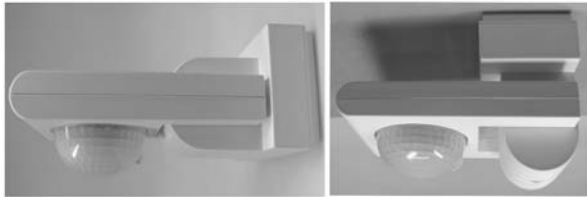


AP 251/11, Motion detector IP55 (titanium white)
AP 251/21, Motion detector IP55 (anthracite)

5WG1 251-3AB11
5WG1 251-3AB21

Product and Applications Description



The IP55 motion detector (short title AP 251/_1) is a surface mounted device with integrated KNX interface for mounting on a wall or ceiling (see figure 1) in inside or outside areas. It works by passive detection of heat radiated by bodies in its capture zone. It can be set separately for the beginning and end of detected movements, whether these are to be reported over the bus and whether a further telegram is also to be sent. Owing to its large capture zone of 290°, the motion sensor is also suitable for mounting on a 90° outside corner. A special mounting base is available for this purpose as an accessory (5TC7 900 in titanium white and 5TC 901 in anthracite).

By using an infrared remote control which is also available as an accessory (5TC7 902), a user can conveniently set, by means of the IR receiver incorporated in the motion detector, as well the detector's mode (test mode, brightness-dependent or brightness-independent mode, standard mode, pulsed mode) as the brightness threshold and the delay time, independently.

The **factory setting** of the mode in the as-delivered state is brightness-dependent motion detection with a brightness threshold of 7 lux and a delay time of 2 minutes.

The detector electronics are powered via the bus voltage.

Application Program

The motion detector AP 251/_1 requires the application program „25 S1 Motion Detector 909101“ which can be configured and loaded with the Engineering Tool Software (ETS) from version ETS2 V1.3 upwards.

Via the ETS it can be set separately for the beginning and end of detected movements, whether these are to be reported over the bus, whether the telegram "Movement = On" respectively "Movement = Off" has to be sent only once or cyclically and whether an additional telegram is to be sent only once or cyclically. The telegram to be sent additionally may be a switching command On/Off, an 8-bit value (0-255) or a telegram for recalling an 8-bit scene.

Via a separate communication object the motion detector may be blocked and released if required. If it is

blocked no telegram will be sent neither at the beginning nor at the end of a detected motion.

Installation Instructions

- The device can be used for permanent installations in inside or outside areas.



WARNING

- The device must be mounted and commissioned by an authorised electrician.
- For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered.

Technical Specifications

Sensor

- Capture zone: 290°
- Mounting height: 2 – 4 m, ideally 2.50 m
- Range (mounting height 2.50 m, +22°C): approx. 16 m
- Dawn/twilight sensor: 0.5 - 2000 lux
- Delay time 5 seconds - 30 minutes
- Pulse mode 1 second ON, 9 seconds OFF
- Test mode: Brightness-independent mode, after-run time 2 seconds

Power supply

- Bus voltage: via bus line
- Bus current: 11 mA

Operating elements

- 1 commissioning button (see figure 1): for switching over between normal mode / addressing mode
- 2 buttons (S1 and S2, see figure 2): for local setting of operating mode, brightness switching threshold and after-run time of the motion detector, independent of the bus

Display elements

- 1 red LED: for display of normal mode / addressing mode (off / on)
- 1 red LED (below the lens of the motion detector): for confirmation after operating mode and parameter settings

Connections

- Bus connection: screw-less bus terminal, single-wire 0.6...0.8 mm Ø, insulation strip length 5 mm.

AP 251/11, Motion detector IP55 (titanium white)
 AP 251/21, Motion detector IP55 (anthracite)

5WG1 251-3AB11
 5WG1 251-3AB21

Mechanical data

- Housing: plastic
- Dimensions: approx. 180 mm × 86 mm × 74 mm (L × W × H)
- Tilting arm adjustment zone: max. 120°
- Weight: approx. 245 g
- Fire load: approx. 7500 kJ

Electric safety

- Degree of pollution (according to IEC 60664-1): 2
- Type of protection (according to EN 60529): IP 55
- Overvoltage category (according to IEC 60664-1): III
- Bus: safety extra-low voltage SELV DC 24 V
- Device complies with: EN 50090-2-2

EMC requirements

- complies with EN 50090-2-2

Environmental conditions

- Climatic withstand capability: EN 50090-2-2
- Ambient temperature during operation: - 25 ... + 50 °C
- Storage temperature: - 25 ... + 70 °C
- rel. humidity (not condensing): 5 ... 93 %

