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# Electrical installation solutions for buildings – Technical details

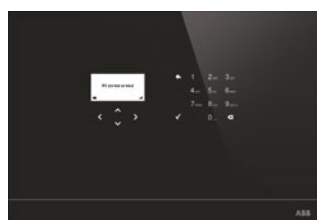
## Intrusion Alarm Systems

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# Intrusion Alarm Systems

## ABB-secure@home



### ABB-secure@home central units

Description	GSM	ABB-free@home®	Color	Type	Order number	Pack unit
Central unit	●	●	Glass white	SAS-W1.1E	2CSY233921R0003	1
Central unit		●	Glass white	SAS-W2.1E	2CSY245181R0004	1
Central unit	●	●	Glass black	SAS-W1.1F	2CSY233541R0003	1
Central unit		●	Glass black	SAS-W2.1F	2CSY255461R0004	1
Central unit		●	White	SAS-W3.1E	2CSY234925R0005	1

### Spare batteries

Rechargeable battery pack, Ni-Mh, 6 V, 1.6 Ah				SBA-W1.1	2CSY255111R0801	1
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### System capability

Device type		Max. no. of devices	Max. no. of zones
Anti-intrusion	Indoor and outdoor volumetric passive infrared detectors Magnet reed contacts	64	7
Home safety	Flood detectors, optical smoke detectors, heat detectors		1 active 24 h
Signaling	Outdoor sirens	4	-
Control	Remote controls, security keypads	16	-
Others	Wireless repeaters, wired interface	4	-

Communication between central unit and devices is wireless based on a radio frequency signal that ensures the reliability and the security of the communication itself.



**Bidirectional**



**Indoor**



**Rechargeable battery backup up to 30 h**



**Direct 230 V power supply**



**Up to 7 zones**



**Integrated indoor siren up to 95 db at 1 m**



**Capacitive touch keypad**

### Reliability

ABB-secure@home wireless communication operates at 868.3MHz. It is a frequency band regulated by European norms (ERCREC-70-3E) much less crowded than the traditional one of 434MHz, with a power of 25mW and considered as privileged. In addition the components are ETSI-RED (Radio Equipment Directive) 2014/53/EU compliant. The alarm system uses an ABB owner communication protocol, optimized to the best ratio distance over energy consumption and it is classified as long range wireless communication, since it supports an alarm system up to 300m in free field. The bidirectional transmission let know the status of each single component, because the sensor receives instructions from the central unit and sends back messages when the action is accomplished.

### Security

ABB-secure@home counts on a digital encrypted communication with 128 bits and it is supplied with a 65k rolling code remote control which creates unique code each time a command is sent to prevent it from being maliciously copied and replicated. Moreover the bidirectional communication let the central unit know the state of each controlled device, as battery charge state, state of functioning and if any infringement has been done. The multiple access (CSMA) transmission system, avoid interferences, disturbances and signal collisions.

## Intrusion Alarm Systems

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The central unit is able to manage up to seven security zones, set as anti-burglar type (armed/disarmed), one safety zone, set as technical alarm always-on, and one zone dedicated to system devices. Each zone of the anti-theft system can be activated in three different modes:

	User	System activation after a detection
Notification mode	Located inside the apartment, office, shop	Notification only (e.g., SMS)
Home mode		Internal warning only (e.g., indoor siren)
Away mode	Located outside	All possible notifications (external and indoor siren, SMS, actuations)



USB connection

### The central unit provides two USB ports:

- 1 USB type A for updating the central unit firmware via USB stick
- 1 USB type B port for connection via USB type B cable to a computer with maintenance software



PC connection

### Electrical specifications:

- Power supply: 230 VAC  $\pm$  10%, 50/60 Hz
- Max. current: 45 mA
- Backup battery: Ni-Mh rechargeable, 6 V, 1.600 mAh

### Dimensions (LxHxD):

- Square shaped: 273 x 188 x 48 mm

### Conditions of use:

- Environmental class: I (indoor)
- Operating temperature: -5 °C to +45 °C
- Relative humidity: 75% average, non-condensing, 90% peak
- Installation: wall-mounted

