under the extended parameters “Extra parameters” of the respective movement detector channel, if the checkbox “EXT” has been activated under “Device configuration - Movement detector”.

10.3.2.2 Monitoring time window [mm:ss]

Options:	00:00:01... 00:00:30 ... 00:10:00

The monitoring time window correlates with minimum activity in the monitoring time window. The telegram is only sent when a movement is detected within the monitoring time window, e.g. 50% minimum activity.

For example:

- Monitoring time window = 30 seconds
- Minimum activity in the monitoring time window = 50%

If someone moves for 30 seconds within the 15 seconds, the value for switch-on is sent to the bus.

10.3.2.3 Minimum activity in the monitoring time window

Options:	10% ... 50% ... 100%

The parameter is used to set the percentage of the total time movement is to be detected before a movement is reported.

10.3.2.4 Extra functions

Notice
This parameter is only displayed when parameter "Output is of type" is set on 1 byte 0 - 100% or 1 byte 0 - 255 under “Movement detector” > “General parameters”. In addition, the operating mode must parameterised on “Automatic” or “Automatic switch-off”.

Options:	None
	Day/Night mode
	Two-stage switch-off

- None:
  - After the expiry of the switch-off delay the detector sends what has been set under the "Value for switch-off" parameter.
- Day/Night mode:
  - Offers the option to parameterise two different values and two different switch-off delays. Day and night mode is switched over via a separate 1-bit object.
- Two-stage switch-off:
  - After the expiry of the switch-off delay of the 1st stage the detector switches to the reduced brightness. Then the general switch-off delay is started. If this is expired, the “Value for switch-off” is sent.

Example for two-stage switch-off:

Switch-off delay = 5 minutes

- Value for switching off = 0%
- Value for reduced brightness = 20%
- Brightness reduced after switch-off delay = 3 minutes

If movement is no longer detected, the light is dimmed to 20% after 5 minutes and then to 0% after a further 3 minutes (switch-off).

The following parameters refer to the additional function “Day-/night mode”

10.3.2.5 Switch-on value day

Options:	0 - 100%
	0 - 255

The value ranges apply, depending on DPT, to:

- Output is of type 1-byte 0 - 100%
- Output is of type 1-byte 0 - 255

This value is the value that is sent in day mode and at starting of the movement detection.

10.3.2.6 Switch-off value day

Options:	0 ... 100%
	0 ... 255

The value ranges apply, depending on DPT, to:

- Output is of type 1-byte 0 - 100%
- Output is of type 1-byte 0 - 255

This value is the value that is sent in day mode and at the end of the movement detection time.

10.3.2.7 Switch-off delay for day

Options:	00:00:10 ... 00:03:00 ... 18:12:15

Switch-off delay time for day mode.

10.3.2.8 Brightness threshold day

Options:	1000 ... 100,000 Lux

Here the brightness threshold for activating the device in day mode can be set.

Notice
The day mode is activated with value “0” and deactivated with a “1”. This means that “Day mode” is the default setting.
The night mode is set under “General parameters”.

The following parameters refer to the additional function “Two-stage switch-off”

10.3.2.9 Value for 2. Stage

Options:	0 - 20 ... 100%
	0 - 51 ... 255

The value ranges are depending on DPT for:

- Output is of type 1-byte 0 - 100%
- Output is of type 1-byte 0 - 255

Here the value for the reduced brightness is set. After expiry of the switch-off delay the value is set to this value.

10.3.2.10 Switch-off delay for the 2nd stage [hh:mm:ss]

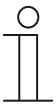
Options:	00:00:10 ...00:05:00 ... 18:12:15

Here the value for the switch-off delay of the 2nd stage is set. The switch-off delay then is comprised of switch-off delay and switch-off delay for the 2nd stage.

10.3.2.11 Using object switch-off delay for 2nd stage

Options:	No
	Yes

- No:
  - The switch-off delay can be changed exclusively via the parameter setting “Switch-off delay for the 2nd stage”.
- Yes:
  - To change the switch-off delay of the second stage of the movement detector there is a separate 2-byte object (input) “Switch-off delay” for the 2nd stage”. The entry is made in seconds. A switch-off delay of 4 minutes, for example, has a value of 240 seconds.



Notice

The values can be between 10 and 65535 seconds. If a value is sent that is to small or large, the value is adjusted automatically the limit value:

- Value < 10 -> Value = 10
- Value < 65535 -> Value = 65535

The following parameters relate to the total movement detector

10.3.2.12 Use forced switch-off

Options:	No
	Yes

The parameter is only adjustable if the "Operating mode" parameter is set on "Automatic" or "Automatic switch-off".

- No:
  - The device does not switch off after a specified time to carry out a new brightness measurement.
- Yes:
  - At detected movement the light can be switched on, although the brightness for switching off has already been exceeded. This effect can be prevented by activating this parameter. The movement detector switches off after 3x switch-off delay or at a minimum of 90 minutes or a maximum of 24 hours to carry out a new brightness measurement.

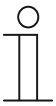
If the movement detector is switched on and continues to detect movement, it first operates brightness-independent.

Notice
At detected movement the light remains switched on, although the brightness can be sufficient. This effect can be prevented by activating this parameter

10.3.2.13 Use object for switch-off delay

Options:	No
	Yes

- No:
  - There is the option to change the switch-off delay via the “Switch-off delay” parameter setting.
- Yes:
  - To change the switch-off delay of the movement detector there is a separate 2-byte object “Switch-off delay” (Input) available. The time entry is made in seconds. A switch-off delay of 4 minutes, for example, has a value of 240 seconds.



Notice
The values to be sent can be between 10 and 65535 seconds. If a value is sent that is to small or large, the value is adjusted automatically the limit value:
- Value < 10 -> Value = 10
- Value < 65535 -> Value = 65535

10.3.2.14 Use object for test mode

Options:	No
	Yes

- No:
  - There is no possibility to set the detector to test mode via a separate object to test the detection range.
- Yes:
  - There is a separate 1-bit object “Activate test mode” (input) for activating the test mode with a 1. This function is ended with the receipt of a 0 on this object or automatically after 10 minutes. The LED flashes red during test mode as long as the sensor is triggered and the switch-off time of 3 seconds has not yet expired.

10.3.2.15 Use object actuator status

Options:	No
	Yes

- No:
  - There is no separate actuator status object for connecting with the status of an actuator.
- Yes:
  - A 1-bit communication object (input) "Actuator status” is activated. This, for example, is linked with the status of a switch actuator. When this actuator is switched off via a central command, the detector is informed and is ready again for switch-on after the pause time.

10.3.2.16 Use object status manual operation

Notice
This parameter is displayed only when the automatic switch-on/switch-off has been activated and/or when the external push-button has been activated.

Options:	No
	Yes

- No:
  - There is no separate object “Manual operating status” for monitoring the status of the control.
- Yes:
  - A 1-bit communication object (output) "Manual operating status” is activated. This object sends an 1-telegram when the movement detector is deactivated and only one manual operation is possible via the external push-button input. If this object sends an 0-telegram, the movement detector switches back to automatic mode.

10.3.2.17 Pause time

Options:	00.100 ... 01,250 ... 59,999

The set pause time is started after the detector has been switched off due to expiry of the switch-off delay or when a switch-off telegram is received on communication objects “External push-button” or “Actuator status”.

If movement is detected during this time, the detector is not switched on immediately. The pause time is first extended by seven seconds. If there is still movement after these seven seconds, the detector switches back on again.

If no movement is detected during the pause time, the detector is ready for activation again after the pause time.

This behaviour can, for example, be important when the lamp cools down drastically and is located within the detection range of the detector. Without a blockage there would be an unintentional switch-on. The purpose of pause time is to prevent an immediate re-activation.

For example:

A person switches the light off manually when leaving the room. Without the pause time the detected movement would cause a renewed switch-on during exiting.

Notice
The “External push-button” communication object is activated under the "Push-button parameter”. The “Actuator status” object is activated under “Extra parameters”.

10.3.2.18 “Extension unit input” takes the switch-on delay time into consideration

Notice
This parameter is only displayed when the sub-input has been activated.

Options:	Yes
	No

- Yes:
  - The extension unit input takes the same pause time into consideration as this main detector.
- No:
  - The extension unit input does not take the pause time into consideration.

10.3.2.19 Overwrite settings at download

Options:	Yes
	No

- Yes:
  - When the application is reloaded into the detector again, the values changed via the object are overwritten with the parameterised values of the ETS application.
- No:
  - When the application is downloaded again into the movement detector, the values changed via the object are not overwritten with the parameterised values of the ETS application.

Values:

- Switch-off delay
- Internal brightness threshold

10.3.3 Brightness parameters

Notice

- The following parameters are available only when the checkbox "EXT" is activated under “Device configuration - movement detector”
- In addition, either “Automatic”, “Switch-on automatic” or “Monitoring” must be parameterised under “Extra parameters”.

10.3.3.1 Used brightness

Options:	Brightness-independent
	Internal only
	External only
	Internal or external

- Brightness-independent:
  - The detector functions independent of brightness and will switch during each movement.
- Only internal:
  - The detector decides on the basis of a measured brightness and brightness value threshold whether it switches on at movement.
- External only:
  - The detector uses this externally measured brightness (e.g., through an external brightness sensor) and parameter “External brightness value threshold” (lux) to decide whether to switch on during movement.
- Internal or external:
  - The detector is activated only when the internally measured brightness drops below the internal brightness-value threshold OR the externally measured brightness drops below the external brightness-value threshold.

10.3.3.2 Extension unit input takes over the brightness

Options:	DO NOT take into consideration
	Take into consideration

- DO NOT take into consideration:
  - The extension unit uses its own brightness measurement independent of the main unit.
- Take into consideration:
  - The extension unit uses the brightness measurement of the main unit and does not send its own brightness values. The switching, for example, of lighting is made on the basis of the brightness measured by the main unit.

10.3.3.3 Use object for brightness-independent detection

Options:	No
	Yes

- No:
  - There is no separate object for the brightness-independent detection.
- Yes:
  - A 1-bit communication object “Brightness-independent detection” (input) is being enabled. This object makes possible the brightness-independent switching of the detector. If this object receives an 0-telegram, it operates again with the set brightness threshold.

10.3.3.4 Brightness-independent detection activation with

Options:	On telegram
	Off telegram

- On telegram:
  - The brightness-independent detection is activated with a 1-telegram and deactivated with a 0-telegram.
- Off telegram:
  - The brightness-independent detection is activated with a 0-telegram and deactivated with a 1-telegram.

10.3.3.5 Brightness independent detection after bus voltage return

Options:	No
	Yes

- No:
  - Detection independent of brightness is deactivated after a bus voltage recovery, reprogramming or a reset.
- Yes:
  - Detection independent of brightness is activated after a bus voltage recovery, reprogramming or a reset.

10.3.3.6 Use object for internal brightness threshold

Options:	No
	Yes

- No:
  - There is no separate “Internal brightness threshold” object.
- Yes:
  - A 2-bit communication object (input) "Internal brightness threshold” is activated. This can be used to change the switching threshold at which the detector is activated. The value is sent to this object in lux.

Notice
The range of values lies between 0.5 – 1100 lux.

10.3.3.7 Use object for external brightness threshold

Options:	No
	Yes

- No:
  - There is no separate “External brightness threshold” object.
- Yes:
  - A 2-bit communication object (input) "External brightness threshold” is activated. This can be used to change the switching threshold at which the detector is activated. The value is sent to this object in lux.

Notice
The range of values lies between 0.5 – 1100 lux.

10.3.3.8 Brightness threshold external (lux)

Options:	1 - 500 ... 1000

The brightness threshold is used to specify the lux value at which the detector is to respond. If the detector does not switch on and the measured brightness lies above the set threshold, no telegram is sent during movement. The threshold applies only to the external brightness.

10.3.4 Button parameters

Notice
The following parameters are available only when “Premium” has been selected as configuration mode.

10.3.4.1 External button switches on with

Options:	On telegram
	Off telegram

- On telegram:
  - The detector is activated with a 1 telegram and deactivated with a 0 telegram.
- Off telegram:
  - The detector is activated with a 0 telegram and deactivated with a 1 telegram.

10.3.4.2 Use object manual operation

Options:	No
	Yes

- No:
  - There is no separate “Switchover to manual mode” object.
- Yes:
  - A 1-bit communication object (input) "Switchover to manual mode” is activated. If an ON telegram is received on this input (depending on parameter “Manual mode is activated with”), the movement detector is deactivated. In this case only manual operation is possible via the "External push-button" object. The receipt of an OFF telegram (depending on parameter “Manual mode is activated with”) resets the detector again into the status before manual mode.

10.3.4.3 Manual mode is activated with

Options:	On telegram
	Off telegram

- On telegram:
  - The detector is deactivated with a 1 telegram and activated with a 0 telegram.
- Off telegram:
  - The detector is deactivated with a 0 telegram and activated with a 1 telegram.

10.3.5 Detection ranges

Notice
The following parameters are only available only for PMH devices.

10.3.5.1 Detecting left side

Options:	Yes
	No

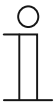
10.3.5.2 Detecting right side

Options:	Yes
	No

10.3.5.3 Range

Options:	Low
	Middle
	Up

10.3.6 Enable



Notice
The following parameters are available only when “Premium” has been selected as configuration mode.

10.3.6.1 Using the detector object enable

Options:	No
	Yes

- No:
  - There is no object with which the detector can be blocked or enabled.
- Yes:
  - A 1-bit communication object (input) "Enable detector” is enabled. Via this object the detector can be enabled or blocked. No telegrams are sent from the detector during the blockage.

10.3.6.2 Enabling with

Options:	On telegram
	Off telegram

- On telegram:
  - With the receipt of value 1 on the “Enable movement (input)” object, the detector is enabled and blocked with value 0.
- Off telegram:
  - With the receipt of value 0 on the “Enable movement (input)” object, the detector is enabled and blocked with value 1.

10.3.6.3 Detector after bus voltage recovery

Options:	Active
	Inactive

- Active:
  - At a bus voltage deactivation or reprogramming of the device and after a reset, the device is activated and functions normally.
- Inactive:
  - At a bus voltage deactivation or reprogramming of the device and after a reset, the device is deactivated and must be activated to function normally.

10.3.6.4 Output sends at enable

Options:	No telegram
	Current status
	Single value for switching on
	Single value for switching off

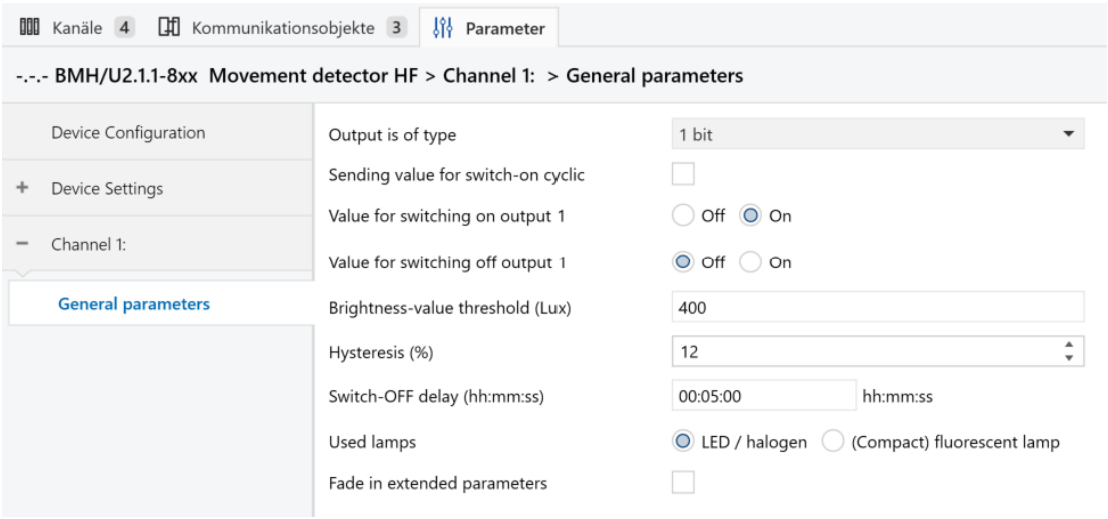
- No telegram:
  - No telegram is sent at enable.
- Current status:
  - During enable, the detector checks whether a movement has occurred and the brightness is below the brightness-value threshold. If yes, the single value for switch-on is sent. Otherwise the single value for switch-off is sent.
- Single value for switching on:
  - At an enable, the single value that has been set via parameter "Value for switching on" is sent.
- Single value for switching off:
  - At an enable, the single value that has been set via parameter "Value for switching off" is sent.

