Busch-Watchdog sensor 220°, SM
Type: 6179 AGM-204-500

Content

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The Busch-Watchdog sensor 220° is intended for assembly on solid ceilings or walls.

With its detection zone of 220°, it is also suitable for the surveillance of adjacent set-back front areas.

In addition to movement detection, the sensor can detect movements within a specified time with the aid of its integrated event signalling function. Thus, it is possible to integrate the sensor into signalling systems.

The movement detector has also a twilight sensor function. This function triggers telegrams if the adjustable brightness values are crossed.

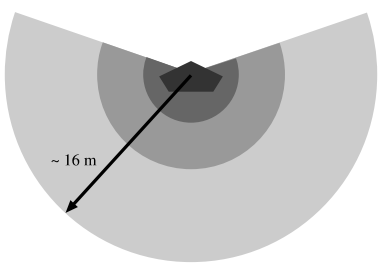
The mode of operation, the delay time and the sensitivity of the built-in dusk switch can either be set by means of the three potentiometers on the bottom of the device or by means of the parameters in the ETS.

Sources of interference can be masked out by means of the enclosed masking strip or the detection zone can be reduced. The detection zone can be limited by the ETS-Parameters also.

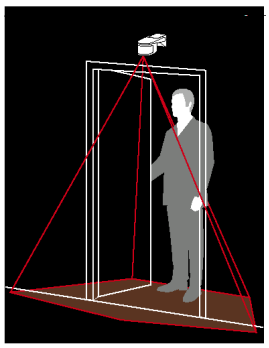
Technical data

Supply	– EIB	24 V DC, via the bus line
Sensor-Data	– detection zone	horizontal 220°
	– max. range	approx. 16 m (at installation height 2.5 m and horizontal alignment)
	– surveillance density	70 sectors with 280 switching segments
Swivelling range	– horizontal	+/- 65°
	– vertikal	90° upwards, 40° downwards
Operating and display elements	– potentiometer	dusk sensor approx. 0.1 ...1000 lux
	– potentiometer	delay time 10 s ... 32 min
Connections	– EIB	via enclosed bus terminal
Colour	– white – silver	
Protection type	– IP 55, EN 60 529	
Ambient temperature range	– operation	-25 °C … 55 °C
Dimensions	– 85 x 145 mm (W x D)	
Weight	– 0.25 kg	
Certification	– EIB-certified	
CE-mark	– pursuant to EMC Directive and Low Voltage Directive	

Normal detection zone (horizontal)

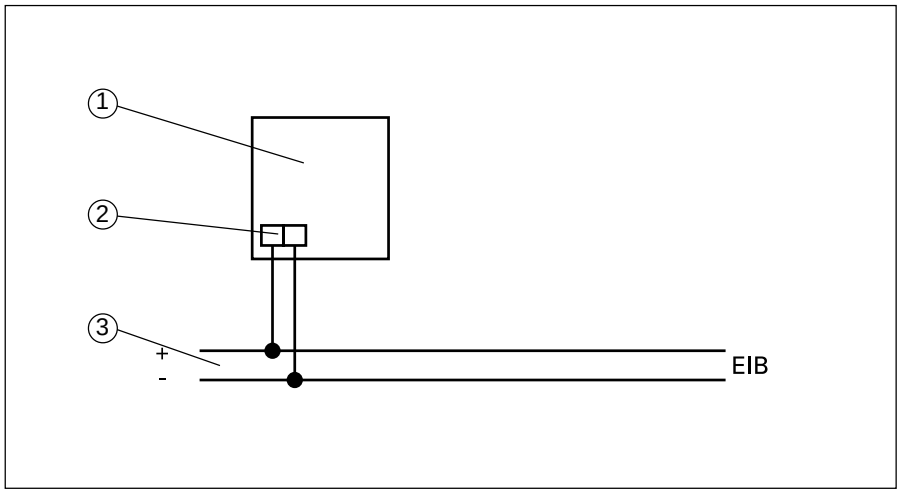


Detection zone with rear-field surveillance



Application programs	No. of communication objects	Max. no of group addresses	Max. no of assignments
Switching Value Cyclic Message Dusk /4	10	30	31

Connection diagram

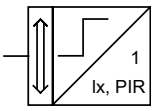


1 Bus line
2 Bus terminal
3 Busch-Watchdog

Note

The programming mode is activated by the position of the operating mode selection potentiometer. If the device is to be provided with e.g. a physical address, set the switch to „Prog.“ and then return it to the appropriate mode of operation.