### Communication technologies:

- Safety devices: bidirectional FM transmission at 868.3 MHz
- Range in free field: 300 m
- For GSM models only:
  - Dual band GSM/UMTS module 900 MHz/1.800 MHz
  - Internal antenna
- ABB-free@home® 2-wire bus

### Other features:

- Backlit LCD display, 128 x 64 pixels
- Indoor siren: built-in piezo siren, 95 dB at 1 m
- Protection: anti-tamper, anti-removal

## Intrusion Alarm Systems

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### Preconfigured remote control

Description	Color	Type	Order number	Pack unit
Preconfigured remote control	Glass black	SAD-W1.1F	2CSY202821R0305	1
Preconfigured remote control	Black	SAD-W3.1F	2CSY295161R1058	1

Spare lithium button battery, 3 V (CR2032), normally available on the market



**Bidirectional**



**Battery  
up to 5 years**

- Power supply: 1 lithium battery type CR2032, 3 V, 220 mAh
- Battery life: 5 years
- Protection: IP32
- Operating temperature: -5 °C to +55 °C
- Relative humidity: max. 93 % (non-condensing)
- Environment: indoors, outdoors
- Range in free field: 200 m
- Local signals: 5 LEDs red/green/orange
- Dimensions (LxHxD): 40 x 78 x 10 mm



### Remote control

Description	Color	Type	Order number	Pack unit
Remote control	Glass black	SAD-W2.1F	2CSY251641R0306	1
Remote control	Black	SAD-W4.1F	2CSY277102R0301	1

Spare lithium button battery, 3 V (CR2032), normally available on the market



**Bidirectional**



**Battery  
up to 5 years**

- Power supply: 1 lithium battery type CR2032, 3 V, 220 mAh
- Battery life: 5 years
- Protection: IP32
- Operating temperature: -5 °C to +55 °C
- Relative humidity: max. 93 % (non-condensing)
- Environment: indoors, outdoors
- Range in free field: 200 m
- Local signals: 5 LEDs red/green/orange
- Dimensions (LxHxD): 40 x 78 x 10 mm

## Intrusion Alarm Systems

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### Perimeter magnet reed contact detector

Description	Color	Type	Order number	Pack unit
Universal perimeter detector	White	SMC-W1.1A	2CSY255791R0104	1
Universal perimeter detector	Brown	SMC-W1.1D	2CSY255731R0104	1
Spare lithium battery 3 V, 1.4 Ah	-	SBA-W2.1	2CSY255331R0802	1



**Bidirectional**



**Indoor**



**Battery  
up to 5 years**

- Power supply: lithium battery 3 V, 1.4 Ah
- 30-day guaranteed operation from low battery signal
- Battery life: 5 years with average use of 10 opening/closing operations daily
- Protection degree: IP30
- Dimensions (LxHxD): detector 31 x 106 x 35 mm, magnet 8 x 56 x 10 mm
- Color: white or brown
- Operating temperature: -5 °C to +45 °C
- Relative humidity: max. 93 % (non-condensing)
- Usage environment: indoors (dry and sheltered places)
- Range in free field: 300 m
- Local signals: 1 calibration LED
- Installation: free
- Protection degree: dual tamper
- Performance level: complies with EN 50131-1 and EN 50131-2-6 Class I standards



### Rolling door magnet reed contact

Description	Color	Type	Order number	Pack unit
Magnetic contact for overhead doors	-	SMC-W2.1	2CSY255341R0602	1

This device signals the opening of overhead or sliding doors. It needs to be connected to a perimeter magnet reed contact detector (type codes: SMC-W1.1A or SMC-W1.1D) or to a dual passive IR perimeter motion detector (type codes: SMD-W2.1A or SMD-W2.1D), and is equipped with a 1.2-meter connection cable for this purpose. It is made of aluminum with high resistance to the transit of heavy vehicles. The minimum fixing distance is 20 mm from ferrous materials and 25 mm from non-ferrous materials.