10.3.6.5 Output sends at blockage

Options:	No telegram
	OFF after expiration of the switch-off delay
	Single value for switching on
	Single value for switching off

- No telegram:
  - No telegram is sent at blockage.
- OFF after expiration of the switch-off delay:
  - During blockage the switch-off delay is started anew and the detector sends the value that is parameterised under the “Value for switching off” parameter only after this time has expired.
- Single value for switching on:
  - At blockage, the single value that has been set via parameter "Value for switching on" is sent.
- Single value for switching off:
  - At an enable, the single value that has been set via parameter "Value for switching off" is sent.

10.4 “Constant light switch” application



10.4.1 General parameters - Output is of type

Options:	1 bit
	1 byte 0 - 100%
	1 byte 0 - 255
	Light scene number (1-64)
	RTC operating mode switchover (1 byte)
	2-byte float

- 1 bit: intended for switch actuators.
- 1 byte 0 - 100%: for activating dimmers.
- 1 byte 0 - 255: for actuators, which are activated with a value of between 0 and 255.
- Light scene number 1 - 64: for activating light scenes.
- RTC operating mode switchover (1 byte): to directly switch room temperature controllers into a specific operating mode.
  - Auto
  - Comfort
  - Standby
  - ECO
  - Frost/heat protection

- 2-byte float: To send a specific temperature for example

Notice

If the type of output is changed, also the options for setting the parameters change.

- Value for switching on output 1
- Value for switching off output 1

and when they are activated also for:

- Value for switching on output 2
- Value for switching off output 2

In this manual only values for the 1-bit setting are described.

10.4.2 General parameters - Cyclic sending of value for switch-on

Options:	No
	Yes

– No: The setpoint is sent only once via the bus.
– Yes: The setpoint is sent cyclic via the bus.
– Parameter "Cyclic repeat time" is also displayed.

10.4.3 General parameters - Cyclic repeat time (hh:mm:ss)

Options:	00:00:10 - 00:00:30 - 18:12:15

– Here the time which lies between the sending of two telegrams is set.

10.4.4 General parameters - Value for switching on output 1

Options:	On
	Off

– On: When the presence detector detects movement, value 1 is sent via the bus.
– Off: When the presence detector detects movement, value 0 is sent via the bus.

10.4.5 General parameters - Value for switching off output 1

Options:	On
	Off

– Off: If movement is no longer detected and the switch-off delay has expired, value 0 is sent via the bus.
– On: If movement is no longer detected and the switch-off delay has expired, value 1 is sent via the bus.

10.4.6 General parameters — Brightness-value threshold (lux)

Options:	1 - 20 - 1000

– This is used to set the desired brightness of the room. Below this threshold - hysteresis the presence detector switches at movement. The presence detector switches off again when the following applies:
Measured brightness - artificial light + hysteresis.

Notice
The value entered here is smaller than the control value set in the room via the luxmeter. This depends on the calibration of the brightness sensor for brightness detection settings. When the brightness adjustment is used there, the desired brightness must be set here for the working area.

Example:

The brightness at the top of the desk is to be 500 lux. The presence detector, however, measures the required brightness at the position it is mounted (e.g. on the ceiling it only measures 20 lux). This means that there is a difference between the brightness of light at the desk and the ceiling.

If the object is now used for “Brightness adjustment (daylight)” or the objects “Brightness adjustment (output 1 / 2)”, one can enter 500 lux here (after calibration of the brightness sensor).

10.4.7 General parameters - Hysteresis

Options:	10 - 12 - 100

– Switching threshold = brightness threshold ± hysteresis

The hysteresis prevents excessive switching when the current ambient brightness is close to the brightness threshold.

10.4.8 General parameters - Switch-off delay (hh:mm:ss)

Options:	00:00:10 - 00:03:00 - 18:12:15

– The switch-off delay is slightly different here than for the movement detector. Here the switch-off delay is started when the sensors no longer detect movement. When the presence detector detects movement after the switch-off delay, the switch-off delay timer is triggered.

10.4.9 General parameters — Lamp used

Options:	(Compact) fluorescent lamp
	LED / halogen

Selecting the lamp used specifies the time when the constant light switch starts to calculate the artificial light share. Some lamps require a lot of time to reach maximum brightness, e.g. fluorescent lamps. Measuring..switching..time..measuring; artificial light = Δ brightness.

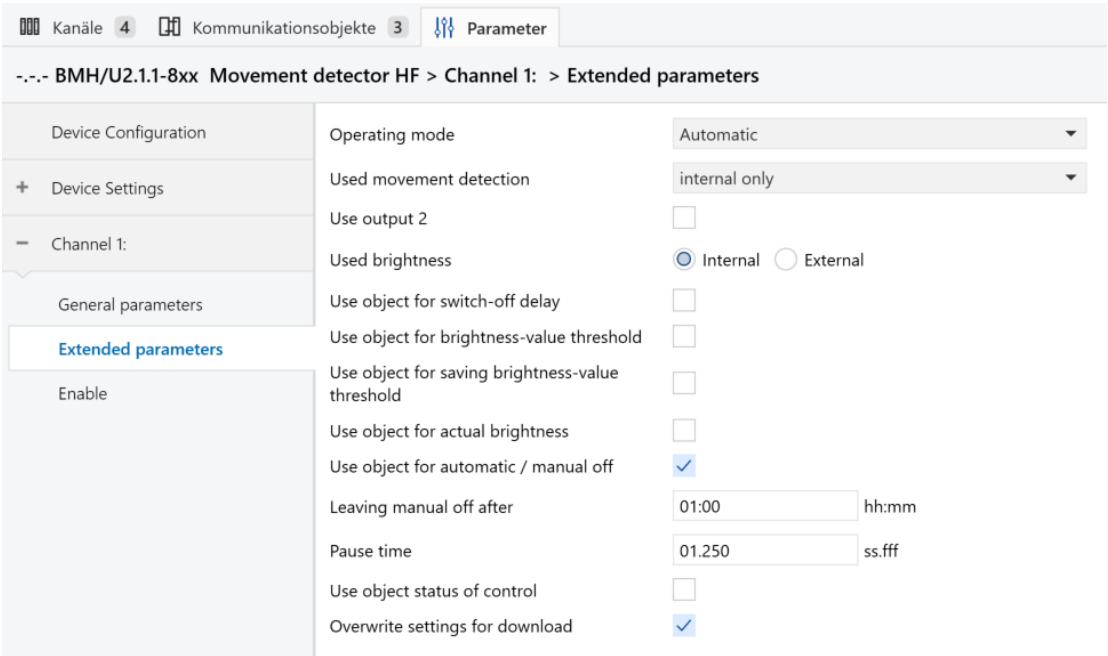
– (Compact) fluorescent lamp: Delay time: 4 minutes
– LED / halogen: No delay time

10.4.10 General parameters - Fade in extended parameters

Options:	No
	Yes

Examples:

- Extended parameters
- Sensor selection
- Enable
  – No: Only the most important parameters for setting the presence detector are displayed
  – Yes: All parameters are displayed, also those that are not required in most cases.



10.4.11 Extended parameters - Operating mode

Options:	Automatic mode
	Automatic switch-off
	Movement-dependent operation

– Automatic = automatic switch-on and switch-off.

  In "Automatic" mode, in case it is too dark, the presence detector switches on automatically when detecting a movement. The switch-off is effected after the set switch-off delay beginning from the most recent detection.

– Automatic switch-off: Manual switch-on and automatic switch-off.

  In "Automatic switch-off" mode, the presence detector must be switched on manually using the “Automatic/manual off” object. The switch-off is effected automatically under consideration of the switch-off delay.

– Movement independent operation = switch-on and switch-off dependent on brightness.

  In the "Operation independent of movement" mode, the presence detector switches on or off only on the basis of brightness ± hysteresis. Activation / deactivation via object “Automatic/manual”.

10.4.12 Extended parameters — Used movement detection

Options:	Internal only
	External only
	Internal and external

– Only internal: The presence detector responds only to movement measured internally.

– Only external: The presence detector responds only to telegrams that are received via the “Extension unit (input)” object.

– Internal and external: The presence detector responds to movements measured internally and to external telegrams that are received via the “Extension unit (input)”object.

10.4.13 Extended parameters — Extension unit sent

Options:	Cyclic On telegram
	On/off telegram

– Cyclic On telegram: The presence detector, which is connected to the main unit as extension unit, sends only On telegrams cyclically.

– On/off telegram: The presence detector, which is connected to the main unit as extension unit, sends only On/Off telegrams.

10.4.14 Extended parameters - Use of output 2

Options:	No
	Yes

– No: There is only output 1, which sends its telegrams to an actuator.

– Yes: A communication object “Output 2 (output) is being enabled. The lighting can be now switched on and off in two stages. First, output 1 is switched on, and when the artificial light is then not sufficient, also “Output 2” is switched on. When the outside brightness increases, “Output 2” is first switched off again. When the external brightness has reached a sufficient level, also “Output 1” is switched off again.

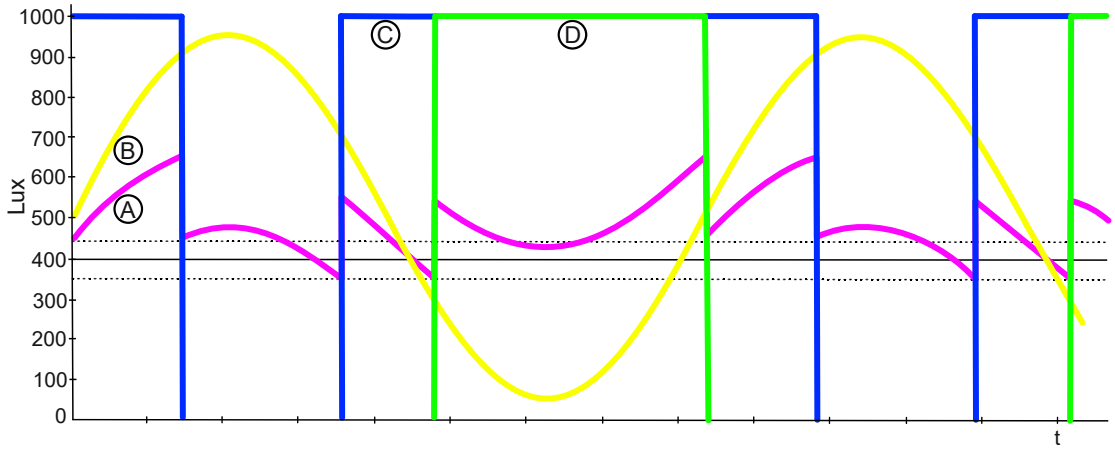


Fig. 9: Time sequence of the constant light switch. [Outside light (here yellow)] has a sinusoidal sequence with an amplitude of 1000 lux. The magenta-coloured curve is the resulting inside light in lux. The brightness threshold is at 400 lux with a hysteresis of 10%.

A	Inside light
B	Exterior light
C	Output 1
D	Output 2

10.4.15 Extended parameters — Value for switch-on of output 2

Options:	On
	Off

– On: When the presence detector detects movement, value 1 is sent via the bus.

– Off: When the presence detector detects movement, value 0 is sent via the bus.

10.4.16 Extended parameters — Value for switch-off of output 2

Options:	Off
	On

– Off: If movement is no longer detected and the switch-off delay has expired, value 0 is sent via the bus.
– On: If movement is no longer detected and the switch-off delay has expired, value 1 is sent via the bus.

10.4.17 Extended parameters — Used brightness

Options:	Internal
	External

– Internal: The presence detector uses its own measured brightness and brightness-value threshold to decide whether the presence detector is to be activated or deactivated.
– External: A 2-byte “External brightness (input)" communication object is enabled. The presence detector uses this external measured brightness and the brightness-value threshold (lux) parameter to decide whether the presence detector is to be activated or deactivated.

10.4.18 Extended parameters - Use of object for switch-off delay

Options:	No
	Yes

– No: The only option available is to change the switch-off delay via the switch-off delay parameter setting
– Yes: There is a separate 2-byte “Switch-off delay object (input)” for changing the switch-off delay of the presence detector. The time entered is in seconds.
A switch-off delay of 4 minutes, for example, has a value of 240 seconds.

Notice
The values which can be sent are between 10 and 65535 seconds. If a value that is too small or too large is sent, the value is automatically adjusted to the limit value:
– Value < 10 -> Value = 10
– Value < 65535 -> Value = 65535

10.4.19 Extended parameters - Use of object for brightness-value threshold

Options:	No
	Yes

– No: There is no separate external “Brightness-value threshold” object.
– Yes: A 2-byte ”Brightness-value threshold (input/output)” communication object is being enabled. This can be used to change the switching threshold, while the presence detector is activated or deactivated. The value is sent to this object in lux.

10.4.20 Extended parameters - Use of object for saving brightness-value threshold

Options:	No
	Yes

– No: There is no extra “Saving brightness-value threshold” object.
– Yes: A 1-byte “Saving brightness-value threshold (input)” communication object is being enabled. This can be used to save the current measured brightness with a 1-telegram as new switching threshold.

10.4.21 Extended parameters - Use of actual brightness object

Options:	No
	Yes

– No: There is no extra “Actual brightness” object.
– Yes: A 2-byte “Actual brightness (output)” communication object is being enabled. This object outputs the corrected measured brightness (corrected daylight + corrected artificial light) which is used by the constant light switch.

10.4.22 Extended parameters - Cyclic sending of actual brightness

Options:	No
	Yes

– No: The actual brightness is only made available for reading. The value is not sent automatically.
– Yes: The actual brightness is sent each time to the "Actual brightness is sent every (hh:mm:ss)" parameter. The value can also be read.

10.4.23 Extended parameters - Actual brightness is sent every (hh:mm:ss)

Options:	00:00:10 - 00:05:00 - 00:30:00

– Here the time which lies between the sending of two telegrams is set.

10.4.24 Extended parameters - Use of object for automatic / manual off

Options:	No
	Yes

– No: There is no separate “Automatic/manual off”object.

– Yes: A 1-bit “Automatic/manual off (input)” communication object is being enabled. With this object one has the option of manually switching off the constant light switch with a 0 telegram for the time "Exiting manual off mode after (hh:mm)". The constant light switch will function again automatically after this time period. The constant light switch can be set on “Automatic” again with a 1 telegram. This also important for regulating and automatic switch-off independent of movement.

10.4.25 Extended parameters - Exiting manual off mode after (hh:mm)

Options:	00:05 - 01:00 - 12:00

– Here the time is set for when the constant light switch switches again to automatic mode after a “Manual switch-off”.

10.4.26 Extended parameters - Pause time (ss.fff)

Options:	00,100 - 01,250 - 59,999

– The set pause time is started after the detector has been switched off due to expiry of the switch-off delay or when a switch-off telegram is received on objects “External push-button” or “Actuator status”.

  If movement is detected during this time, the detector is not switched on immediately. The pause time is first extended by 7 seconds. If there is still movement after these 7 seconds, the detector switches back on.

  If no movement is detected during the pause time, the detector is ready for activation again after the pause time.

  This behaviour can, for example, be important when the lamp cools down drastically and is located within the detection range of the detector. Without a blockage there would be an unintentional switch-on. The purpose of pause time is to prevent an immediate re-activation. Example: A person switches the light off manually when leaving the room. Without the pause time the detected movement would cause a renewed switch-on during exiting.

Notice

The “External push-button” object is activated under the "External push-button" parameter.

The “Actuator status” object is activated under the “Status display” parameter.

10.4.27 Extended parameters - Use of status of control object

Options:	No
	Yes

– No: There is no separate “Status of control” object.
– Yes: A 1-bit “Status of control (output)” communication object is being enabled. This object sends a 1 telegram when the constant light switch functions automatically. The object sends a 0 telegram when manual action takes place, e.g. if a manual switch-off has taken place.