Markings

KNX EIB

CE mark

complies with the EMC regulations (residential and functional buildings), and low voltage regulations

Location and Function of the Display and Operating Elements

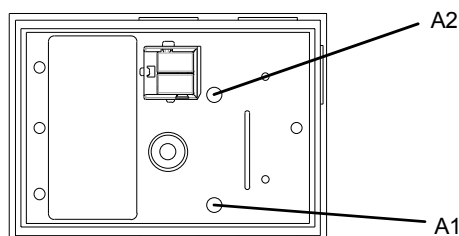


Figure 1: Position of display and operating elements on the printed circuit board of the motion detector

- A1 Key for toggling between normal mode and addressing mode for transferring the physical address.
 A2 LED for indicating normal mode (LED Off) or addressing mode (LED On); it is automatically extinguished once the physical address has been transferred.

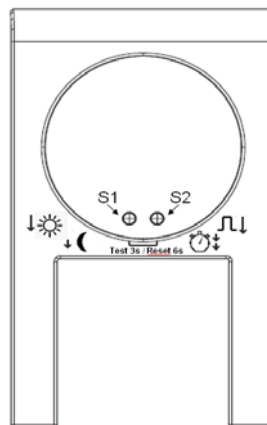


Figure 2: Position of display and operating elements on the sensor side of the motion detector

- S1 Operating key S1 (Brightness)
 S2 Operating key S2 (Time)

Mounting and wiring

Mounting site

For optimum motion detection, the motion detector should be mounted sideways on to the direction of motion (see figure 3), as far as possible at a height of 2.5 m, as far as possible not over but under a luminaire and with at least 0.5 m separation from any luminaire in the capture zone.

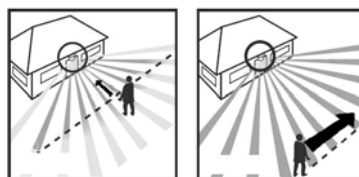


Figure 3: Mounting site and direction of motion

Capture zone

In order to avoid unwanted responses from the motion detector, you must consider potential sources of interference (such as warm air flows, moving bushes or trees). Unwanted capture zones can be filtered out as required by fitting the cover screen supplied. It is to be cut out accordingly for this purpose. The cover screen fixing ring must not be separated when cutting out segments (see figure 4). No movements will be captured by areas of the lens covered by the cover screen.

AP 251/11, Motion detector IP55 (titanium white)
AP 251/21, Motion detector IP55 (anthracite)

5WG1 251-3AB11
5WG1 251-3AB21

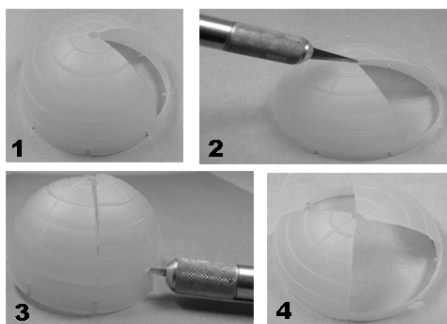


Figure 4: Adjustment of the cover screen

The capture zone of the detector can also be altered by turning the lens through some $\pm 30^\circ$ to the right or left. The capture range can be changed by adjusting the tilting arm (see figure 5).

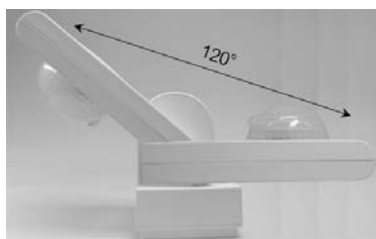


Figure 5: Adjusting range of the tilting arm

Mounting and connecting the bus cable

The motion detector's connection box must be correctly positioned when mounting on a wall (TOP showing, see figures 6 and 7). You can use the dowels and screws supplied for this. The spacing of the drilled holes in the connection box is to be matched on a 60 mm flush-mounted socket.

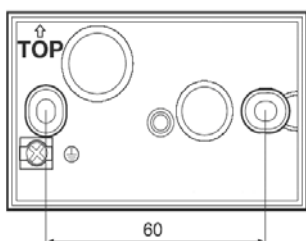


Figure 6: Correct position of the connection box

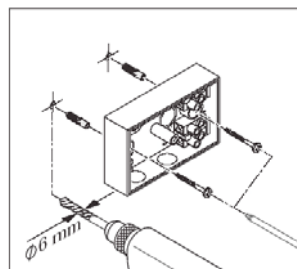


Figure 7: Mounting the connection box

The bus cable is to be brought in through one of the punched out openings in the connection box. The insulation of the red and black wire is to be stripped back for approx. 5 mm, the wires are to be plugged into the part of the bus terminal with the same colour and the bus terminal is then to be plugged into its mounting on the detector's printed connection board.