- Protection degree: IP66
- Dimensions (LxHxD): 140 x 15.5 x 42 mm (fixed part) 86 x 25 x 32 mm (moving part)
- Operating temperature: -25 °C to +70 °C

## Intrusion Alarm Systems

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### Roller shutter sensor

Description	Color	Type	Order number	Pack unit
Rope-operated contact for shutters, monitors the opening of windows and doors, complete, for screw-on or drilling	White	SLM-W1.1	2CSY255001R0603	1

The device detects the lifting of shutters through the movement of the retractable rope. It is made of thermoplastic material; the rope is 3.5 m long. It needs to be connected to a perimeter magnet reed contact detector (type codes: SMC-W1.1A or SMC-W1.1D).

- Protection degree: IP40
- Dimensions (LxHxD): 100 x 77 x 15 mm
- Weight: 280 g
- Operating temperature: -25 °C to +70 °C



### Magnet reed contact for surface/flush mounting

Description	Color	Type	Order number	Pack unit
Projecting or flush-mounted magnetic contact	White	SMC-W3.1A	2CSY295241R0606	1
Projecting or flush-mounted magnetic contact	Brown	SMC-W3.1D	2CSY295201R0606	1

The device monitors the opening of windows and doors. Installation options:

- Wall-mounted, inserting with pressure the cylindrical parts into 8 mm diameter holes
- Flush-mounted, with the use of the plastic adapters included in the packaging

It needs to be connected to a perimeter magnet reed contact detector (type codes: SMC-W1.1A or SMC-W1.1D) or to a dual passive IR perimeter motion detector (type codes: SMD-W2.1A or SMD-W2.1D) and is equipped with a 1.2-meter connection cable for this purpose. It is made of aluminum with high resistance to the transit of heavy vehicles. The minimum fixing distance is 20 mm from ferrous materials and 25 mm from non-ferrous materials.

- Protection degree: IP66
- Dimensions (LxHxD): 45 x 16.5 x 15 mm
- Weight: 50 g
- Operating temperature: -25 °C to +70 °C



### Shock inertial sensor

Description	Color	Type	Order number	Pack unit
Shock inertial sensor	White	SGB-W1.1A	2CSY255871R0604	1

This device detects a possible shock occurring on a door, window, or the surface on which it is installed. Equipped with a 2-meter connection cable, it must be connected to a perimeter magnet reed contact detector (type codes: SMC-W1.1A or SMC-W1.1D). Assembly: projecting on door/window/generic surfaces using screws or double-sided adhesive tape.

- Protection degree: IP54
- Dimensions (LxHxD): 33 x 32.7 x 23.7 mm
- Weight: 40 g
- Operating temperature: -25 °C to +70 °C

## Intrusion Alarm Systems

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**Bidirectional**



**Indoor**



**Battery  
up to 4 years**

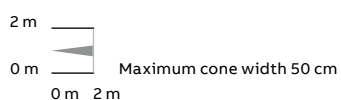
### Dual passive IR perimeter motion detector

Description	Color	Type	Order number	Pack unit
Perimeter detector	White	SMD-W2.1A	2CSY235871R0103	1
Perimeter detector	Brown	SMD-W2.1D	2CSY200091R0103	1
Spare lithium battery 3 V, 1.4 Ah	-	SBA-W2.1	2CSY255331R0802	1

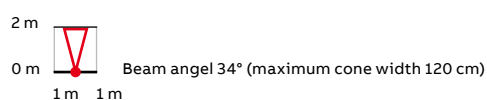
- Power supply: lithium battery 3 V, 1.4 Ah (included in the package)
- 30-day guaranteed operation from low battery signal
- Battery life: 4 years with average use of 10 daily operations
- Protection degree: IP34
- Dimensions (LxHxD): 220 x 38 x 32 mm
- Operating temperature: -20 °C to +55 °C
- Relative humidity: max. 93 % (non-condensing)
- Usage environment: indoors (dry and sheltered places)
- Range in free field: 300 m
- Local signals: 1 red LED
- Detecting element: 2 IR sensors with linear Fresnel lens; 1 external contact with anti-tamper (can be excluded), anti-masking (can be excluded)
- Installation: free
- Anti-tamper protection: anti-opening, anti-tear (optional)

### Diagram of side coverage

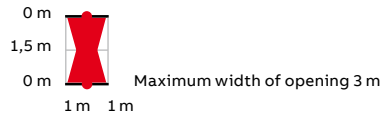
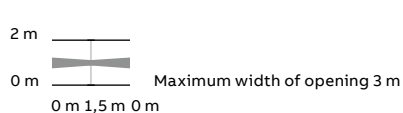
Typical installation between window and blind.