10.4.28 Extended parameters — Overwriting settings during a download

Options:	Yes
	No

– Yes: When the application is reloaded into the detector, the values changed via the bus are overwritten with the parameterised values of the ETS application.
– No: When the application is reloaded into the detector, the values changed via the bus are not overwritten with the parameterised values of the ETS application.

Values:

– Setpoint
– Switch-off delay
– Determined brightness of the luminous rows/lamps
– Brightness correcting factors

10.4.29 Enable - Use of presence detector enable object

Options	No
	Yes

– There is no object with which the constant light switch can be blocked or enabled.
– A 1-bit “Enable presence (input”) communication object is being enabled. This object allows the constant light switch to be enabled or blocked. No telegrams are sent by the detector during blockage.

10.4.30 Enable - Enable with

Options:	ON telegram
	OFF telegram

– ON telegram: With the receipt of value 1 on the “Enable movement (input)” object the detector is enabled and blocked with value 0.
– OFF telegram: With the receipt of value 0 on the “Enable movement (input)” object the detector is enabled and blocked with value 1.

10.4.31 Enable - After bus voltage recovery the device is

Options:	Enabled
	Disabled

– The device is enabled and functions normally when the bus voltage is interrupted or the device has been reprogrammed, as well as after a reset.
– The device is blocked and must be enabled for normal function when the bus voltage is interrupted or the device has been reprogrammed, as well as after a reset.

10.4.32 Enable - Behaviour of output during enable

Options:	Control starts at current output value
	Control starts at switch-off value

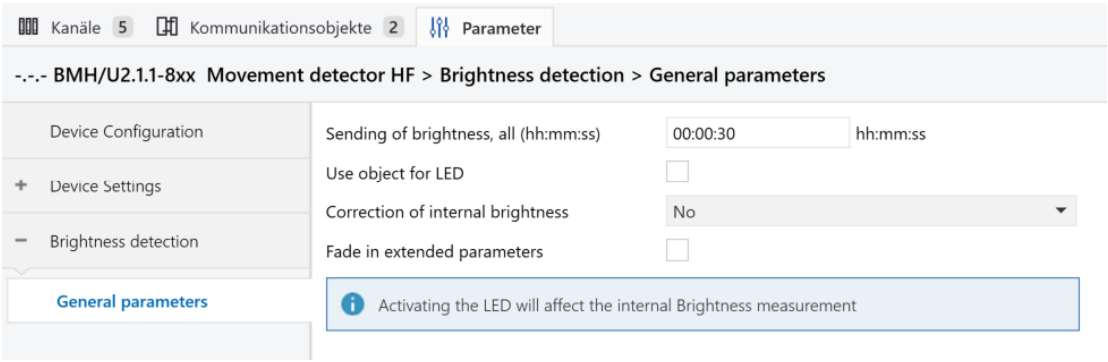
– Control starts at current output value: During enable it is checked whether a movement has taken place. If yes, the lighting is switched on. If no, the lighting is switched off.
– Control starts at switch-off value: At an enable, the value that has been set via parameter "Value for switching off" is sent once.

10.4.33 Enable - Output sends at blockage

Options:	No telegram
	Off after expiration of the switch-off delay
	Single value for switching off
	Single value for switching on

– No telegram: No telegram is sent during blockage.
– Off after expiry of switch-off delay: During blockage the switch-off delay is started anew and the detector sends the value that was parameterised under the value for switch-off parameter only after this time has expired.
– Single value for switch-off: During blockage the single value which has been parameterised under the value for switch-off parameter is sent.
– Single value for switch-on: During blocking, the single value which has been parameterised under the value for switch-on parameter was sent.

10.5 "Brightness detection" application



Options:	Inactive
	Brightness detection

- Inactive:
  - Application is not active.
- Brightness detection:
  - Application is active.

The application is used to specify the parameters for brightness detection and brightness monitoring.

The following output communication objects are available:

- "BR: Brightness"
- "BR: Alarm"

Note
The parameters for application "Brightness detection" can be called up via **general parameters** and **extended parameters**.

10.5.1 General parameters

10.5.1.1 Sending of brightness, all (hh:mm:ss)

Options:	Setting option from 00:00:05 to 18:12:15 (hh:mm:ss)

The parameter is used to set how often the measured brightness values are sent on the bus.

10.5.1.2 Use object for LED

Options:	No
	Yes

- No:
  - Communication object "BR: LED" is not enabled.
- Yes:
  - Communication object "BR: LED" is enabled.

The 1-bit communication object "BR: LED" (Input) can be enabled with this parameter. The programming LED of the device can be switched on and off via the object.

Note
Only the LED has been switched via the communication object. This does not place the device into programming mode.

10.5.1.3 Correction of internal brightness

Options:	No
	with daylight adjustment

- No:
  - The internal brightness sensor is not calibrated.
- With daylight adjustment:
  - The internal brightness sensor is calibrated.

The parameter is used to specify whether the sensitivity of the brightness sensor is adjusted to the daylight. With the setting "With daylight adjustment" the communication object "BR: brightness adjustment (Daylight)" is enabled.

The brightness correction is mainly used for the "Detector" application.

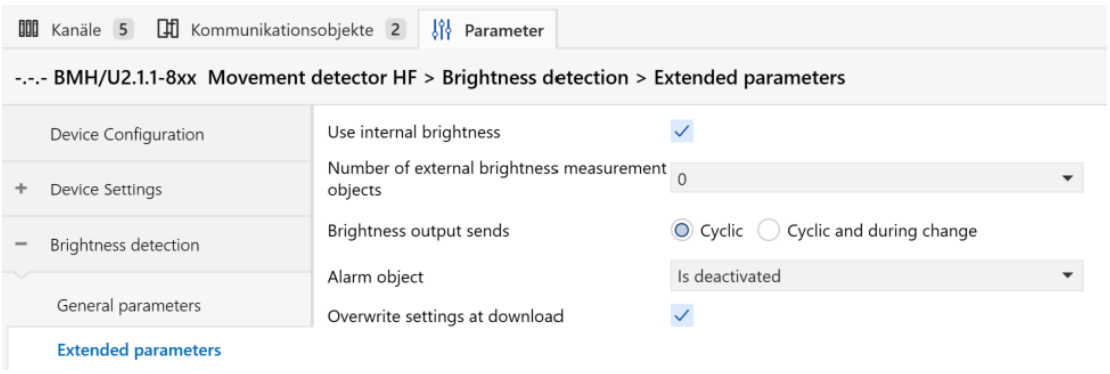
10.5.1.4 Fade in extended parameters

Options:	No
	Yes

- No:
  - Only the most important parameters for the brightness detection are displayed.
- Yes:
  - The extended parameters are displayed, also those that are not required in most cases.

The parameter enables additional functions under **Extended parameters**.

10.5.2 Extended parameters



Note
The following parameters can only be set when parameter "Fade in extended parameters" is set on "Yes". The parameter ia called up via **general parameters**.

10.5.2.1 Use internal brightness

Options:	No
	Yes

- No:
  - The internal brightness sensor is not used. The brightness values must be sent from the external brightness sensors.
- Yes:
  - The internal brightness sensor is used as encoder for the different detector applications. The parameter is effective only for this application.

The parameter is used to specify whether the brightness value of the internal device sensor is used.

10.5.2.2 Number of external brightness measurement objects

Options:	1
	2

- 1:
  - Only communication object "BR: external brightness 1" is enabled.
- 2:
  - Also object "BR: external brightness 2" is enabled in addition to communication object "BR: external brightness 1".

Up to two external brightness sensors can be connected. The brightness values of the external sensors are received via communication objects "BR: external brightness 1/2" (Input). The brightness values of the internal brightness sensor are not used.

Note
The parameter is only adjustable if the "Use internal brightness" parameter is set on "No".

10.5.2.3 Weighting of internal brightness

Options:	Setting option from 1 to 100

The parameter is used to weight the brightness value of the internal sensor higher, equal to or lower than the values of the external sensors. The averaged value is then used for the brightness detection. Input in percent.

Note
The total of all weighting values must not exceed the value of "100".
For example:
Weighting internal sensor: 50%
Weighting of external sensor 1: 30%
Weighting of external sensor 2: 20%
Total weighting: 100%

Note
This parameter is only adjustable if the "Use of internal brightness" parameter is set on "yes" and the "Number of external brightness measurement objects" parameter is set on "1" or "2".

10.5.2.4 Weighting of external brightness 1

Options:	Setting option from 1 to 100

The parameter is used to weight the brightness value of the first external sensor higher, equal to or lower than the values of the internal and/or the second external sensor. The averaged value is then used for the brightness detection. Input in percent.

Note
The total of all weighting values must not exceed the value of "100".
For example:
Weighting internal sensor: 50%
Weighting of external sensor 1: 30%
Weighting of external sensor 2: 20%
Total weighting: 100%

Note
The parameter is only adjustable if the "Number of external brightness measurement objects" parameter is set on "1" or "2".

10.5.2.5 Weighting of external brightness 2

Options:	Setting option from 1 to 100

The parameter is used to weight the brightness value of the second external sensor higher, equal to or lower than the values of the internal and/or the first external sensor. The averaged value is then used for the brightness detection. Input in percent.

Note
The parameter is only adjustable if the "Number of external brightness measurement objects" parameter is set on "2".

10.5.2.6 Brightness output sends

Options:	Cyclic
	Cyclic and at a value change

- Cyclic:
  - The brightness value is sent at fixed intervals.
- Cyclic and at a value change:
  - The brightness value is sent at fixed intervals and at every change of the brightness value.

The parameter is used to specify whether the brightness value is sent at fixed time intervals or also at a change of value. The time interval is set via the "Cycle time for brightness monitoring" parameter.

10.5.2.7 Brightness difference for immediate transmission (%)

Options:	Setting option from 1 to 100 (%)

The parameter is used to specify how large the change of the brightness must be so that the next brightness value is sent via object "BR: Output". Input in percent.

Note
The parameter is only adjustable if the "Brightness output sends" parameter is set on "Cyclic and at value change".

10.5.2.8 Cycle time for brightness monitoring

Options:	Setting option from 00:00:30 to 18:12:15 (hh:mm:ss)

The brightness values of brightness monitoring are sent cyclic to the bus.

The parameter specifies the time interval from which a new sending of the telegrams occurs.

10.5.2.9 Alarm object

Options:	Is deactivated
	Sends cyclic
	Only sends during change

- Is deactivated:
  - Communication object "BR: Alarm" is not enabled.
- Sends cyclic:
  - Communication object "BR: Alarm" is enabled. Telegrams are sent cyclic on the bus.
- Only sends during change:
  - Communication object "BR: Alarm" is enabled. Telegrams are only sent at a change of the brightness value.

The 1-bit communication object "BR: Alarm" (Output) can be enabled with this parameter. If no telegram is received from the external brightness sensors within the cycle time of brightness monitoring, an On telegram is sent via object "BR: Alarm".

As long as telegrams are received cyclic from the external brightness sensors, an Off telegram is sent via object "BR: Alarm".

10.5.2.10 Overwrite settings at download

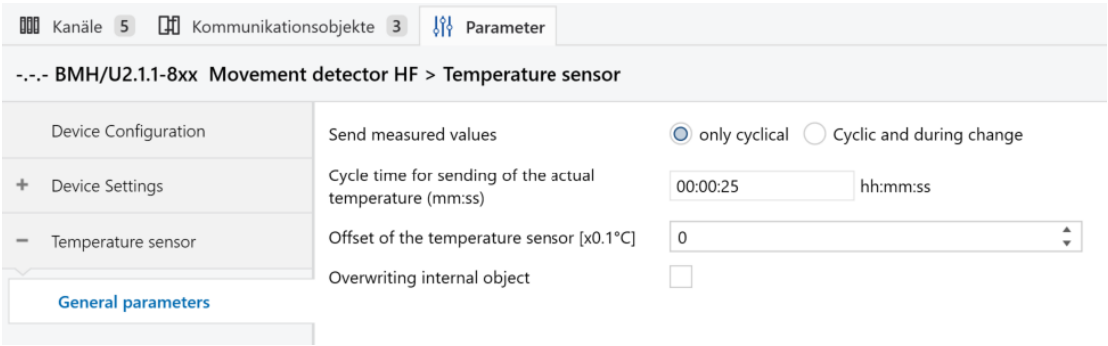
Options:	No
	Yes

- No:
  - Settings are not overwritten during a download of the application.
- Yes:
  - When reprogramming the detector, the values changed via the bus are overwritten with the preset values in the parameterisation software.

The parameter is used to specify whether the current settings are overwritten during the download of the application or are retained.

The "Correction of internal brightness" paramter is overwritten.

10.6 Application "Temperature"



Temperature - Application

Options:	Inactive
	Temperature sensor

- Inactive:
  - Application is not active.
- Temperature sensor:
  - Application is active.

The application enables the temperature sensor of the device and fixes the conditions for sending the measured value.

The following communication objects are available:

- “TS: Actual temperature”
- “TS: Actual temperature for temperature adjustment”

The temperature sensor can be used for a room temperature controller (RTC). Here the temperature sensor is the sub device and the RTC the master device. Sub devices must be linked with the master device via the appropriately labelled communication objects. The sub device operates the RTC functions of the master device.

Notice
The following parameters can only be adjusted when the function "Temperature" is set on "Temperature sensor".
The parameters for "Temperature" can be called up via **General parameters**.

10.6.1.1 Send measured values

Options:	Only cyclical
	Cyclic and during change

- Only cyclical:
  - The actual temperature (room temperature) is sent at fixed time intervals. The interval is set via parameter "Cycle time for sending the actual temperature".
- Cyclic and at a value change:
  - The actual temperature is sent at fixed intervals and at each change of the room temperature.

10.6.1.2 Cycle time for sending of the actual temperature

Options:	Setting option from 00:00:25 to 01:30:00 (hh:mm:ss)

The actual temperature (room temperature) is sent on the bus cyclically.

The parameter is used to fix the time interval with which the measured room temperature is sent to the linked RTC.

10.6.1.3 Temperature difference for sending within the cycle time *0.1 K

Options:	Setting option from 1 to 255

If the temperature increases rapidly within the set cycle time or falls, an additional sending of the actual temperature can make sense.

The parameter can be used to set the change value from which the actual temperature is sent during the cycle time (setting value x 0.1 Kelvin = ΔT).

Note
The cycle time for sending the actual temperature starts anew after the actual temperature has been sent due to an exceeding of the set temperature difference.

Note
The parameter is only adjustable if the "Send measured value" parameter is set on "Cyclic and at value change".

10.6.1.4 Offset of the temperature sensor (x 0.1°C)

Options:	Setting option from -127 to 127

If the measured temperature is distorted by external influences or the device is mounted at a location where it is always constantly being measured too much or too little, a compensation value for the temperature measurement can be set.

The parameter is used to set the compensation value. The mounting location of the temperature sensor and the suitable selection of the parameter settings are decisive for a good temperature reading.

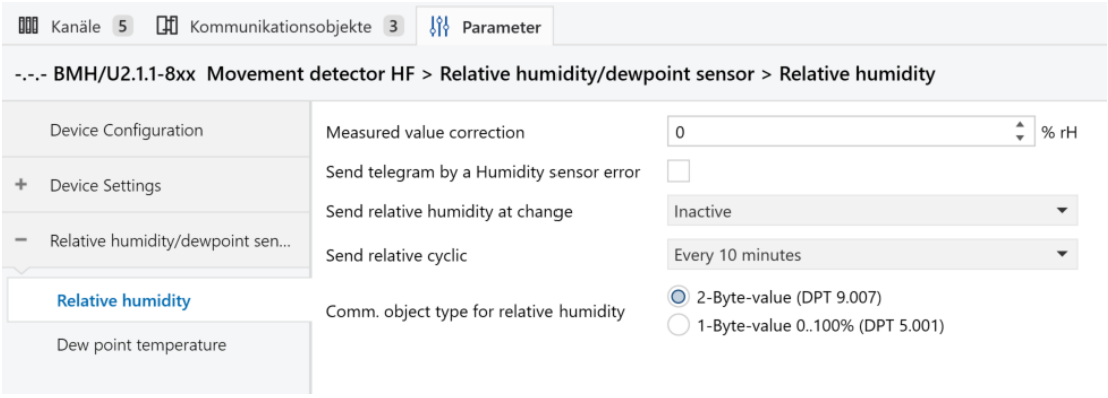
10.6.1.5 Overwriting internal object

Options:	No
	Yes

- No:
  - The offset adjusted via parameter "Offset of the temperature sensor (x 0.1°C)" is not overwritten.
- Yes:
  - The set offset is overwritten with communication object "TS: actual temperature for temperature compensation".