Switching Value Cyclic Message Dusk /4



Selection in ETS2

– ABB
  └phys. sensors
    └movement detector

The movement detector can detect movements in its detection zone and transmit switching or value telegrams by means of this application.

Partial access in the ETS 2 simplifies the parameterization. Only the standard parameters are visible. Change over to full access to use the special functions. In the ETS 3 all Parameters are visible and adjustable all the time.

Switching

The movement detector transmits switching telegrams to the communication object „Movement/telegram switching“ if it detects something in its detection zone. The value of the switching telegram can be adjusted by means of the parameter „Transmission on movement“. If only one movement is detected, an „ON telegram“, an „OFF telegram“ or „no telegram“ can be transmitted. The on and off telegrams can also be transmitted on a cyclic basis.

If the movement detector does not detect any more movement after the delay time, an „ON telegram“, an „OFF telegram“ or „no telegram“ can be transmitted. Here, there is also the possibility of transmitting the on and off telegrams on a cyclic basis. The response can be specified by means of the parameter „Telegram after delay time“

The movement detector will locked or enabled over the Communication obje ct „Movement–Enable“. It can be visibly switched by means of the parameter „Enable object message“.

If the movement detector receives a telegram at this object, the movement detector will be activated or deactivated. The transmission of a non-recurring ON telegram, OFF telegram, or no telegram via the communication object „Movement/telegram switching“ can be set by means of the parameter „With... movement“.

Example:
All the movement detectors in a functional building are to be enabled at a certain time in the evening. To do this, a „1“ is transmitted from a central position by a timer switch and received at the communication object „Movement/enable“. In this example, the parameter „Movement/enable“ is parameterized to „ON telegram“.

Value

There is also the possibility of transmitting values during movement detection. To do this, the parameter „Type of movement object“ must be changed from „Switching (EIS1)“ to „Value (EIS6)“. This can be used for e.g. dimming dimmer actuators to a value below the maximum value.

The size of the values which are to be transmitted can be specified by means of the parameter settings „Transmission on movement „ and „Telegram after delay time“. They can also be used to specify that no telegram is transmitted.

Cyclic

All the switching telegrams can also be transmitted on a cyclic basis. When doing so, ensure that transmission is set for both the parameters „ON telegram cyclic“ or „OFF telegram cyclic“.

The total cycle time can be set by means of the parameters „Time base for cyclic transmitting“ and „Time factor for ...“.

The time in which a telegram will be cyclically repeated consists of a base and a factor:
*Cycle time = base * factor.*

Settings

The sensitivity will be adjusted over the parameter „Side of installation of the Watchdog“. The movement detector reacts very slow by the setting „Outside (disturbed surroundings)“. The setting „Outside“ means, that the movement detector reacts slowly up to normal at movements. And by the setting „Inside“ the movement detector reacts sensitive at movements.

The mode of operation, the switching threshold for the photo-sensor and the delay time can be set by means of the potentiometers on the bottom of the device.

Alternatively, the settings can be effected in the ETS. To do this, change the setting parameters from „...Potentiometer“ to „ETS“.

If the „NORMAL“ mode of operation is selected, the switching threshold for the photo-sensor and the delay time is specified either by means of the setting on the potentiometers or by the ETS. If the „STANDARD“ mode of operation is selected, a fixed response threshold of 5 lux and a switch-off delay of 3 min is effective.

If the switching threshold is specified by means of the ETS, the parameter „Switching threshold in lux“ is used to specify the brightness at which the movement detector is actuated. The delay time can be set in the ETS by means of the two parameters „Time base of the delay time“ and „Time factor of the ...“. The delay time is the product of the base and the factor:

*Delay time = base * factor*

The movement detector can be limited, if not the whole detection zone should be controlled. The parameter „Detection zone of the movement detector“ allows to control the complete area of 220°, only the right or only the left part of the detection zone.

Brightness-dependent switching

A further communication object can be enabled by means of the parameter „Enable object brightness-dependent switching“. If the communication object „Brightness-dependent switching channel ...“ receives a „1“, the movement detector switches on, irrespective of the brightness. As a result, the switching threshold settings which have been effected by means of the potentiometer or the ETS have no significance during the activation time. If a „0“ is received at the object, the movement detector will not send any switch-on telegrams again until the switching threshold for the lighting has been crossed.