### Diagram of top coverage



Side installation for large openings with two opposing devices.



# Intrusion Alarm Systems

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## Indoor passive IR motion detector

Description	Color	Type	Order number	Pack unit
Indoor passive infrared detector	White	SMD-W1.1A	2CSY255701R0105	1
Spare lithium battery 3 V, 1.4 Ah	-	SBA-W2.1	2CSY255331R0802	1
Joint for mounting the IR wall detector	White	SIM-W2.1A	2CSY255101R0607	1



**Bidirectional**



**Indoor**

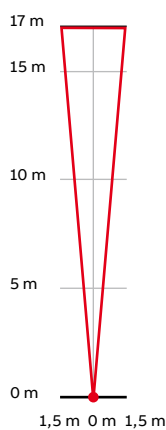


**Battery up to 4 years**

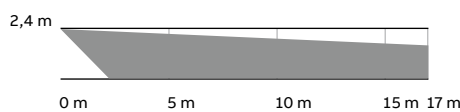
- Power supply: lithium battery 3 V, 1.4 Ah (included in the package)
- Battery life: 4 years (operation guaranteed 30 days from low battery signal)
- Protection degree: IP30
- Operating temperature: -5 °C to +45 °C
- Relative humidity: max. 95% (non-condensing)
- Environment: indoors
- Range in free field: 300 m
- Detecting elements: 1 IR sensor with Fresnel lens
- Programming elements: 2 jumpers, one for testing, one for pulse counting
- Local signals: 1 LED
- Anti-tamper protection: lid opening tamper
- Dimensions (LxHxD): 70 x 114 x 128 mm

### Long distance coverage

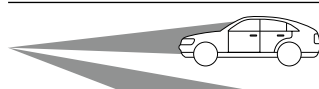
Top view



Side view

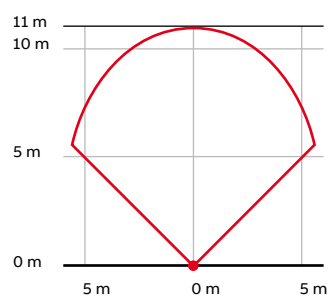


**No reaction**  
Only upper IR beam is crossed

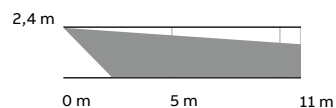


### Wide coverage angle

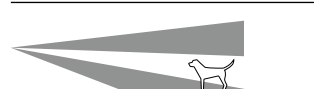
Top view



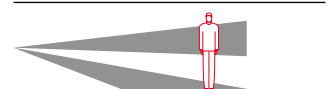
Side view



**No reaction**  
Only lower IR beam is crossed



**Alarm**  
Both IR beams are crossed





# Intrusion Alarm Systems

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## Perimeter bidirectional dual passive IR motion detector

Description	Color	Type	Order number	Pack unit
Perimeter bidirectional dual passive IR motion detector	White	SMD-W4.1A	2CSY254971R0202	1
Lithium battery, 3 V, 1.4 Ah	-	SBA-W2.1	2CSY255331R0802	1