With selection "Yes" an actual temperature value can be sent to the device, without opening the ETS application, which overwrites the parameterised offset.

10.7 "Relative humidity" application



10.7.1 Relative humidity - Relative humidity sensor

Options:	Inactive
	Active

The parameter activates the relative humidity sensor. The corresponding communication objects are displayed in ETS.

10.7.2 Relative humidity — Correction of measured value

Options:	-5%
	-4%
	-3%
	-2%
	-1%
	0%
	1%
	2%
	3%
	4%
	5%

The measured humidity value can be corrected using the parameter. The corrected value is displayed on the device and sent to the KNX bus.

10.7.3 Relative humidity — Moisture sensor error

Options:	Message
	Do not send message

If an error is detected on the sensor, it can be sent to the KNX.

10.7.4 Relative humidity - Send relative humidity at change

Options:	Inactive
	In case of a change of 1%RH
	In case of a change of 2%RH
	In case of a change of 3%RH
	In case of a change of 4%RH
	In case of a change of 5%RH
	In case of a change of 6%RH
	In case of a change of 7%RH
	In case of a change of 8%RH
	In case of a change of 9%RH
	In case of a change of 10%RH
	In case of a change of 11%RH
	In case of a change of 12%RH
	In case of a change of 13%RH
	In case of a change of 14%RH
	In case of a change of 15%RH
	In case of a change of 16%RH
	In case of a change of 17%RH
	In case of a change of 18%RH
	In case of a change of 19%RH
	In case of a change of 20%RH
	In case of a change of 21%RH
	In case of a change of 22%RH
	In case of a change of 23%RH
	In case of a change of 24%RH
	In case of a change of 25%RH

The parameter is used to determined when a change should be actively sent to the KNX bus. The telegram load can be reduced by the setting.

10.7.5 Relative humidity - Send relative humidity cyclic

Options:	Inactive
	Every minute
	Every 2 minutes
	Every 3 minutes
	Every 4 minutes
	Every 5 minutes
	Every 10 minutes
	Every 15 minutes
	Every 20 minutes
	Every 45 minutes
	Every hour
	Every 2 hours
	Every 3 hours
	Every 4 hours
	Every 5 hours
	Every 6 hours
	Every 12 hours
	Once a day

If you wish to send the humidity cyclically through the corresponding KNX communication object, the corresponding time must be selected.

10.7.6 Relative humidity - External measured value

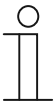
Options:	Inactive
	Active

An additional external measured value can be used in the measurement, as well.

10.7.7 Relative humidity - Component

Options:	Include in calculation at 10%
	Include in calculation at 20%
	Include in calculation at 30%
	Include in calculation at 40%
	Include in calculation at 50%
	Include in calculation at 60%
	Include in calculation at 70%
	Include in calculation at 80%
	Include in calculation at 90%
	Only use external measured value

The share of the weighting of and external measured value integrated through a KNX communication object is defined using this parameter.



Notice
The parameter is available only when parameter "External measured value" is set on "Active".

10.7.8 Relative humidity controller - Controller type

Options:	Inactive
	Single-stage
	Two-stage
	Three-stage
	PI

The control type for actuating the external fan is defined using this parameter.

10.7.9 Relative humidity — Permit change of the basic set value via bus

Options:	No
	Yes

The basic set value defined for the first threshold can be optimised via the KNX bus, e.g., through a visualisation.

10.7.10 Relative humidity — Control value output format

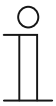
Options:	Switch command
	Priority
	Percent
	Byte
	Scene

The output value when the respective threshold is exceeded or undershot is defined using this parameter.

Notice
The parameter is available only when parameter "Controller type" is set on "Single stage", "Two-stage" or "Three-stage".

Notice
For selection of parameter setting "PI" only the selection between "Percent" or "Byte" is available.

10.7.11 Relative humidity controller — Send control value at switchover



Notice
The parameter is available only when parameter "Control value output format" is set on "Switching command", "Priority" or "Scene".

Options:	Inactive
	Active

At each change in status between inactive/active, the corresponding control value is sent. The parameter must be activated for this.

10.7.12 Relative humidity controller — Send control value at change

Notice
The parameter is available only when parameter "Control value output format" is set on "Percent".

Options:	Inactive
	In case of a change of 1%
	In case of a change of 2%
	In case of a change of 3%
	In case of a change of 4%
	In case of a change of 5%
	In case of a change of 6%
	In case of a change of 7%
	In case of a change of 8%
	In case of a change of 9%
	In case of a change of 10%
	In case of a change of 11%
	In case of a change of 12%
	In case of a change of 13%
	In case of a change of 14%
	In case of a change of 15%
	In case of a change of 16%
	In case of a change of 17%
	In case of a change of 18%
	In case of a change of 19%
	In case of a change of 20%
	In case of a change of 21%
	In case of a change of 22%
	In case of a change of 23%
	In case of a change of 24%
	In case of a change of 25%

The control value is sent after a defined percentage change. If this is not desired, the parameter must be accordingly set to "inactive".

10.7.13 Relative humidity controller — Send control value at change of byte

Notice
The parameter is available only when parameter "Control value output format" is set on "Byte".

Options:	Inactive
	In case of a change of 1
	In case of a change of 2
	In case of a change of 5
	In case of a change of 10
	In case of a change of 15
	In case of a change of 20
	In case of a change of 25
	In case of a change of 30
	In case of a change of 35
	In case of a change of 40
	In case of a change of 45
	In case of a change of 50

The control value is sent after a defined value change. If this is not desired, the parameter must be accordingly set to "inactive".

10.7.14 Relative humidity controller — Send control value cyclic

Options:	Inactive
	Every minute
	Every 2 minutes
	Every 3 minutes
	Every 4 minutes
	Every 5 minutes
	Every 10 minutes
	Every 15 minutes
	Every 20 minutes
	Every 45 minutes
	Every hour
	Every 2 hours
	Every 3 hours
	Every 4 hours
	Every 5 hours
	Every 6 hours
	Every 12 hours
	Once a day

If you wish to send the control value cyclically through the corresponding KNX communication object, the corresponding time must be selected.

10.7.15 Relative humidity controller - Hysteresis (symetrical)

Options:	1%
	2%
	3%
	4%
	5%
	6%
	7%
	8%
	9%
	10%

The basic set value has a hysteresis. If the parameterised hysteresis value is exceeded/undershot, the corresponding value is sent.

Notice
The parameter is available only when parameter "CO2 controller type" is set on "Single stage", "Two-stage", "Three-stage" or "PI".

10.7.16 Step controller — Switch command below threshold 1

Options:	Off
	On

The parameter defines which state should be sent after threshold value 1 is undershot.

Notice
The parameter is available only when parameter "Control value output format" is set on "Switching command".

10.7.17 Step controller — Priority below threshold 1

Options:	End priority
	OFF with priority
	ON with priority

The parameter defines which state should be sent after threshold value 1 is undershot.

Notice
The parameter is available only when parameter "Control value output format" is set on "Priority".

10.7.18 Step controller — Percent below threshold 1

Options:	0 … 100 %

The parameter defines which state should be sent after threshold value 1 is undershot.

Notice
The parameter is available only when parameter "Control value output format" is set on "Percent".

10.7.19 Step controller — Value below threshold 1 (byte)

Options:	0 … 255

The parameter defines which state should be sent after threshold value 1 is undershot.

Notice
The parameter is available only when parameter "Control value output format" is set on "Byte".

10.7.20 Step controller — Value below threshold 1 (scene)

Options:	0 … 64

The parameter defines which state should be sent after threshold value 1 is undershot.

Notice
The parameter is available only when parameter "Control value output format" is set on "Scene".

10.7.21 Step controller — RH threshold 1

Options:	20%
	21%
	22%
	23%
	24%
	25%
	26%
	27%
	28%
	29%
	30%
	31%
	32%
	33%
	34%
	35%
	36%
	37%
	38%
	39%
	40%
	41%
	42%
	43%
	44%
	45%
	46%
	47%
	48%
	49%
	50%

The first basic value from which a reaction should be triggered, e.g., "Fan speed level 1" is defined via threshold 1.

10.7.22 Step controller — Switch command above threshold 1

Options:	Off
	On

The parameter defines which state should be sent after threshold value 1 is exceeded.

Notice
The parameter is available only when parameter "Control value output format" is set on "Switching command".

10.7.23 Step controller — Priority above threshold 1

Options:	End priority
	OFF with priority
	ON with priority

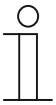
The parameter defines which state should be sent after threshold value 1 is exceeded.

Notice
The parameter is available only when parameter "Control value output format" is set on "Priority".

10.7.24 Step controller — Percent above threshold 1

Options:	0 … 100 %

The parameter defines which state should be sent after threshold value 1 is exceeded.



Notice
The parameter is available only when parameter "Control value output format" is set on "Percent".

10.7.25 Step controller — Value above threshold 1 (byte)

Options:	0 … 255

The parameter defines which state should be sent after threshold value 1 is exceeded.

10.7.26 Step controller — Value above threshold 1 (scene)

Options:	0 … 64

The parameter defines which state should be sent after threshold value 1 is exceeded.

Notice
The parameter is available only when parameter "Control value output format" is set on "Scene".

10.7.27 Step controller — RH threshold 2

Options:	Same as threshold 1
	Threshold 1+1%
	Threshold 1+2%
	Threshold 1+3%
	Threshold 1+4%
	Threshold 1+5%
	Threshold 1+6%
	Threshold 1+7%
	Threshold 1+8%
	Threshold 1+9%
	Threshold 1+10%
	Threshold 1+11%
	Threshold 1+12%
	Threshold 1+13%
	Threshold 1+14%
	Threshold 1+15%
	Threshold 1+16%
	Threshold 1+17%
	Threshold 1+18%
	Threshold 1+19%
	Threshold 1+20%
	Threshold 1+21%
	Threshold 1+22%
	Threshold 1+23%
	Threshold 1+24%
	Threshold 1+25%
	Threshold 1+26%
	Threshold 1+27%
	Threshold 1+28%
	Threshold 1+29%
	Threshold 1+30%

The parameterised value of threshold 2 from which a reaction should be triggered, e.g., "Fan speed level 2", is added to threshold 1 (basic value).

10.7.28 Step controller — Switch command above threshold 2

Options:	Off
	On

The parameter defines which state should be sent after threshold value 2 is exceeded.

Notice
The parameter is available only when parameter "Control value output format" is set on "Switching command".

Notice
The parameter is available only when parameter "Controller type" is set on "Two-stage" or "Three-stage".

10.7.29 Step controller— Priority above threshold 2

Options:	End priority
	OFF with priority
	ON with priority

The parameter defines which state should be sent after threshold value 2 is exceeded.

Notice
The parameter is available only when parameter "Control value output format" is set on "Priority".

Notice
The parameter is available only when parameter "Controller type" is set on "Two-stage" or "Three-stage".

10.7.30 Step controller — Percent above threshold 2

Options:	0 … 100 %

The parameter defines which state should be sent after threshold value 2 is exceeded.

Notice
The parameter is available only when parameter "Control value output format" is set on "Percent".

Notice
The parameter is available only when parameter "Controller type" is set on "Two-stage" or "Three-stage".

10.7.31 Step controller — Value above threshold 2 (byte)

Options:	0 … 255

The parameter defines which state should be sent after threshold value 2 is exceeded.

Notice
The parameter is available only when parameter "Control value output format" is set on "Byte".

Notice
The parameter is available only when parameter "Controller type" is set on "Two-stage" or "Three-stage".

10.7.32 Step controller — Value v of threshold 2 (scene)

Options:	0 … 64

The parameter defines which state should be sent after threshold value 2 is exceeded.

Notice
The parameter is available only when parameter "Control value output format" is set on "Scene".

Notice
The parameter is available only when parameter "Controller type" is set on "Two-stage" or "Three-stage".

10.7.33 Step controller — RH threshold 3

Options:	Same as threshold 2
	Threshold 2+1%
	Threshold 2+2%
	Threshold 2+3%
	Threshold 2+4%
	Threshold 2+5%
	Threshold 2+6%
	Threshold 2+7%
	Threshold 2+8%
	Threshold 2+9%
	Threshold 2+10%
	Threshold 2+11%
	Threshold 2+12%
	Threshold 2+13%
	Threshold 2+14%
	Threshold 2+15%
	Threshold 2+16%
	Threshold 2+17%
	Threshold 2+18%
	Threshold 2+19%
	Threshold 2+20%
	Threshold 2+21%
	Threshold 2+22%
	Threshold 2+23%
	Threshold 2+24%
	Threshold 2+25%
	Threshold 2+26%
	Threshold 2+27%
	Threshold 2+28%
	Threshold 2+29%
	Threshold 2+30%

The parameterised value of threshold 3 from which a reaction should be triggered, e.g., "Fan speed level 3", is added to threshold 1 (basic value) and threshold 2.

10.7.34 Step controller — Switch command above threshold 3

Options:	Off
	On

The parameter defines which state should be sent after threshold value 3 is exceeded.

Notice
The parameter is available only when parameter "Control value output format" is set on "Switching command".

Notice
The parameter is available only when parameter "Controller type" is set on "Two-stage" or "Three-stage".

10.7.35 Step controller — Switching command at measurement failure

Options:	Off
	On

If the internal or external measurement malfunctions or fails, a defined switching command can be sent through this parameter.

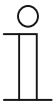
Notice
The parameter is available only when parameter "Control value output format" is set on "Switching command".

10.7.36 Step controller — Priority above threshold 3

Options:	End priority
	OFF with priority
	ON with priority

The parameter defines which state should be sent after threshold value 3 is exceeded.

Notice
The parameter is available only when parameter "Control value output format" is set on "Priority".



Notice
The parameter is available only when parameter "Controller type" is set on "Three-stage".

10.7.37 Step controller — Priority at measurement failure

Options:	End priority
	OFF with priority
	ON with priority

If the internal or external measurement malfunctions or fails, a defined switching command can be sent through this parameter.

Notice
The parameter is available only when parameter "Control value output format" is set on "Priority".

10.7.38 Step controller — Percent above threshold 3

Options:	0 … 100 %

The parameter defines which state should be sent after threshold value 3 is exceeded.

Notice
The parameter is available only when parameter "Control value output format" is set on "Percent".

Notice
The parameter is available only when parameter "Controller type" is set on "Three-stage".

10.7.39 Step controller - Percentage at measurement value failure

Options:	0%
	5%
	10%
	15%
	20%
	25%
	30%
	35%
	40%
	45%
	50%
	55%
	60%
	65%
	70%
	75%
	80%
	85%
	90%
	95%
	100%

The parameterised value of threshold 3 from which a reaction should be triggered, e.g., "Fan speed level 3", is added to threshold 1 (basic value).

Notice
The parameter is available only when parameter "Control value output format" is set on "Percent".

10.7.40 Step controller — Value above threshold 3 (byte)

Options:	0 … 255

The parameter defines which state should be sent after threshold value 3 is exceeded.

Notice
The parameter is available only when parameter "Control value output format" is set on "Byte".

Notice
The parameter is available only when parameter "Controller type" is set on "Three-stage".

10.7.41 Step controller - Value at measurement value failure (byte)

Options:	0-255

If the internal or external measurement malfunctions or fails, a defined value can be sent through this parameter.

Notice
The parameter is available only when parameter "Control value output format" is set on "Byte".

10.7.42 Step controller — Value above threshold 3 (scene)

Options:	0 … 64

The parameter defines which state should be sent after threshold value 3 is exceeded.

Notice
The parameter is available only when parameter "Control value output format" is set on "Scene".

Notice
The parameter is available only when parameter "Controller type" is set on "Three-stage".

10.7.43 Step controller - Value at measurement value failure (scene)

Options:	0-64

If the internal or external measurement malfunctions or fails, a defined value can be sent via this parameter.