Message

An event signalling function can be activated. To do this, the general parameter „Event signalling function“ must be set to „enabled“. The event signalling function is a „quasi-alarm message“ which does not actuate at the smallest movement of a heat source, but only if the movement detector detects a strong source of energy in a short period of time or weak energy sources over a longer period of time.

If the event signalling function has been activated, a further communication object Message/telegram ...“ is available, which is independent of the dusk sensor. The movement detector detects the amount and intensity of a movement during a time interval and transmits telegrams only after a specified sensitivity level has been reached. The sensitivity level is specified by means of the parameter „Switching threshold“. Values from „1“ up to „255“ are possible, in which the value „1“ signifies maximum sensitivity and the value „255“ minimum sensitivity.

The type of signalling object (1 bit or 1 byte), the type of telegram at the start and end of detection and the cyclic transmission response can be set in the tab „Event signalling functions“. In addition to this, the time at which the movement detector goes into the event signalling function mode can be parameterized.

Like the cycle time, this time consists of a base and a factor. The event signalling function mode can be enabled externally by means of the communication object „Message/enable“. The object can be visibly switched by means of the parameter „Enable object message“.

Dusk

A dusk sensor function can be activated. To do this, the general parameter „Dusk sensor“ must be set to „yes“.

The type of dusk object (1 bit or 1 byte), the value at which a telegram will be sent after the upper or lower switching threshold has been crossed and the cyclic transmission response can be set in another tab „Dusk sensor“.

The parameter „Ignore artificial light“ is used to specify whether the movement sensor is to react only to daylight or not.

The parameters „Lower switching threshold in lux“ and „Upper switching threshold in lux“ are used to specify when the dusk telegrams are to be actuated. The dusk sensor mode can be actuated externally by means of the communication object „Dusk/enable“. To do this, the parameter „Enable object dusk sensor“ must first be set to „available“.

Bus voltage recovery

There are parameters to set the behaviour of the communications objects „Brightness-depenting switching–Enable“, „Movement–Enable“, „Message–Enable“ and „Dusk–Enable“. The parameters make sure, that there are no undefiened status.

Communication objects

No.	Type	Object name	Function
0	1 bit	Movement	Telegram value

Communication objects
with value telegram transmission

No.	Type	Object name	Function
0	1 byte	Movement	Telegram switching

Communication objects
with enable object and brightness-dependent switching enable object

No.	Type	Object name	Function
0	1 bit	Movement	Telegram switching
1	1 bit	Movement	Enable
2	1 bit	Brightness-dependent switching	Enable

Communication objects
with message, dusk and enable objects

No.	Type	Object name	Function
…			
3	1 bit	Message	Telegram switching
4	1 bit	Message	Enable
5	1 bit	Dusk	Telegram switching
6	1 bit	Dusk	Enable

Communication objects
with message and dusk values and enable objects

No.	Type	Object name	Function
…			
3	1 byte	Message	Telegram value
4	1 bit	Message	Enable
5	1 byte	Dusk sensor	Telegram value
6	1 bit	Dusk sensor	Enable

Parameters with partial access
The default setting of the values is **in bold type**

Note:
Partial access in the ETS 2 simplifies the parameterization. Only the standard parameters are visible. Change over to full access to use the special functions.

General:	
– Message function	yes **no**
– Dusk function	yes **no**
– Response at bus recovery: (Communication objects) Only with enable object available	
– Brightness-depending switching	**enabeld** disabeld
– Movement	**enabled** disabeld
– Message function	enabeld **disabled**
– Dusk sensor	**enabeld** disabeld
Settings:	
– Mounting location of the movement detector	Outside Inside Outside (remoulded outer field)
– Mode of operation of the movement detector	NORMAL STANDARD TEST **Can be set by potentiometer**
Only with NORMAL settings and „by potentiometer“::	
– Photo-sensor switching threshold can be set by means of	**Potentiometer** ETS
Only with setting by means of ETS:	
– Switching threshold in lux	approx. 0.1 (filled-in half moon) approx. 0.5 **approx. 1 (half moon)** approx. 15 approx. 50 approx. 150 approx. 500 approx. 1000 (sun)
– Delay time can be set by means of	**Potentiometer** ETS
Only with setting by means of ETS:	
– Time base of the delay time	0.5 ms / 8.2 ms / 130 ms / **2.1 s** / 34 s / 9 min
– Time factor of the delay time (2…255)	**100**
– Side of installation of the Watchdog	**220°** only right only left

Parameters with partial access
The default setting of the values is **in bold type**

Note:
Partial access in the ETS 2 simplifies the parameterization. Only the standard parameters are visible. Change over to full access to use the special functions.