**Bidirectional**



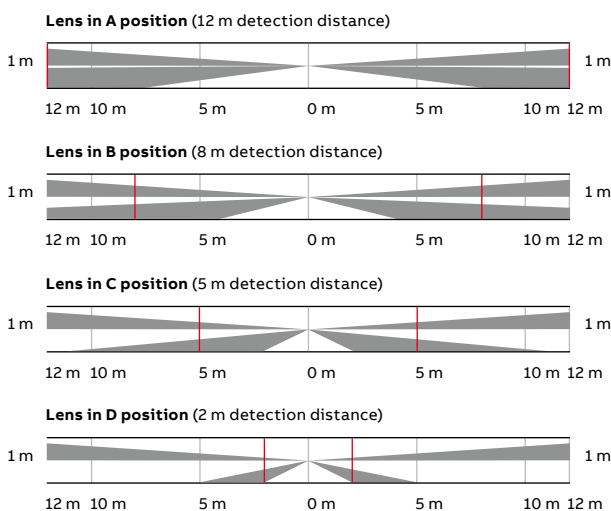
**Outdoor**



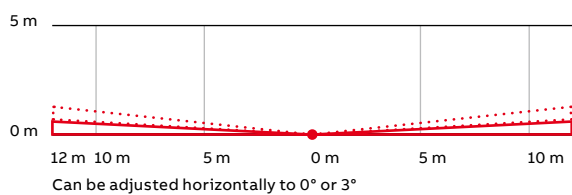
**Battery up to 3 years**

- Power supply: lithium battery 3 V, 1.4 Ah (included in the package)
- Battery life: 4 years (operation guaranteed 30 days from low battery signal)
- Protection degree: IP55
- Environment: outdoors
- Range in free field: 300 m
- Detecting elements: no. 4 sensors
- Programming elements: a 3-way DIP switch
- 1 sensitivity switch
- Local signals: 2 LEDs
- Anti-tamper protection: cover opening
- Dimensions (LxHxD): 56 x 235 x 128 mm
- Operating temperature: -15 °C to +55 °C
- Relative humidity: max. 93 % (non-condensing)

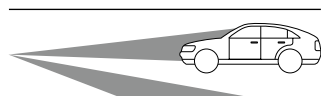
### Diagram of side coverage



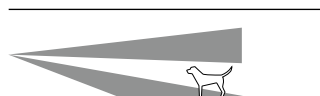
### Diagram of top coverage



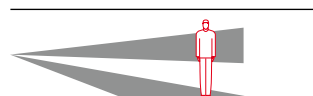
**No reaction**  
Only upper IR beam is crossed



**No reaction**  
Only lower IR beam is crossed



**Alarm**  
Both IR beams are crossed



# Intrusion Alarm Systems

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## Compact dual passive IR perimeter motion detector

Description	Color	Type	Order number	Pack unit
Compact dual passive IR perimeter motion detector	White	SMD-W5.1A	2CSY254981R0203	1
Lithium battery, 3 V, 1.4 Ah	-	SBA-W2.1	2CSY255331R0802	1



**Bidirectional**



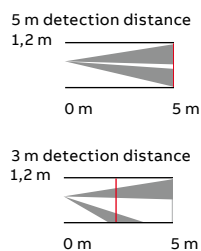
**Outdoor**



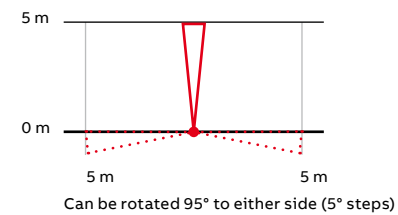
**Battery up to 3 years**

- Power supply: lithium battery 3 V, 1.4 Ah (included in the package)
- Battery life: 4 years (operation guaranteed 30 days from low battery signal)
- Protection degree: IP55
- Dimensions (LxHxD): 35 x 155 x 85 mm
- Operating temperature: -15 °C to +55 °C
- Relative humidity: max. 93 % (non-condensing)
- Range in free field: 300 m
- Detecting element: 2 IR sensors
- Programming elements: 1 DIP switch (with 6 switches)
- Local signals: no. 1 LED
- Anti-tamper protection: cover opening

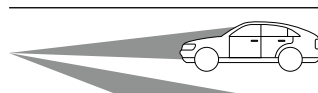
### Diagram of side coverage



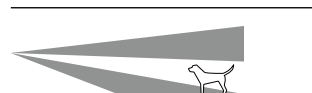
### Diagram of top coverage



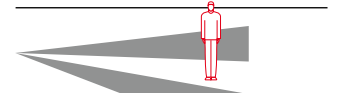
**No reaction**  
Only upper IR beam is crossed