Notice
The parameter is available only when parameter "Control value output format" is set on "Scene".

10.7.44 PI controller — Setpoint (10…95%RH)

Options:	10-95

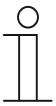
The parameter defines which value should be sent after the threshold value is undershot or when the value is below this threshold value.

Notice
The parameter is available only when parameter "Controller type" is set on "PI".

10.7.45 PI controller - Proportional range (10...40%RH)

Options:	10-40

The parameter defines which value should be sent after the threshold value is exceeded or when the value is above this threshold value.



Notice
The parameter is available only when parameter "Controller type" is set on "PI".

10.7.46 PI controller — Readjust time (15…240 min)

Options:	15-240

The first basic value from which a reaction should be triggered, e.g., "Fan speed level 1" is defined via threshold 3.

Notice
The parameter is available only when parameter "Controller type" is set on "PI".

10.7.47 PI controller - Minimum control value

Options:	0 … 240

The parameter defines which value should be sent after the threshold value is undershot or when the value is below this threshold value.

Notice
The parameter is available only when parameter "Controller type" is set on "PI".

10.7.48 PI controller - Maximum control value

Options:	10 - 255

The parameter defines which value should be sent after the threshold value is exceeded or when the value is above the threshold value.

Notice
The parameter is available only when parameter "Controller type" is set on "PI".

10.7.49 PI controller - Value at measured value failure

Options:	0 - 255

If the internal or external measurement malfunctions or fails, a defined value can be sent through this parameter.

Notice
The parameter is available only when parameter "Controller type" is set on "PI".

10.7.50 PI controller - Blocking object

Options:	Inactive
	Active

The complete function of the sensor can be blocked using this parameter and the corresponding communication object. Deactivation takes place by selecting "Inactive".

Notice
The parameter is available only when parameter "Controller type" is set on "PI".

10.7.51 Behaviour at removing the blockage

Options:	Do not send any message
	Send current value

If the sensor is enabled again after the receipt of an OFF telegram, the following parameters can be selected:

- Do not send:
  - The sensor only sends its value when it has changed.
- Send current value:
  - The sensor sends its current value also when it has not changed.

Notice
The parameter is available only when parameter "Blocking object" is set on "Active".

10.7.52 Behaviour at setting the blockage

Options:	Send nothing
	Send value

If the sensor is blocked after the receipt of an ON telegram, the following parameters can be selected:

- Do not send:
  - The sensor sends no value during blockage.
- Send current value:
  - The sensor sends its current value during blockage also when it has not changed.

Notice
The parameter is available only when parameter "Blocking object" is set on "Active".

10.7.53 PI controller - Value at blockage

Options:	0 - 255

Fixes the status for activating the blockage.

Notice
The parameter is available only when parameter "Blocking object" is set on "Active".

10.7.54 Dew point temperature — Dew point sensor

Options:	Inactive
	Active

The parameter activates the dew point sensor. The corresponding communicaiton objects are displayed in ETS.

10.7.55 Dew point — Dew point temperature

Options:	Inactive
	In case of a change of 0.1°C
	In case of a change of 0.2°C
	In case of a change of 0.5°C
	In case of a change of 1.0°C
	In case of a change of 1.5°C
	In case of a change of 2.0°C
	In case of a change of 2.5°C
	In case of a change of 3.0°C
	In case of a change of 3.5°C
	In case of a change of 4.0°C
	In case of a change of 4.5°C
	In case of a change of 5.0°C
	In case of a change of 6.0°C
	In case of a change of 7.0°C
	In case of a change of 8.0°C
	In case of a change of 9.0°C
	In case of a change of 10°C

The parameter is used to determined when a change should be actively sent to the KNX bus. The telegram load can be reduced by the setting.

10.7.56 Dew point — Cyclically send dew point temperature

Options:	Inactive
	Every minute
	Every 2 minutes
	Every 3 minutes
	Every 4 minutes
	Every 5 minutes
	Every 10 minutes
	Every 15 minutes
	Every 20 minutes
	Every 45 minutes
	Every hour
	Every 2 hours
	Every 3 hours
	Every 4 hours
	Every 5 hours
	Every 6 hours
	Every 12 hours
	Once a day

If you wish to send the dew point temperature cyclically through the corresponding KNX communication object, the corresponding time must be selected.

10.7.57 Dew point alarm — Dew point alarm

Options:	Inactive
	Active

If an alarm is sent when the parameterised dew point is exceeded, the parameter must be set to "active". A corresponding communication object is displayed in ETS in parallel.

10.7.58 Dew point alarm — Dew point alarm advance

Options:	0
	1°C
	2°C
	3°C
	4°C
	5°C

If the alarm is triggered before the dew point is reached, the advance can be set using this parameter. In this way, for example, a fan can be activated before the dew point alarm is reached so that the alarm case is delayed or does not even occur.

10.7.59 Dew point alarm — Dew point alarm hysteresis (symmetrical)

Options:	0
	1°C
	2°C
	3°C
	4°C
	5°C

The basic set value has a hysteresis. If the parameterised hysteresis value is exceeded/undershot, the corresponding value is sent.

10.7.60 Dew point alarm — Send dew point alarm at status change

Options:	Inactive
	Active

If a changed value/status is present, it can be activated and sent to the KNX bus via the corresponding communication object.

10.7.61 Dew point alarm — Send dew point alarm cyclic

Options:	Inactive
	Every minute
	Every 2 minutes
	Every 3 minutes
	Every 4 minutes
	Every 5 minutes
	Every 10 minutes
	Every 15 minutes
	Every 20 minutes
	Every 45 minutes
	Every hour
	Every 2 hours
	Every 3 hours
	Every 4 hours
	Every 5 hours
	Every 6 hours
	Every 12 hours
	Once a day

If the current alarm should be sent cyclically through the corresponding KNX communication object, the corresponding time must be selected here.

10.7.62 Dew point alarm — Telegram type for dew point alarm

Options:	Switch command
	Priority
	Percent
	Byte
	Scene

This parameter defines the output value when the dew point alarm is present.

10.7.63 Dew point alarm — Switch command for dew point alarm

Options:	Off
	On

The parameter defines which state should be sent in case of a dew point alarm.

10.7.64 Dew point alarm — Switch command at the end of the dew point alarm

Options:	Off
	On

If the dew point alarm is no longer present at the object, this parameter can be used to define which status should be sent.

10.7.65 Dew point alarm — Priority for dew point alarm

Options:	End priority
	OFF with priority
	ON with priority

The parameter defines which state should be sent in case of a dew point alarm.

10.7.66 Dew point alarm — Priority at the end of the dew point alarm

Options:	End priority
	OFF with priority
	ON with priority

If the dew point alarm is no longer present at the object, this parameter can be used to define which status should be sent.

10.7.67 Dew point alarm — Percent for dew point alarm

Options:	0-100%

This parameter defines which value between 0 and 100% is sent in case of a dew point alarm.

10.7.68 Dew point alarm — Percent at the end of the dew point alarm

Options:	0-100%

If the dew point alarm is no longer present at the object, this parameter can be used to define which value between 0 and 100% should be sent.

10.7.69 Dew point alarm — Value for dew point alarm (0 - 255)

Options:	0-255

This parameter defines which value between 0 and 255 is sent in case of a dew point alarm.

10.7.70 Dew point alarm — Value at the end of the dew point alarm (0 - 255)

Options:	0-255

If the dew point alarm is no longer present at the object, this parameter can be used to define which value between 0 and 255 should be sent.

10.7.71 Dew point alarm — Scene for dew point alarm (1 - 64)

Options:	1-64

This parameter defines which scene between 1 and 64 is sent in case of a dew point alarm.

10.7.72 Dew point alarm — Scene at the end of the dew point alarm (1 - 64)

Options:	1 - 64

If the dew point alarm is no longer present at the object, this parameter can be used to define which scene between 1 and 64 should be sent.

10.8 General parameters

One channel can be activated for the use of the applications described in this section.

10.8.1 Channel x - Application

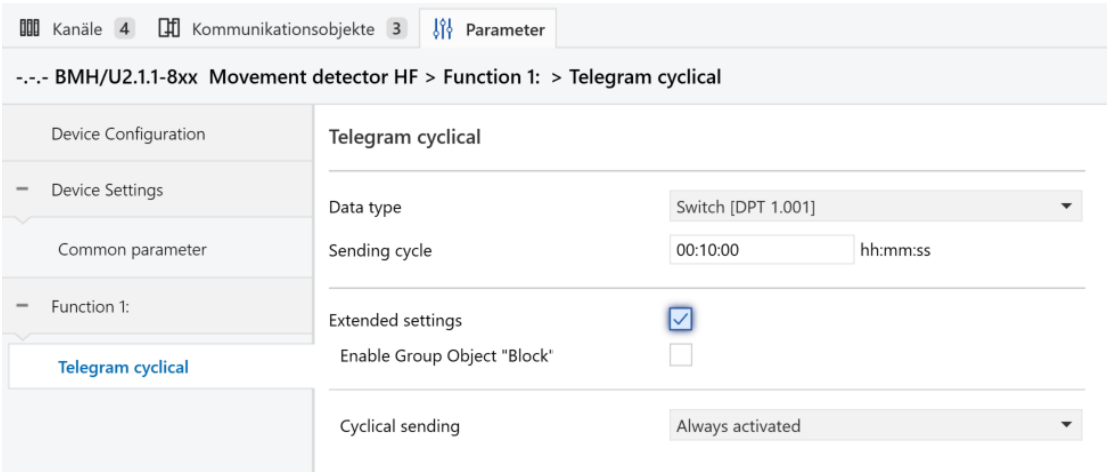
Options:	Inactive
	Telegram cyclical
	Priority
	Logic gate
	Gate
	Staircase lighting
	Delay
	Min/max value transducer
	Light scene actuator
	Sequence

- Inactive:
  - The application is not active. No parameters are available.
- Cyclical telegrams:
  - After the receipt of a telegram on object “GFx: input", a telegram with the same content is sent cyclic via object "GFx: Output”. Additional information, See “Application - Telegrams cyclical“ on page 111.
- Priority:
  - The telegrams received via the communication object “GFx: "Switch input" are transferred to the "GFx: Output" object depending on the state of the "GFx: Input priority". Additional information, See “Application - Priority“ on page 116.
- Logic gate:
  - The parameter is used to specify the logic gate the communication objects GFx: Input 1”, “GFx: Input 2” and GFx: Output” are to be linked with. Additional information, See “Application - Gate“ on page 123.
- Gate:
  - The application can be used to filter certain signals and to block the flow of signals temporarily. Additional information, See “Application - Staircase lighting“ on page 129.
- Staircase lighting:
  - The application can be used to supply switching telegrams or value telegrams with a switch-off delay. Additional information, See “Application - Delay“ on page 133.
- Delay
  - Telegrams can be received via the "GFx: input” object. Additional information, See “Application - Min/max value transducer“ on page 139.
- Min/max value transducer:
  - Up to eight input values can be compared with each other with the application. Additional information, See “Application - Light scene actuator“ on page 142.

- Light scene actuator:
  - With the application it is possible to call up scenes that are stored in the device via the receipt of a scene number on the 1-byte communication object "GFx: Scene call-up". Additional information, See “Application - Sequence“ on page 146.
- Sequence:
  - With the "Sequence" application it is possible to send out multiple telegrams with different values in a predefined sequence consecutively over the same object. Additional information, .

Notice
The following parameters can only be adjusted when the corresponding application (see above) is selected.

10.8.2 Application - Telegrams cyclical



The application can be used to send telegrams cyclic on the bus under fixed conditions.

The following communication objects are available:

- "GFx: input“
- "GFx: output"
- "GFx: enable" (1-bit object)

The objects "GFx: input" and "GFx: output" can take on different sizes (1 bit - 4 byte, depending on the object type selected). The bit sizes of objects "GFx: input" and "GFx: output" can be collectively adjusted for the different applications.

After the receipt of a telegram on object "GFx: input", a telegram with the same content is sent cyclic via the application on the bus via object "GFx: output". The object types for "GFx: input" and "GFx: output" can be collectively parameterised for the different applications. The times for cyclic sending via "GFx: output" object are adjustable.

An additional "GFx: enable" object provides the option of temporarily blocking the function.

Note
The parameters for application "Cyclic telegrams" can be called up via **general parameters** and **extended parameters**.

Note
The number of the object (GF1 - GFx) depends on the channel used.

10.8.2.1 Object type

Options:	1-bit switching
	1-bit alarm
	1 byte 0 - 100%
	1 byte 0 - 255
	2-byte float
	2-byte signed
	2-byte unsigned
	4-byte float
	4-byte signed
	4-byte unsigned

- 1-bit switching:
  - The value is sent as 1-bit switching command (0 or 1), e.g. On/Off, enabled/blocked, true/untrue.
- 1-bit alarm:
  - The value is sent as 1-bit switching command (0 or 1), alarm functions On/Off.
- 1 byte 0 - 100%:
  - The value is sent as 1-byte value without a sign (percentage value). (0 = 0%, 255 = 100%)
- 1 byte 0 - 255:
  - The value is sent as 1-byte value without a sign. Any value 0 - 255.
- 2-byte float:
  - The value is sent as floating point value (-671088.6 - 670760.9), e.g. temperature or moisture value.
- 2-byte signed:
  - The value is sent as 2-byte value with a sign, (-32768 - +32767), e.g. time difference or percentage difference.
- 2-byte unsigned:
  - The value is sent as 2-byte value without a sign (0 - 65535), e.g. time or brightness value.
- 2-byte temperature:
  - The value is sent as 2-byte temperature value with a sign (-273 - 670760).
- 4-byte float:
  - The value is sent as 4-byte floating point value, physical values, e.g. luminosity, electric power, pressure.
- 4-byte signed:
  - The value is sent as 4-byte value with a sign (-2147483648 - 2147483647), e.g. counting impulse, time difference.
- 4-byte unsigned:
  - The value is sent as 4-byte value without a sign (0 - 4294967295), e.g. counting impulse.

The set option fixes the data type of the input and output object.

10.8.2.2 Cycle time

Options:	Setting option from 00:00:55 to 01:30:00 (hh:mm:ss)

The telegrams of the object during operation are sent cyclically on the bus.

The parameter specifies the time interval in which a new sending of the telegrams occurs.

10.8.2.3 Enable object

Options:	deactivated
	activated

- Deactivated:
  - Object "GFx: Enable" is not enabled.
- Activated:
  - Object "GFx: Enable" is enabled. The function "Telegram cyclical" can be temporarily blocked via the object.

The 1-bit communication object "GFx: Enable" can be enabled with this parameter.

Notice

If the "Enable object" parameter is activated, the following parameters can be set:

- "Object value enable object"
- "Enable object after return of voltage"

10.8.2.4 Object value enable object

Options:	Normal
	Inverse

- Normal:
  - If an Off telegram is received via the object "GFx: Enable", the function "Telegram cyclical" is blocked. An On telegram deactivates the blockage.
- Inverse:
  - If an On telegram is received via the object "GFx: Enable", the function "Telegram cyclical" is blocked. An Off telegram deactivates the blockage.

The parameter is used to specify whether function "Telegram cyclical" is blocked temporarily at the receipt of an On or Off telegram.

Notice

This parameter can only be set if the "Enable object" parameter is set on "activated".

10.8.2.5 Enable object after return of voltage

Options:	Blocked
	Enabled

- Blocked:
  - Object "GFx: Enable" is not activated at bus voltage recovery. The blocking function is deactivated.
- Enabled:
  - If object "GFx: Enable" was activated prior to bus voltage recovery, it will also be activated after bus voltage recovery.

The parameter serves to ensure that a defined value is present on communication object "GFx: Enable" after a return of bus voltage.

Notice
This parameter can only be set if the "Enable object" parameter is set on "activated".

10.8.2.6 Cyclical sending

Options:	Always activated
	Activated at a specified value
	Activated except at a specified value

- Always activated:
  - Telegrams that are received on object "GFx: Input" are transferred directly to object "GFx: Output" and there sent cyclic.
- Activated at a specified value:
  - This value is sent cyclic via object "GFx: Output" only at the receipt of a specific, set value. If a different value is received on "GFx: Input", no telegram is sent via object "GFx: Output".
- Activated except at a specified value:
  - This deviating value is sent cyclic via object "GFx: Output" only at the receipt of a value that deviates from the set value.