Movement detector:	
– Enable object brightness-depending switching	**not available** available
– Enable object movement	**not available** available
Only if available:	
– Enable movement with	**On telegram** OFF telegram
– With movement disabled	**no telegram** send telegram once „on movement“ send telegram once „after elapse time“
– With movement enabled	**no telegram** send telegram once „on movement“ send telegram once „after elapse time“
– Type of movement object	**Switching (EIS1)** Valuet (EIS6)
Only with switching (EIS1):	
– Transmission on movement	**ON telegram** OFF telegram ON telegram cyclic OFF telegram cyclic no telegram
– Telegram after expiry of the delay time	ON telegram **OFF telegram** ON telegram cyclic OFF telegram cyclic no telegram
– Time base for cyclic sending	**130 ms** / 2.1 s / 34 s / 9 min
– Time factor for cyclic sending (2…255)	**10**
Only with value (EIS6):	
– Transmission on movement	**100 %** / 90 % / … / 20 % / 10 % / off / no telegram
– Telegram after elapse of the delay time	100 % / 90 % / … / 20 % / 10 % / **off** / no telegram

Parameters with partial access
The default setting of the values is **in bold type**

Note:
Partial access in the ETS 2 simplifies the parameterization. Only the standard parameters are visible. Change over to full access to use the special functions.

Event signalling function	
– Enable object message	**not available** available
Only if available:	
– Enable event signalling function with	**ON telegram** OFF telegram
– Type of signalling object	**Switching (EIS1)** Value (EIS6)
Only with switching (EIS1):	
– Transmission at the start of detection	**ON telegram** OFF telegram ON telegram cyclic OFF telegram cyclic no telegram
– Transmission at the end of detection	ON telegram OFF telegram On telegram cyclic OFF telegram cyclic **no telegram**
– Time base for cyclic sending	**130 ms** / 2.1 s / 34 s / 9 min
– Time factor for cyclic sending (2…255)	**10**
Only with value (EIS6):	
– Transmission at the start of detection	**100 %** / 90 % / … / 20 % / 10 % / off / no telegram
– Transmission at the end of detection	100 % / 90 % / … / 20 % / 10 % / **off** / no telegram
only at off:	
– no alarm sends	**0**
– Time base for cyclic sending	**130 ms** / 2.1 s / 34 s / 9 min
– Time factor for cyclic sending (2…255)	**10**
– Sensitivity (switching threshold) (1:sensitive / 255:insensitive)	**4**
– Time base up to Busch Watchdog in event signalling function mode	0.5 ms / 8.2 ms / **130 ms** / 2.1 s / 34 s / 9 min
– Time factor up to Busch Watchdog in event signalling function mode	**100**

Parameters with partial access
The default setting of the values is **in bold type**

Note:
Partial access in the ETS 2 simplifies the parameterization. Only the standard parameters are visible. Change over to full access to use the special functions.

Dusk sensor:	
– Enable object dusk sensor	**not available** available
Only if available:	
– Enable dusk sensor with	**ON telegram** Off telegram
– Ignore artificial light	**yes** no
– Type of the dusk object	**Switching (EIS1)** Value (EIS6)
– Transmission at the upper switching threshold	ON telegram **OFF telegram** ON telegram cyclic OFF telegram cyclic no telegram
– Transmission at the lower switching threshold	**ON telegram** OFF telegram ON telegram cyclic OFF telegram cyclic no telegram
– Time base for cyclic sending	**130 ms** / 2.1 s / 34 s / 9 min
– Time factor for cyclic sending (2…255)	**10**
Only with value (EIS6):	
– Transmission at the upper switching threshold	**100 %** / 90 % / … / 20 % / 10 % / off / no telegram
– Transmission at the lower switching threshold	100 % / 90 % / … / 20 % / 10 % / **off** / no telegram
– Lower switching threshold in lux	approx. 0,1 / **approx. 0,5** / approx. 1 / … / approx. 500
– Upper switching threshold in lux (upper threshold must be higher than lower threshold)	approx. 0,1 / approx. 0,5 / … / **approx. 150** / approx. 500