**No reaction**  
Only lower IR beam is crossed



**Alarm**  
Both IR beams are crossed



# Intrusion Alarm Systems

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## Outdoor dual passive IR motion detector

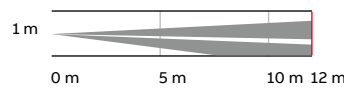
Description	Color	Type	Order number	Pack unit
Outdoor dual passive IR motion detector	White	SMD-W3.1A	2CSY255211R0201	1
Lithium battery, 3 V, 1.4 Ah	-	SBA-W2.1	2CSY255331R0802	1

- Bidirectional**
- Outdoor**
- Battery up to 3 years**

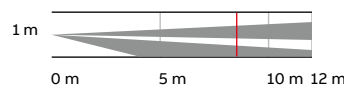
- Power supply: lithium battery 3 V, 1.4 Ah (included in the package)
- Battery life: 3 years (operation guaranteed 30 days from low battery signal)
- Protection degree: IP55
- Operating temperature: -15 °C to +55 °C
- Relative humidity: max. 93 % (non-condensing)
- Environment: outdoors
- Range in free field: 300 m
- Detecting element: no. 2 IR sensors
- Programming elements: no. 2 DIP switches (with 3 and 6 switches)
- Local signals: no. 1 LED
- Anti-tamper protection: cover opening
- Dimensions (LxHxD): 71 x 186 x 105 mm

### Diagram of side coverage

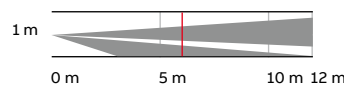
Detector position 1 (12 m average coverage area)



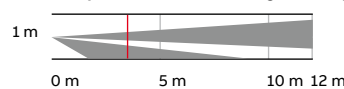
Detector position 2 (8.5 m average coverage area)



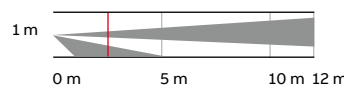
Detector position 3 (6 m average coverage area)



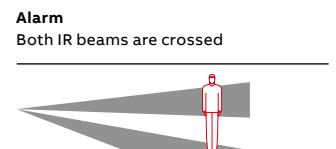
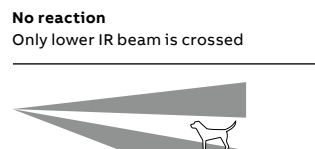
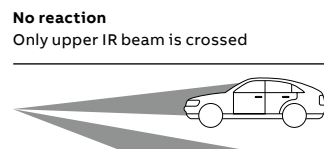
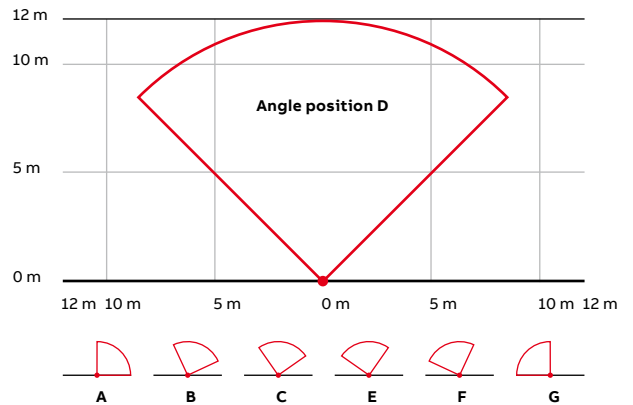
Detector position 4 (3.5 m average coverage area)



Detector position 5 (2.5 m average coverage area)



### Diagram of top coverage



# Intrusion Alarm Systems

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## Outdoor dual passive IR motion detector for height

Description	Color	Type	Order number	Pack unit
Outdoor dual passive IR motion detector for height	White	SMD-W6.1A	2CSY255311R0204	1
Lithium battery, 3 V, 1.4 Ah	-	SBA-W2.1	2CSY255331R0802	1