10.8.2.7 Value for cyclical sending

The possible options and setting limits depend on parameter "Object type".

Options for selection "1 bit switching" and "1-bit alarm":

Options:	Off
	On

Options for selection "1 byte 0-100%":

Options:	Setting option from 0 to 100 (%)

Options for selection "1 byte 0-255":

Options:	0 ... 255

Options for selection "2-byte float":

Options:	Setting option from -671088.64 to 670760.96

Options for selection "2-byte signed":

Options:	Setting option from -32768 to +32767

Options for selection "2-byte unsigned":

Options:	Setting option from 0 to 65535

Options for selection "2-byte temperature":

Options:	Setting option from -273 to 500

Options for selection "4-byte float":

Options:	Setting option from -4000000 to 4000000

Options for selection "4-byte signed":

Options:	Setting option from -2147483648 to 2147483647

Options for selection "4-byte unsigned":

Options:	Setting option from 0 to 4294967295

The parameter is used to fix the value that must be received on object "GFx: Input" to ensure that the same value is sent cyclic via object "GFx: Output". The bit size depends on parameter "Object type".

Notice
The parameter can only be set if the "Cyclical sending" parameter is set on "activated at a specified value" or on "activated except at a specified value".

10.8.3 Application - Priority

The application can be used to activate a forced guidance (priority) for switching outputs.

The following communication objects are available:

- “GFx: Switch input" (1-bit object)
- “GFx: Input priority" (2-bit object)
- “GFx: Output” (1-bit object)

The telegrams received on “GFx: "Switch input" are transferred to the "GFx: Output" object depending on the state of the "GFx: Input priority to the object “GFx: Output".

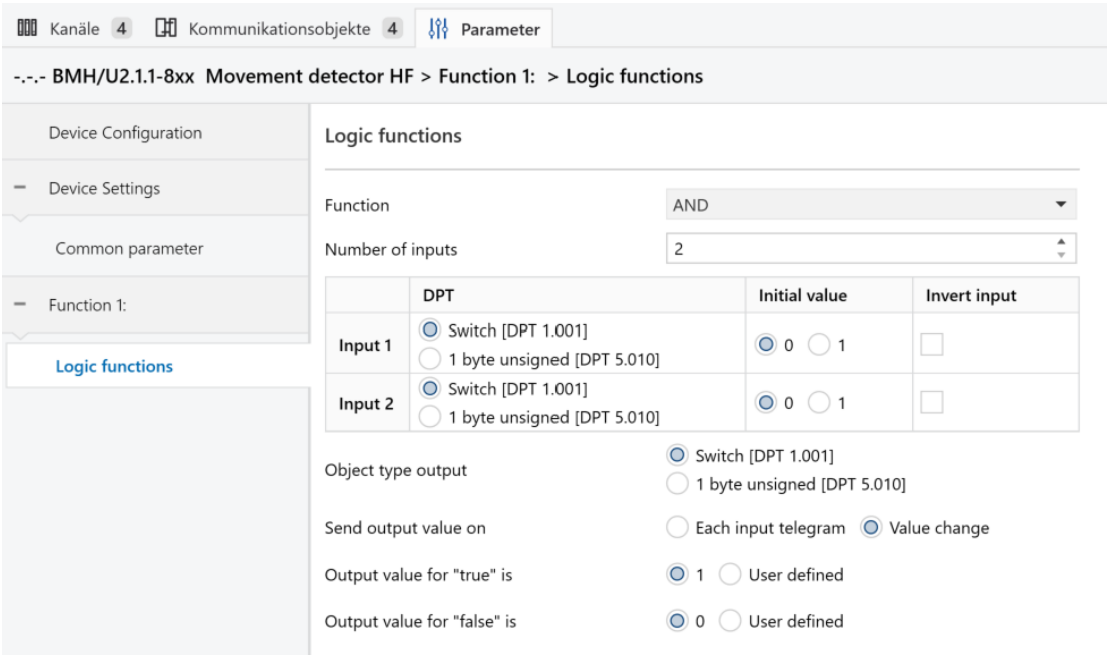
The 2-bit object GFx: Input priority" can receive and differentiate between four different values (0, 1, 2 and 3). Here, the object "GFx: Output” is positively driven. Three different statuses are differentiated:

- “GFx: Input priority" has the value "3". The value present on GFx:: Switch input" has no meaning. Object GFx: Output" is switched to positively driven and has the value "1".
- “GFx: Input priority" has the value "2". The value present on GFx:: Switch input" has no meaning. Object GFx: Output" is switched to positively driven and has the value "0".
- “GFx: "Input priority" has the value "1" or "0". Object GFx: Output" is not positively driven. Object GFx: Switch input" is linked to the status bit of the priority object OR and transferred to the "GFx: Output” object.

During forced operation the changes of object “GFx: "Switch input" are saved, also when the current state on object "GFx: Output” does not thereby change immediately. If forced operation is ended, object “GFx: Output", sends a telegram according to the current value of object "GFx: Switch input”.

Notice
The number of the object (GF1 - GFx) depends on the channel used.

10.8.4 Application: Logic functions



Up to ten input values can be linked with each other via the application.

The following communication objects are available:

- "GFx: output"
- "GFx: input x“

All input objects and the output object can take on size 1 bit or 1 byte independent from each other.

The application is used to specify the logic gate the enabled input objects are linked with. At the receipt of new telegrams at the inputs, they are switched according to the selected function. The inputs can also be individually inverted.

The result determined from the inputs is sent via the output object. The default value that is to be sent at a positive result can be adjusted.

Note
The parameters for application "Logic gate" can be called via **general parameters, parameter input x** and **output parameters**.

Note
The number of the object (GF1 - GFx) depends on the channel used.

10.8.4.1 Logical function

Options:	AND
	OR
	XOR
	XNOR
	NAND
	NOR
	NOT

- AND - NOT:
  - Logic gates, with which communication objects can be linked. The parameter specifies the type of the logic gate.

10.8.4.2 Number of input objects

Options:	Setting option from 1 to 100

The parameter is used to set the number of input objects that are to be linked in the logic function.

Notice
If the parameter is set on "1", the "logical function" parameter is specified on "NOT".

10.8.4.3 Object type input x

Options:	1 bit
	1 byte

- 1 bit:
  - The input object can take on value "0" or "1".
- 1 byte:
  - The input object can take on value 0 to 255.

The parameter is used to specify the data type for the input object.

10.8.4.4 Initial value input x

Options:	Initialised with 0
	Initialised with 1

- Initialised with 0:
  - After initial commissioning and after the return of voltage the input has the logical value "0".
- Initialised with 1:
  - After initial commissioning and after the return of voltage the input has the logical value "1".

The parameter is used to specify the value the input is to have after initial commissioning and after the return of voltage. Thus, no undefined states can arise.

10.8.4.5 Logic input x

Options:	Normal
	Inverse

- Normal:
  - The input signal of the channel is not inverted.
- Inverse:
  - The input signal of the channel is inverted.

The parameter is used to invert the input signal of the channel.

Notice
For a 1-byte size input object, the "inverse" setting means that only upon receipt of the value "0" will a logical "1" be present on the input. All other values (1 to 255) cause a logical "0" on the input.

10.8.4.6 Object type output

Options:	1 bit
	1 byte

- 1 bit:
  - Object "GFx: Output“ consists of a 1-bit value (0/1).
- 1 byte:
  - Object "GFx: Output“ consists of a 1-byte value (0 - 255).

Each logical function has an output object. The result determined from the inputs is sent on the bus via the output object.

The parameter is used to specify the bit size for the output object.

10.8.4.7 Send output object

Options:	With each input telegram
	With a change of the output object

- With each input telegram:
  - When a telegram is received via the input object, the communication object always sends the value of the output object on the bus. This also happens if the value of the output object has not changed.
- With a change of the output object:
  - The communication object only sends a telegram when the value of the output object has changed.

The parameter is used to specify whether a telegram is sent via communication object "GFx: Output" at each receipt of a telegram or only at a change of the output object.

10.8.4.8 Value of the output object for logics true

Options:	Output is set to 1
	Defined via output default value true

- Output is set on 1:
  - As soon as the condition has been met, a logical "1" is present on the output. This equally applies when the "Object type output" parameter is set on "1 byte".
- Defined via output default value true:
  - The value that is present on the output when the condition has been met, can be set via parameter "Output default value true".

The parameter is used to specify the value of the output object in the logic status "True".

10.8.4.9 Output default value true

Options:	True = 0
	True = 1

- True = 0:
  - When the condition has been met, value "0" is present at communication object "GFx: Output".
- True = 1:
  - When the condition has been met, value "1" is present at communication object "GFx: Output".

The parameter is used to specify the value that is sent via the 1-bit communication object "GFx: Output" when a condition (true) has been met.

Notice
The parameter can only be set if the "Object type output" parameter is set on "1 bit" and parameter "Value of the output object for logic true" is set on "Defined via output default value true".

10.8.4.10 Output default value true

Options:	0 ... 255

The parameter is used to set the value that is sent via the 1-byte communication object "GFx: Output" when a condition (true) has been met.

Notice
The parameter can only be set if the "Object type output" parameter is set on "1 byte" and parameter "Value of the output object for logic true" is set on "Defined via output default value true".

10.8.4.11 Value of the output object for logics untrue

Options:	Output is set to 0
	Defined via output default value untrue

- Output is set on 0:
  - As soon as the condition has been met, a logical "0" is present on the output. This equally applies when the "Object type output" parameter is set on "1 byte".
- Defined via output default value untrue:
  - The value that is present on the output when the condition has been met, can be set via parameter "Output default value untrue".

The parameter is used to specify the value that is sent via object "GFx: Output" when a condition (untrue) has not been met.

10.8.4.12 Output default value untrue

Options:	Untrue = 0
	Untrue = 1

- Untrue = 0
  - When a logic has not been met, value "0" is present at communication object "GFx: Output".
- Untrue = 1
  - When a logic has not been met, value "1" is present at communication object "GFx: Output".

The parameter is used to specify the value that is sent via the 1-bit communication object "GFx: Output" when a condition (untrue) has been not been met.

Notice
The parameter can only be set if the "Object type output" parameter is set on "1 bit" and parameter "Value of the output object for logic untrue" is set on "Defined via output default value untrue".

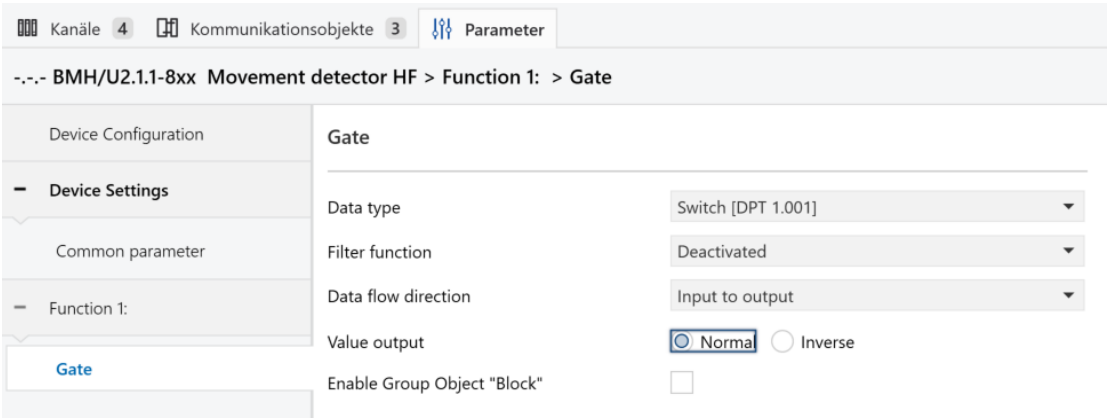
10.8.4.13 Output default value untrue

Options:	0 ... 255

The parameter is used to set the value that is sent via the 1-byte communication object "GFx: Output" when a condition (untrue) has been not been met.

Notice
The parameter can only be set if the "Object type output" parameter is set on "1 byte" and parameter "Value of the output object for logic untrue" is set on "Defined via output default value untrue".

10.8.5 Application - Gate



The application allows specific signals to be filtered and the signal flow to be temporarily blocked.

The following communication objects are available:

- "GFx: input“
- "GFx: output"
- "GFx: control input" (1-bit object)

The objects "GFx: input" and "GFx: output" can take on different sizes (1 bit - 4 byte, depending on the object type selected).

The bit sizes of objects "GFx: input" and "GFx: output" can be collectively adjusted for the different applications.

The bit size can be freely assigned with the "Not assigned" setting of the "Object type" parameter. This means that the first internal or external group address or action that is assigned and already connected to an other communication object will specify the size.

The control can occur from "Input to output" or also from "Output to input," provided the control input allows this. Enabling via the control input can take place via an On telegram or an Off telegram.

If, for example, the "Control input" setting is set on "ON telegram," only telegrams from the input are transmitted to the output. The condition is that the control input has received an On telegram.

It is also possible to block signals via the "Filter function" setting. Either "nothing is filtered out" or the signal "on is filtered out" or the signal "off is filtered out". This function is always necessary, for example, when only the On telegram is needed for a sensor and the device does not offer any filter function in its application program.

Note
The parameters for application "Gate" can be called up via **general parameters** and **extended parameters**.

Note
The number of the object (GF1 - GFx) depends on the channel used.

10.8.5.1 Object type

Options:	1-bit switching
	1-bit travel
	1-bit stop/adjust
	2-bit priority
	4-bit relative dimming
	1 byte 0 - 100%
	1 byte 0 - 255
	2-byte float
	2-byte signed
	2-byte unsigned
	3-byte time of day
	3-byte date
	4-byte float
	4-byte signed
	4-byte unsigned
	Not assigned

- 1-bit switching:
  - The value is sent as 1-bit switching command (0 or 1), e.g. On/Off, enabled/blocked, true/untrue.
- 1-bit travel:
  - The value is sent as 1-bit switching command, e.g. travel up or down.
- 1-bit stop/adjust:
  - The value is sent as 1-bit switching command, e.g. travel stop, adjust slats.
- 2-bit priority:
  - The value is sent as 2-bit switching command with priority.
- 4-bit relative dimming:
  - The value is sent as 4-bit brightness step.
- 1 byte 0 - 100%:
  - The value is sent as 1-byte value without a sign (percentage value). (0 = 0%, 255 = 100%)
- 1 byte 0 - 255:
  - The value is sent as 1-byte value without a sign. Any value 0 - 255.
- 2-byte float:
  - The value is sent as floating point value (-671088.6 - 670760.9), e.g. temperature or moisture value.
- 2-byte signed:
  - The value is sent as 2-byte value with a sign, (-32768 - +32767), e.g. time difference or percentage difference.
- 2-byte unsigned:
  - The value is sent as 2-byte value without a sign (0 - 65535), e.g. time or brightness value.

- 3-byte time of day:
  - The value is sent as 3-byte daytime value.
- 3-byte date:
  - The value is sent as 3-byte date value.
- 4-byte float:
  - The value is sent as 4-byte floating point value, physical values, e.g. luminosity, electric power, pressure.
- 4-byte signed:
  - The value is sent as 4-byte value with a sign (-2147483648 - 2147483647), e.g. counting impulse, time difference.
- 4-byte unsigned:
  - The value is sent as 4-byte value without a sign (0 - 4294967295), e.g. counting impulse.
- Not assigned:
  - The data type can be freely assigned. This means that the first internal or external group address or action that is assigned and already connected to another communication object will specify the size of the object.

The set option fixes the data type of the input and output object.

10.8.5.2 Filter function

Options:	Deactivated
	On filter out
	Off filter out

- Deactivated:
  - No telegrams are filtered out.
- On filter out:
  - On telegrams are filtered out.
- Off filter out:
  - Off telegrams are filtered out.

The parameter can be used to filter On or Off telegrams (1 bit) out. The function is used, for example, when only the On telegram is needed and the sensor does not offer any filter function in its application program.

Notice
The parameter can only be set if the "Object type" parameter is set on "1-bit switching".