The detector is then to be plugged into the connection box and screwed to it with the fixing screw (see figure 8).

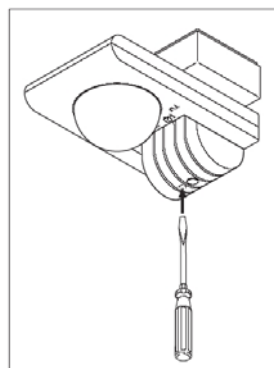


Figure 8: Screwing of the motion detector

Depending on the requirement and the type of mounting, the corresponding condensation opening adjoining the screw opening is to be punched out (see figures 7 and 9).

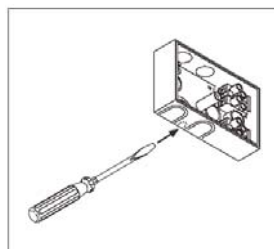


Figure 9: Punching out of the condensation opening

AP 251/11, Motion detector IP55 (titanium white)
AP 251/21, Motion detector IP55 (anthracite)

5WG1 251-3AB11
5WG1 251-3AB21

Commissioning

Initialising phase

On first applying the bus voltage and after every bus voltage recovery, the motion detector starts its initialisation phase. For this, the detector output is switched on approx. 2 seconds. The red LED inside the lens flashes approx. 3 times per second, until the device enters test mode automatically after a maximum of 45 seconds.

Test mode

Test mode is a brightness-independent mode with an ON period of 1 second and an after-run time of 2 seconds. It can be used for manual checking of the capture zone and to change the alignment or sensing angle of the lens. At the end of the test mode period of 10 minutes, the motion sensor switches automatically to the factory setting (brightness threshold 7 lux, delay time 2 minutes) or to the individual setting made.

Test mode will be started automatically on first connecting to the bus voltage only after the initialisation phase has cycled. During any later bus voltage failure, only the initialisation phase will then be recycled and the motion sensor then enters the individual setting directly or the factory setting if no individual setting has been programmed yet.

If test mode is re-activated, then this can be triggered by holding down S1 and S2 simultaneously for at least 3 seconds (max. 5 seconds). The LED also flashes quickly for 3 seconds and then stays ON. If you now release the buttons, then test mode is confirmed by the LED flashing twice. Test mode can be interrupted prematurely by tapping S1 or S2 (see figure 2).

Mode and parameter settings

The following table shows the setting options using the S1 and S2 pushbuttons.

Whereas the detector is switched on for the set delay time with every motion captured during **brightness-independent operation**, during **brightness-dependent operation** the detector is switched on with a captured motion only if the brightness falls below the set switching threshold. If a brightness switching threshold differing from the factory setting is wanted, then the user can store the current brightness value as the new switching threshold in the detector's memory by holding S1 down for a period of less than 3 seconds. When doing this, take care that the sensor is not covered by the user while storing the new value.

In **pulsed mode**, the detector output is switched on for 1 second after the brightness falls below the threshold and motion is detected. It will then no longer respond to a movement for 9 seconds.

Action	Operation S1	S2	LED acknowl.
Reset (return to factory setting)	Hold down simultaneously for at least 6 seconds (LED flashes rapidly and remains on after 3 seconds)		2 flashes approx. 0.5 sec.
Test mode	Hold down simultaneously for at least 3 seconds (LED flashes rapidly and remains on after 3 seconds) and a max. 5 seconds		2 flashes approx. 0.5 sec.
Leave test mode	Press S1 or S2. Alternatively, wait for 10 minutes: Detector reverts automatically to the individual or factory setting		—
Toggling brightness-dependent switching ↔ brightness-independent switching and vice versa	Hold down for at least 3 seconds. Preset brightness threshold is retained		2 flashes approx. 0.5 sec. Brightness-independent switching is indicated by a short flash every 5 seconds
Toggling between pulse mode ↔ delay time mode and vice versa		Hold down for at least 3 seconds. Preset switching time is retained	2 flashes approx. 0.5 sec.
Store brightness threshold in brightness-dependent switching mode	Hold down for less than 3 seconds		1 flash approx. 0.5 sec.
Programming individual after-run time between 5 seconds and 30 minutes differing from the factory setting		1. Hold down for less than 3 seconds: starts the timer 2. Hold down for less than 3 seconds: stops the timer	Permanent flashing from timer start until stop

General Notes

- Any faulty devices should be returned to the local Siemens office.
- If you have further questions concerning the product please contact our technical support:



+49 (0) 180 50 50-222



+49 (0) 180 50 50-223



www.siemens.com/automation/support-request