**Bidirectional**



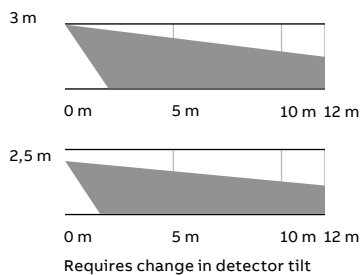
**Outdoor**



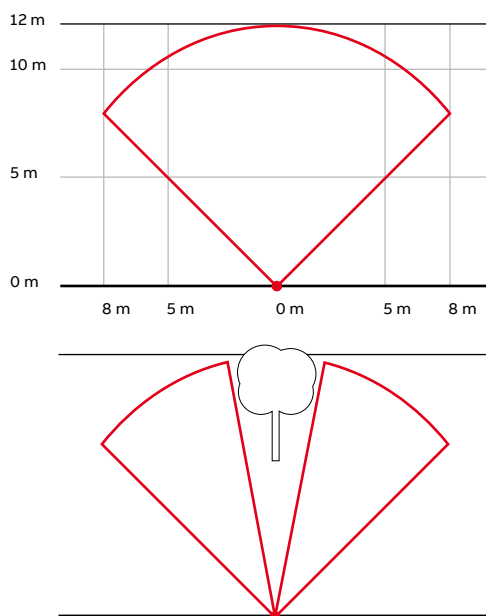
**Battery up to 3 years**

- Power supply: lithium battery 3 V, 1.4 Ah (included in the package)
- Battery life: 4 years (with 120 s active interdiction)
- Operation guaranteed 30 days from low battery signal
- Protection degree: IP55
- Operating temperature: -20 °C to +60 °C
- Relative humidity: max. 95% (non-condensing)
- Range in free field: 300 m
- Detecting element: 2 IR sensors
- Programming elements: 1 DIP switch (with 6 switches) – 2 sensitivity selectors
- Local signals: no. 1 LED
- Tamper protection
- Dimensions (LxHxD): detector with joint 99 x 205 x 266 mm coverage, detector without joint 92 x 198 x 148 mm

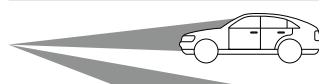
### Diagram of side coverage



### Diagram of top coverage



**No reaction**  
Only upper IR beam is crossed



**No reaction**  
Only lower IR beam is crossed



**Alarm**  
Both IR beams are crossed



## Intrusion Alarm Systems

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### ABB-Secure@home wireless interface module for Busch-Smoke alarm detector

Description	Color	Type	Order number	Pack unit
Smoke/heat detector interface module	-	STD-W1.1	2CSY254961R0701	1

The device is required for interfacing the smoke detectors (order number: 2CKA006800A2721) or heat detectors (order number: 2CKA006800A2723) with the central unit.

The module is equipped with an integrated lithium battery with a minimum life of ten years. The device features bidirectional communication with the central unit that supervises it with a programmable supervision interval (typically every 15 minutes). During installation/programming it is possible to change the supervision interval through the specific functions available on the central unit.



**Bidirectional**



**Indoor**



**Battery  
10 years**

- Power supply: lithium battery 3 V, not replaceable
- Battery life: 10 years
- Installation: inside a smoke detector, heat detector
- Communication technology: FM 868.3 MHz transmission
- Range in free field: 300 m

## Intrusion Alarm Systems

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### Smoke detector

Description	Color	Type	Order number	Pack unit
Optical smoke detector	White	6833/01-84-500	2CKA006800A2721	1



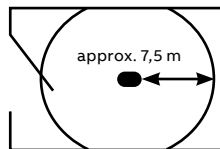
**Bidirectional**



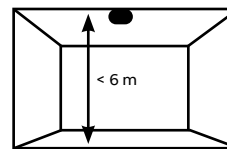
**Indoor**



**Battery  
10 years**



Coverage area (radius 7,5 m)



Maximum height (6 m)

- Power supply: lithium battery 3 V, not replaceable
- Battery life: 10 years
- Dimensions (diameter x D): 120 mm x 47.5 mm
- Local signals: alarm (LED and buzzer), low battery (LED)
- Installation: ceiling



### Heat detector

Description	Color	Type	Order number	Pack unit
Heat detector	White	6835/01-84-500	2CKA006800A2723	1