10.8.5.3 Data flow direction

Options:	Input towards the output
	Output towards the input
	In both directions

- Input towards the output:
  - Telegrams are transferred from object "GFx: Onput" to object "GFx: Output".
- Output towards the input:
  - Telegrams are transferred from object "GFx: Output" to object "GFx: Input".
- In both directions:
  - Telegrams are transferred in both directions.

The parameter is used to specify the direction in which the signal is to be transferred.

10.8.5.4 Enable object

Options:	deactivated
	activated

- Deactivated:
  - Object "GFx: Control input" is not enabled.
- Activated:
  - Object "GFx: Control input" is enabled. The function can be temporarily blocked via object "Sx: Control input".

The 1-bit communication object "GFx: Control input" can be enabled with this parameter.

Notice
If the "Enable object" parameter is activated, the following parameters can be set:
- "Object value enable object"
- "Enable object after return of voltage"
- "Save input signal"

10.8.5.5 Object value enable object

Options:	Normal
	Inverse

- Normal:
  - If an Off telegram is received via the object "GFx: Control input", the function "Gate" is blocked. An On telegram deactivates the blockage.
- Inverse:
  - If an On telegram is received via the object "GFx: Control input", the function "Gate" is blocked. An Off telegram deactivates the blockage.

The parameter is used to specify whether function "Gate" is blocked temporarily at the receipt of an On or Off telegram.

Notice
This parameter can only be set if the "Enable object" parameter is set on "activated".

10.8.5.6 Enable object after return of voltage

Options:	Blocked
	Enabled

- Blocked:
  - The enable object is not activated after bus voltage recovery. The blocking function is deactivated.
- Enabled:
  - If the enable object was activated prior to bus voltage recovery, it will also be activated after bus voltage recovery.

The parameter serves to ensure that a defined value is present on communication object "GFx: Control input" after a return of bus voltage.

Notice
This parameter can only be set if the "Enable object" parameter is set on "activated".

10.8.5.7 Save input signal

Options:	deactivated
	activated

- Deactivated:
  - Input telegrams are not saved during the blocking phase.
- Activated:
  - Input telegrams are saved during the blocking phase.

The parameter is used to specify whether input signals are saved during the blocking phase. The further behaviour depends on the setting of the "Data flow direction" parameter.

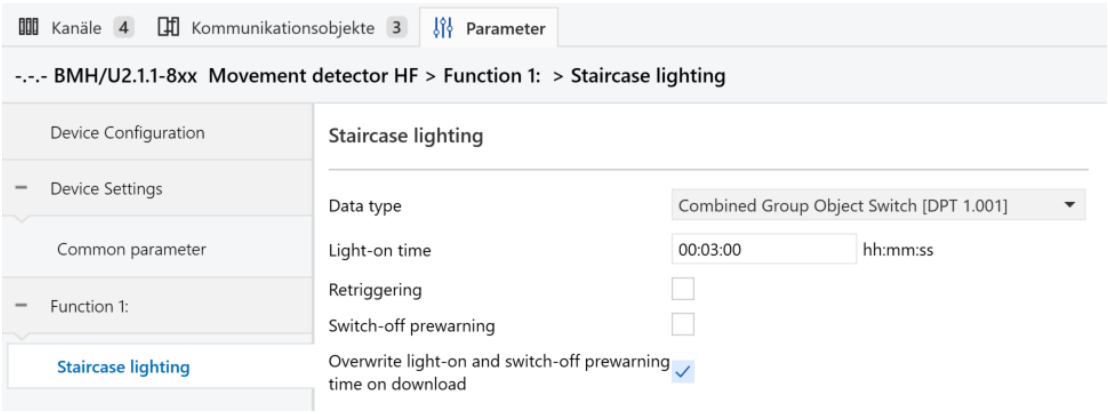
Example:

Data flow direction: Input towards the output.

If the setting "activated" has been selected, the output sends its value after the blocking phase if a telegram has been received on the input during the blocking phase.

Notice
This parameter can only be set if the "Enable object" parameter is set on "activated".

10.8.6 Application - Staircase lighting



With the application, switching telegrams and value telegrams can be provided with a switch-off delay.

The application has the following communication objects:

- "GFx: input“
- "GFx: input" (1-bit object)
- "GFx: switch-off delay" (2-byte object)
- "GFx: switch-off prewarning time" (2-byte object)
- "GFx: output"

The objects "GFx: input" and "GFx: output" can take on size 1 bit or 1 byte, depending on the object type selected.

Note
The parameters for application "staircase lighting" can be called up via **general parameters** and **extended parameters**.

Note
The number of the object (GF1 - GFx) depends on the channel used.

10.8.6.1 Object type/number

Options:	A 1-bit object for input and output
	Two 1-bit objects for input and output
	Two 1-byte objects for input and output

- A 1-bit object for input and output:
  - When an On telegram is received via the "GFx: Input_Output" object, an adjustable light-on time is started. After expiration of the light-on time, the "GFx: Input_Output" object sends an Off telegram (1 bit).
- Two 1-bit objects for input and output:
  - When a switching telegram (On or Off) is received via the "GFx: input" object, an adjustable light-on time is started. At the same time, a telegram with the same value of the telegram received on the input (On or Off) is sent via object "GFx: output". After expiration of the light-on time, the "GFx: output" object sends an Off telegram (1 bit).
- Two 1-byte objects for input and output:
  - When a value telegram is received via the "GFx: input" object, an adjustable light-on time is started. At the same time, a telegram with the same value of the telegram (1 byte) received on the input is sent via object "GFx: output". After expiration of the light-on time, the "GFx: output" object sends a telegram with value "0" (1 byte).

The parameter is used to fix the size and number of the communication objects for the "Staircase lighting" application.

The light-on time of the staircase lighting is set via the "Light-on time" parameter.

10.8.6.2 Light-on time

Options:	Setting option from 00:00:10 to 01:30:00 (hh:mm:ss)

The parameter is used to set the light-on time of the staircase lighting. The light-on time can be set in steps of one second.

The start of the light-on time is dependent on the setting of the "Object type/number" parameter. The parameter "Object type/number" also specifies whether an Off telegram (1 bit) or a telegram with value "0" (1 byte) is sent after the expiry of the light-on time.

10.8.6.3 Retriggering

Options:	deactivated
	activated

- Deactivated:
  - The set light-on time always runs to its end, so that a telegram is always sent via object "GFx: Output" after the on-time has expired.
- Activated:
  - The light-on time is always restarted when a telegram is received via the "GFx: Input" object.

The parameter is used to specify whether the light-on time is restarted when a further telegram is received via object "GFx: Input". This behaviour is called retriggering.

For example, retriggering makes sense for a light-on time of movement detectors. This ensures that the on-time continues to be reset as long as there is movement detected.

If telegrams with different values are received during the retriggering phase, only the last value received is always sent via the "GFx: Output" object after expiration of the on-time.

10.8.6.4 Switch-off pre-warning

Options:	deactivated
	activated

- Deactivated:
  - The staircase lighting goes out without flickering at the end of the light-on time.
- Activated:
  - The staircase flickers before the expiry of the light-on time.

Before the staircase lighting switches itself off, the end of the illumination period is signalled by means of brief flickering or dimming darker. The user can then keep the light-on in time.

The parameter is used to specify whether an additional value is sent via the output object just before the light-on time expires.

10.8.6.5 Duration of switch-off prewarning (s)

Options:	Setting option from 1 to 5400

The parameter is used to specify when the staircase lighting by means of flickering or dimming darker is to warn of the end of the light-on time. The warning is carried out according to the set time before the expiry of the light-on time.

Notice
This parameter can only be set if the "switch-off prewarning" parameter is set on "activated".

10.8.6.6 Value for switch-off prewarning (%)

Options:	Setting option from 1 to 100 (%)

The parameter is used to set the value that is sent via object "GFx: Output". The value is sent at the time set via parameter "Time for switch-off prewarning".

The set percentage value is sent once and then replaced by the original output value after approximately one second.

Notice
This parameter can only be set if the "Object type/number" parameter is set on "Two 1-byte objects for input and output" and parameter "Switch-off prewarning" is set on "activated".

10.8.6.7 Overwrite light-on time and switch-off prewarning time during download

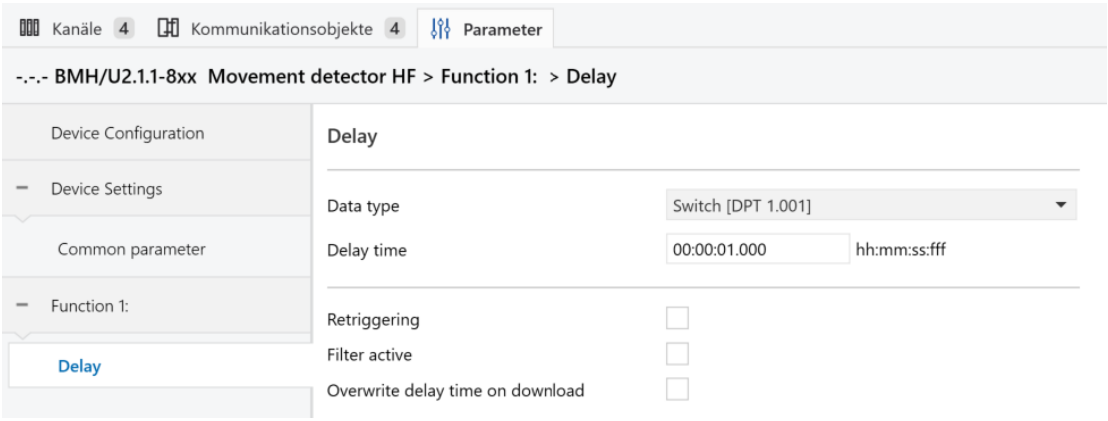
Options:	deactivated
	activated

- Deactivated:
  - The light-on time and switch-off prewarning time will not be overwritten when the device is reprogrammed.
- Activated:
  - The light-on time and switch-off prewarning time will be overwritten when the device is reprogrammed.

Telegrams with new times can be received via communication objects "GFx: Light-on time" and "GFx: Switch-off prewarning". The received 2-byte values are written to the memory of the device and are retained even after a power failure.

The parameter is used to specify whether the received storage values are to be retained for a reprogramming of the device or replaced by the values specified in the parameterising software.

10.8.7 Application - Delay



The application can be used to receive telegrams via the "Input" object. The telegrams received are sent out via the "Output" object with a set delay time.

The application has the following communication objects:

- "GFx: input“
- "GFx: output"
- "GFx: delay time" ((2 byte object)

The objects "GFx: input" and "GFx: output" can take on different sizes (1 bit - 4 byte, depending on the object type selected).

The bit sizes of objects "GFx: input" and "GFx: output" can be collectively adjusted for the different applications.

Note
The parameters for application "Delay" can be called up via **general parameters** and **extended parameters**.

Note
The number of the object (GF1 - GFx) depends on the channel used.

10.8.7.1 Object type

Options:	1-bit switching
	1-bit travel
	1-bit stop/adjust
	1 byte 0 - 100%
	1 byte 0 - 255
	2-byte float
	2-byte signed
	2-byte unsigned
	4-byte float
	4-byte signed
	4-byte unsigned

- 1-bit switching:
  - The value is sent as 1-bit switching command (0 or 1), e.g. On/Off, enabled/blocked, true/untrue.
- 1-bit travel:
  - The value is sent as 1-bit switching command, e.g. travel up or down.
- 1-bit stop/adjust:
  - The value is sent as 1-bit switching command, e.g. travel stop, adjust slats.
- 1 byte 0 - 100%:
  - The value is sent as 1-byte value without a sign (percentage value). (0 = 0%, 255 = 100%)
- 1 byte 0 - 255:
  - The value is sent as 1-byte value without a sign. Any value 0 - 255.
- 2-byte float:
  - The value is sent as floating point value (-671088.6 - 670760.9), e.g. temperature or moisture value.
- 2-byte signed:
  - The value is sent as 2-byte value with a sign, (-32768 - +32767), e.g. time difference or percentage difference.
- 2-byte unsigned:
  - The value is sent as 2-byte value without a sign (0 - 65535), e.g. time or brightness value.
- 4-byte float:
  - The value is sent as 4-byte floating point value (-4000000 to 4000000), physical values, e.g. luminosity, electric power, pressure.
- 4-byte signed:
  - The value is sent as 4-byte value with a sign (-2147483648 - 2147483647), e.g. counting impulse, time difference.
- 4-byte unsigned:
  - The value is sent as 4-byte value without a sign (0 - 4294967295), e.g. counting impulse.

The set option fixes the data type of the input and output object.

10.8.7.2 Delay time

Options:	Setting option from 00:00:01.000 to 01:00:00:000 (hh:mm:ss)

The parameter is used to set the delay with which the telegrams received via object "GFx: Input" are sent via object "GFx: Output".

The delay time can be set in steps of one millisecond.

10.8.7.3 Retriggering

Options:	deactivated
	activated

- Deactivated:
  - The set light-on time always runs to its end, so that a telegram is always sent via object "GFx: Output" after the on-time has expired.
- Activated:
  - The light-on time is always restarted when a telegram is received via the "GFx: Input" object.

The parameter is used to specify whether the light-on time is restarted when a further telegram is received via object "GFx: Input". This behaviour is called retriggering.

For example, retriggering makes sense for a light-on time of movement detectors. This ensures that the on-time continues to be reset as long as there is movement detected.

If telegrams with different values are received during the retriggering phase, only the last value received is always sent via the "GFx: Output" object after expiration of the on-time.

10.8.7.4 Filter active

Options:	deactivated
	activated

- Deactivated:
  - Filter is not active.
- Activated:
  - Filter is active. Filter function and filter value can be set.

The parameter is used to specify whether a filter is used for the delay of telegrams.

10.8.7.5 Filter function

Options:	Filter value is delayed, other values are sent directly
	Filter value is delayed, other values are suppressed
	Filter value is sent directly, other values are delayed
	Filter value is suppressed, other values are delayed

- Filter value is delayed, other values are sent directly.
  - Only the filter value is sent delayed. All other values are sent directly.
- Filter value is delayed, other values are suppressed.
  - Only the filter value is sent delayed. All other values are blocked.
- Filter value is sent direct, others are sent delayed.
  - Only the filter value is sent direct. All other values are sent delayed.
- Filter value is suppressed, others are delayed.
  - Only the filter value is blocked. All other values are sent delayed.

The parameter can be used to specify a condition for the sending of filter values compared to all other values.

Notice
The parameter is only adjustable if the "Filter active" parameter is set to "Activated".

10.8.7.6 Filter value

The possible options and setting limits depend on parameter "Object type".

Options for selection "1 bit switching":

Options:	Off
	On

Options for selection "1 bit moving" and "1-bit stop/adjust":

Options:	Up
	Down

Options for selection "1 byte 0-100%":

Options:	Setting option from 0 to 100 (%)

Options for selection "1 byte 0-255":

Options:	0 ... 255

Options for selection "2-byte float":

Options:	Setting option from -671088.64 to 670760.96

Options for selection "2-byte signed":

Options:	Setting option from -32768 to +32767

Options for selection "2-byte unsigned":

Options:	Setting option from 0 to 65535

Options for selection "4-byte float":

Options:	Setting option from -4000000 to 4000000

Options for selection "4-byte signed":

Options:	Setting option from -2147483648 to 2147483647

Options for selection "4-byte unsigned":

Options:	Setting option from 0 to 4294967295

The value that is to be specifically observed is specified via the parameter. The data type or the size depends on parameter "Object type".

The connected "Filter function" parameter fixes a condition for the sending of the filter value.

Notice
The parameter is only adjustable if the "Filter active" parameter is set to "Activated".

10.8.7.7 Overwrite delay time during download

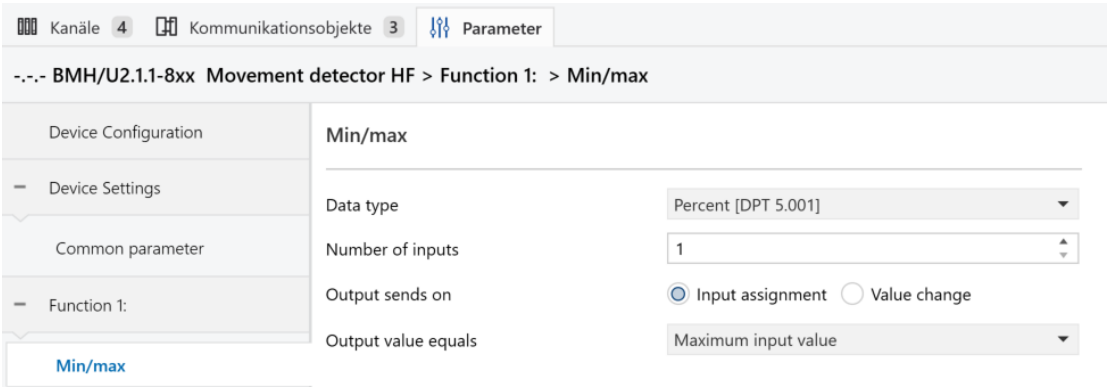
Options:	deactivated
	activated

- Deactivated:
  - The delay time will not be overwritten when the device is reprogrammed.
- Activated:
  - The delay time will be overwritten when the device is reprogrammed.

A telegram with a new delay time (s) can be received via the 2-byte communication object "GFx: Delay time". The received 2-byte value is written to the memory of the device and is retained even after a power failure.

The parameter is used to specify whether the received storage value is to be retained for a reprogramming of the device or replaced by the values specified in the parameterising software.

10.8.8 Application - Min/max value transducer



Up to eight input values can be compared with each other via the application.

The following communication objects are available:

- "GFx: output"
- "GFx: input x“

The objects "GFx: input x" and "GFx: output" can take on different sizes (1 byte - 4 byte, depending on the object type selected).

The bit sizes of objects "GFx: input x" and "GFx: output" can be collectively adjusted for the different applications.

The application can send either the largest input value, the smallest input value or the average of all input values via the output object. The values are sent either at each input assignment or when the output object is changed.

Note
The parameters for application "Min/max value transducer" can be called up via **general parameters**.

Note
The number of the object (GF1 - GFx) depends on the channel used.

10.8.8.1 Object type

Options:	1 byte 0 - 100%
	1 byte 0 - 255
	2-byte float
	2-byte signed
	2-byte unsigned
	4-byte float
	4-byte signed
	4-byte unsigned

- 1 byte 0 - 100%:
  - The value is sent as 1-byte value without a sign (percentage value). (0 = 0%, 255 = 100%)
- 1 byte 0 - 255:
  - The value is sent as 1-byte value without a sign. Any value 0 - 255.
- 2-byte float:
  - The value is sent as floating point value (-671088.6 - 670760.9), e.g. temperature or moisture value.
- 2-byte signed:
  - The value is sent as 2-byte value with a sign, (-32768 - +32767), e.g. time difference or percentage difference.
- 2-byte unsigned:
  - The value is sent as 2-byte value without a sign (0 - 65535), e.g. time or brightness value.
- 4-byte float:
  - The value is sent as 4-byte floating point value, physical values, e.g. luminosity, electric power, pressure.
- 4-byte signed:
  - The value is sent as 4-byte value with a sign (-2147483648 - 2147483647), e.g. counting impulse, time difference.
- 4-byte unsigned:
  - The value is sent as 4-byte value without a sign (0 - 4294967295), e.g. counting impulse.

The set option fixes the data type of the input and output object.

10.8.8.2 Number of input objects

Options:	Setting option from 1 to 8

The parameter is used to set the number of input telegrams to be compared with each other.

10.8.8.3 Output sends

Options:	For every assignment of the inputs
	With a change of the output object

- For every assignment of the inputs:
  - When a telegram is received on one of the input objects, a telegram is always sent via the output object.
- With a change of the output object:
  - An output telegram is only sent when the value of the output object changes.

The parameter is used to specify the conditions under which a telegram is sent.

For the setting "For every assignment of inputs" an output telegram is sent at every receipt of a telegram on one of the inputs. In this case, also an output telegram is sent if the value of the output does not change.

10.8.8.4 Output object

Options:	Adopts the largest value of the inputs
	Adopts the smallest value of the inputs
	Adopts the average value of the inputs

- Adopts the largest value of the inputs:
  - The largest value of all input telegrams is sent via the output object.
- Adopts the smallest value of the inputs:
  - The smallest value of all input telegrams is sent via the output object.
- Adopts the average value of the inputs:
  - The average value of the input telegrams is sent via the output object.

The "Min/max value transducer" application compares the values that are present on the input objects.

The parameter is used to specify whether the largest, smallest or average of all input values is sent. If the average value is sent, the application calculates the arithmetic mean of the inputs. Decimal points are rounded up or down.

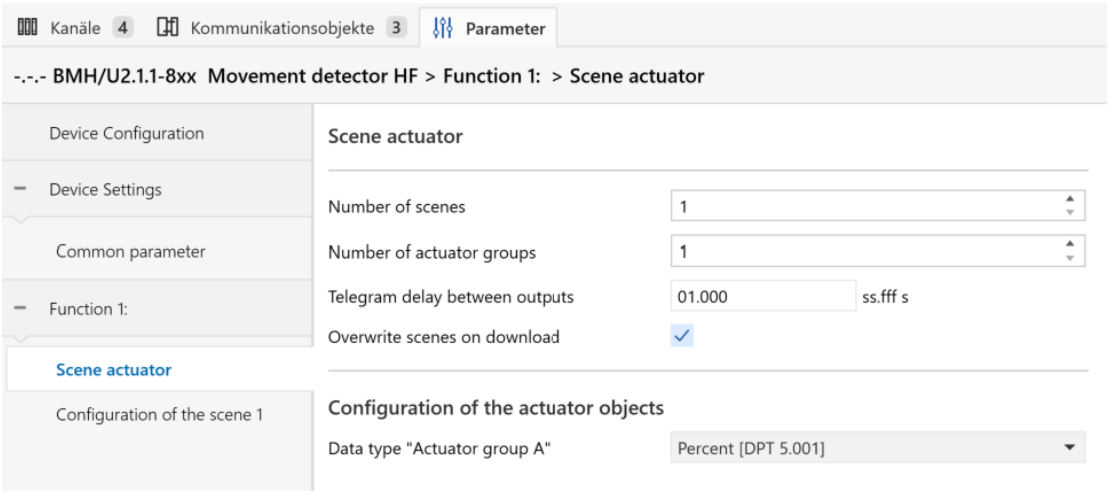
Example:

- Object type: "2-byte signed“, 2 input objects
- Input 1: Value "4"
- Input 2: Value "5"

(Input 1 + input 2) / 2 = arithmetic mean; (4 + 5) / 2 = 4.5

Sent average value: 5

10.8.9 Application - Light scene actuator



The application is used to create up to eight scenes and eight actuator groups.

The following communication objects are available:

- "GFx: scene call-up"
- "GFx: actuator group x"

The input object "Scene call-up" has the size 1 byte. The output objects can take on different sizes (1 bit - 4 byte, depending on the object type selected).

The application is used to call up scenes stored in the device. This takes place via the receipt of the scene number on object "Scene call-up".

For triggering different actuators, the size of objects "GFx: actuator group x" can be set via parameter "Object type actuator group".

The user has the option of saving the scenes. A corresponding save telegram must be received for this.

Note
The parameters for the "Light scene actuator" application can be called up via **general parameters, configuration of actuator objects** and **configuration of scene x**.

Note
The number of the object (GF1 - GFx) depends on the channel used.

10.8.9.1 Number of scenes

Options:	Setting option from 1 to 8

The parameter is used to configure up to eight scenes for the light scene actuator.

10.8.9.2 Number of actuator groups

Options:	Setting option from 1 to 8

The parameter is used to configure up to eight actuator groups for the light scene actuator.

At a call up of a scene, telegrams are sent consecutively via communication object "GFx: Actuator group x". If, for example, four lamp groups, a blind and an absolute temperature value are to be sent at the call-up of a scene, the parameter must be set on "6" actuator groups.

The bit size of communication objects "GFx: Actuator group x" is set via parameter "Object type actuator group x".

10.8.9.3 Duration of telegram delay

Options:	Setting option from 00.100 to 10.000 (ss.fff)

At the call up of a scene, telegrams are sent consecutively via communication objects "GFx: Actuator group x". The sequence is strictly specified. First the telegram of actuator group A is sent out, then the telegram of actuator group B, etc.

The parameter is used to set the delay time between the individual telegrams.

10.8.9.4 Overwrite scenes at download

Options:	deactivated
	activated

- Deactivated:
  - The scene values saved by the user remain in the device.
- Activated:
  - When reprogramming the device, the values saved by the user are overwritten with the preset values in the parameterisation software.

A scene storage can be triggered with a long press of the button on the device. The communication objects "GFx: Actuator groups x" send read requests to the connected actuators. If the L-flag is set for the objects of the linked actuators, the actuators send an answer telegram to the device with their current values.

If the parameter is activated, the current scene values are saved and at the same time overwrite the previous values.

10.8.9.5 Object type actuator group x

Options:	Number of light scene
	1-bit switching
	1-bit blind
	1 byte 0 - 100%
	Temperature

- 1-bit switching:
  - The value is sent as 1-bit switching command (0 or 1), e.g. On/Off, enabled/blocked, true/untrue.
- 1-bit blind:
  - The value is sent as 1-bit switching command, e.g. travel up or down.
- 1 byte 0 - 100%:
  - The value is sent as 1-byte value without a sign (percentage value). (0 = 0%, 255 = 100%)
- Temperature:
  - The value is sent as 2-byte floating point value (-671088.6 - 670760.9).

The parameter is used to set the data type of communication object "GFx: Actuator group x" for different applications.

10.8.9.6 Scene number

Options:	Setting option from 1 to 64

The parameter is used to specify which light scene is to be started.

10.8.9.7 Scene can be saved

Options:	deactivated
	activated

- Deactivated:
  - Stored scene values that are sent at a scene call-up via different actuator objects, cannot be changed and overwritten by the user.
- Activated:
  - Current scene values of actuator objects can be overwritten and stored in the device by the user.

The parameter is used to specify whether the user can trigger a scene storage. The communication objects "GFx: Actuator groups x" in this case send read requests to the connected actuators. Provided that the L-flag is set for the communication objects of the connected actuators, these will send their current values to the device via an answer telegram. The values are stored in the memory and overwrite the previous values. These are also not lost in the event of a power failure.

10.8.9.8 Actuator group x

Options:	deactivated
	activated

- Deactivated:
  - The value of actuator group x is not sent at the call-up of the scene.
- Activated:
  - The value of actuator group x is sent at the call-up of the scene.

The parameter is used to specify whether a telegram of actuator group x is sent at the call-up of the light scene.

The possible options and setting limits depend on parameter "Object type actuator group x".

10.8.9.9 Number of light scene

Options:	Setting option from 1 to 64

Setting option, if parameter "Object type actuator group x" is set on "Light scene number".

10.8.9.10 Value

Options:	Off
	On

Adjustable options, when parameter "Object type actuator group x" is set on "1-bit switching".

10.8.9.11 Value

Options:	Up
	Down

Adjustable options, when parameter "Object type actuator group x" is set on "1-bit blind".

10.8.9.12 Value (%)

Options:	Setting option from 0 to 100 (%)

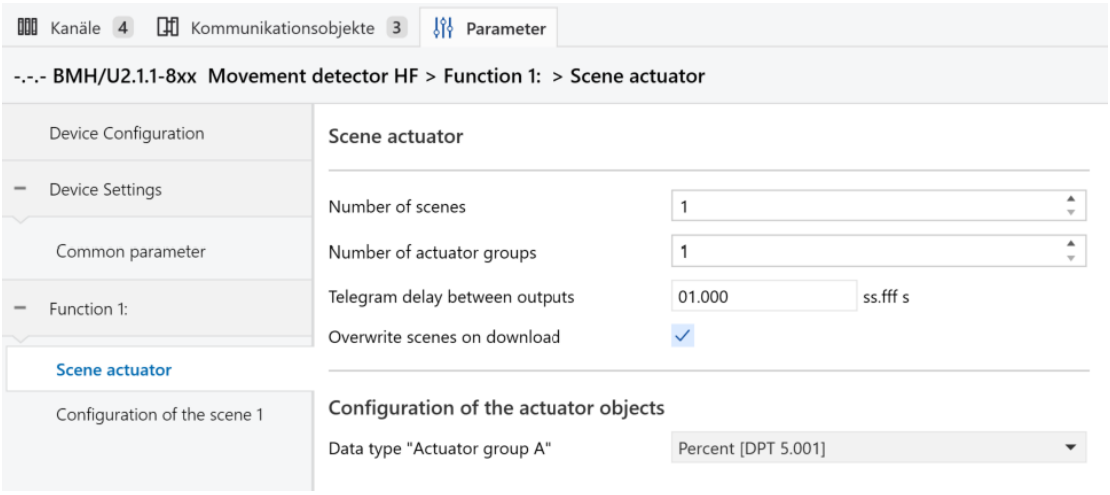
Setting option, if parameter "Object type actuator group x" is set on "1 byte 0-100%".

10.8.9.13 Temperature

Options:	Setting option from -33.5 to 93.5

Setting option, if parameter "Object type actuator group x" is set on "Temperature".

10.8.10 Application - Sequence



With the "Sequence " application it is possible to send out multiple telegrams with different values in a predefined sequence consecutively over the same object.

In contrast to the scene, the "Sequence" application has only one communication object on which up to twelve individual values are consecutively sent in twelve firmly set times. The times can be freely set from 1 s to 12 h. The "Sequence" application lends itself to controlling showrooms for example.

The function can be temporarily blocked via an enable object.

10.8.10.1 Data type

Options:	Switching [DPT 1.001]
	Percent [DPT 5.001]
	1 byte without a sign [DPT 5.010]
	Scene [DPT 18.001]
	2-byte floating point value [DPT 9.***]
	2 byte without a sign [DPT 7.001]

The parameter is used to specify the data type that is to be used.

10.8.10.2 Enable communication object "Sequence status"

Options:	Deactivated
	Activated

The parameter is used to enable the "Disable" communication object.

When parameter "Enable communication object "Status sequence" is activated, additional parameters are available.

10.8.10.3 Value when active

Options:	1
	0

The parameter is used to specify the value for communication object "Status sequence".

10.8.10.4 Enable communication object "Disable"

Options:	Deactivated
	Activated

The parameter is used to enable the "Block" communication object.

When parameter "Enable "Disable" communication object is activated, additional parameters are available.

10.8.10.5 Block at value

Options:	0
	1

The parameter is used to specify the value with which the function can be disabled.

10.8.10.6 Disabling behaviour

Options:	Process sequence to end
	Abort sequence

The parameter is used to specify the disabling behaviour.

10.8.10.7 Behaviour after return of bus voltage

Options:	Do not start sequence
	Start sequence

The parameter is used to specify the behaviour after the bus voltage is restored.

10.8.10.8 Start sequence at

Options:	1
	0

The parameter is used to specify the value for the start of the sequence.

10.8.10.9 Infinite loop

Options:	Deactivated
	Activated

The parameter is used to specify whether the sequence is repeated in an infinite loop.

10.8.10.10 Number of steps

Options:	1 - 12

The parameter is used to specify the number of steps.

10.8.10.11 Value after end of sequence

Options:	Off
	On

The parameter is used to specify the value after the end of the sequence.

10.8.10.12 Step definitions

Step	Value	Duration (s)
Step 1	Off/ On	1 - 20 - 7200
-	-	-
Step 12	Off/ On	1 - 20 - 7200

The parameter activates/deactivates the individual steps and specifies their,duration.

11 Maintenance

Check the device from time to time for software updates to guarantee the stability and the compatibility of the system.

In addition, the device is maintenance-free. In case of damage, e.g. during transport or storage, do not perform repairs. Once the device is opened, the warranty is void.

Access to the device must be guaranteed for operation, testing, inspection, maintenance and repairs (according to DIN VDE 0100-520).

11.1 Cleaning

Caution! - Risk of damaging the device!

- When spraying on cleaning agents, these can enter the device through crevices.
  - Do not spray cleaning agents directly onto the device.
- Aggressive cleaning agents can damage the surface of the device.
  - Never use caustic agents, abrasive agents or solvents.

Clean dirty devices with a soft dry cloth.

– If this is insufficient, the cloth can be moistened slightly with a soap solution.

12 Notes

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Service

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