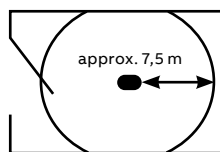
**Bidirectional**



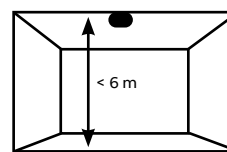
**Indoor**



**Battery  
10 years**



Coverage area (radius 7,5 m)



Maximum height (6 m)

- Power supply: lithium battery 3 V, not replaceable
- Battery life: 10 years
- Dimensions (diameter x D): 120 x 55 mm
- Color: white
- Usage environment: indoors
- Local signals: acoustic horn, sound pressure 85 dB at 3 m
- 1 alarm LED – low battery
- Installation: ceiling

## Intrusion Alarm Systems

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### Water detector

Description	Color	Type	Order number	Pack unit
Flood detector	White	STD-W5.1A	2CSY255191R0705	1
Lithium battery, 3 V, 1.4 Ah	-	SBA-W2.1	2CSY255331R0802	1



**Bidirectional**



**Indoor**



**Battery  
up to 3 years**

- Power supply: lithium battery 3 V, 1.4 Ah (included in the package)
- Battery life: 3 years, operation guaranteed 30 days from low battery signal
- Color: white
- Operating temperature: 0 °C to +55 °C
- Range in free field: 300 m
- Local signals: 1 alarm LED
- Dimensions:
  - interface module: 30 x 36 x 103 mm
  - flood probe: 40 x 44 x 23 mm
- Connection cable length: 5 m
- Installation: wall

## Intrusion Alarm Systems

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### Outdoor alarm sirens

Description	Color	Type	Order number	Pack unit
Outdoor siren	White	SSD-W1.1A	2CSY277631R0502	1
Outdoor siren	Anthracite	SSD-W1.1B	2CSY229751R0502	1
Outdoor siren	Silver	SSD-W1.1C	2CSY296961R0502	1
Outdoor siren	Silver	SSD-W2.1C	2CSY258212R0501	1
Battery pack, LR20, 7.5 V, 12 Ah	-	SBA-W3.1	2CSY254991R0803	1

- Power supply: no. 1 battery pack LR20 7.5 V (5 type "D"x 1.5 V batteries), 12 Ah
- Operation guaranteed 30 days from low battery signal
- Battery life: 3 years under normal use
- Protection degree: IP55
- Color: silver, flashing orange
- Operating temperature: -20 °C to +55 °C
- Relative humidity: max. 93 % (non-condensing)
- Range in free field: 300 m
- Local signals: 1 trumpet, 100 dBA sound pressure at 3 m, 1x 8-LED flash
- Installation: free
- Anti-tamper protection: anti-opening and anti-removal
- Performance level: complies with EN 50131-1 and EN 50131-4 standards
- Environmental class: III, safety degree: 2
- Dimensions (LxHxD): 210 x 330 x 155 mm



**Bidirectional**



**Outdoor**



**Battery  
up to 3 years**



## Intrusion Alarm Systems

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### Wireless repeater

Description	Color	Type	Order number	Pack unit
Wireless repeater	-	SIM-W1.1	2CSY255201R0601	1
Lithium battery, 3 V, 1.4 Ah	-	SBA-W2.1	2CSY255331R0802	1



**Bidirectional**



**Indoor**



**Battery  
up to 3 years**

- Power supply: 4 3 V DC batteries (included) or external 5 V DC plug-in power supply (optional, not included)
- Battery life: 3 years without 220 V power supply with 4 batteries installed (capacity 1.4 Ah x 4 = 5,6 Ah)
- Protection: IP20
- Dimensions (LxHxD): 97 x 97 x 35 mm
- Color: white
- Operating temperature: -5 °C to +45 °C
- Relative humidity: 93 % max. (non-condensing)
- Usage environment: indoors, in a dry, sheltered place
- Communication technology: FM 868,3 MHz transmission
- Range in free field: 300 m
- Programming elements: no. 1 button
- Signaling elements: none
- Installation: wall
- Tamper protection: anti-tamper and anti-burglary

