SIEMENS

Presence Detector WIDE DualTech UP 258D61

Presence Detector WIDE DualTech UP 258D61

- Ultrasound detection capability for reliable detection even behind objects, as well as other detection capabilities through PIR technology

- Presence detection up to 28 m², motion detection up to 79 m²

- Brightness and temperature measurement

- Mounted to the ceiling on a flush-mounting box with diameter of 60 mm, in a separately ordered housing for surface mounting or mounting plate for 4 x 4 boxes

- Integrated IR receiver for IR remote control

Functions with configuration with ETS

- Three independent control outputs, each with 4 actions for presence detection

- Operation as single detector or as master/slave detector to cover larger areas

- Separately adjustable sensitivity for ultrasound and PIR

- Integrated constant light control for main lighting group and up to four sub-lighting groups, including automatic calibration

- Integrated 2-point lighting controller (switching)

- Steady and/or two-point temperature control for heating and cooling mode

- Comparator, calculator and threshold monitoring

KNX®   C E ⚠ EAC

Product	Description	Article number	KNX PL-Link
UP 258D61	Presence Detector WIDE DualTech	5WG1 258-2DB61	Yes
Accessories			
AP 258E11	Surface-mounting housing type B	5WG1258-7EB11	–
S 255/11	IR remote control	5WG1255-7AB11	–
S 258/12	Mounting plate	5WG1258-8AB12	–

Characteristics

Actively emitted by the ultrasound sensor (US), ultrasound waves (40 kHz) propagate around the rest of the room. They envelop objects that are in the room and penetrate into all corners. This means that the ultrasound sensor (US) can even detect movements when there is no line-of-sight contact between it and the person.

This presence detector is equipped with an integrated brightness and temperature sensor.
The maximum detection area is 28 m² for presence and 79 m² for motion.
The presence detector captures brightness and temperature data and thus controls not only the illumination systems but also ventilation and heating systems.
Communication is conducted via KNX. The presence detector is designed for installation in the ceiling.

Position of display/control elements and sensors
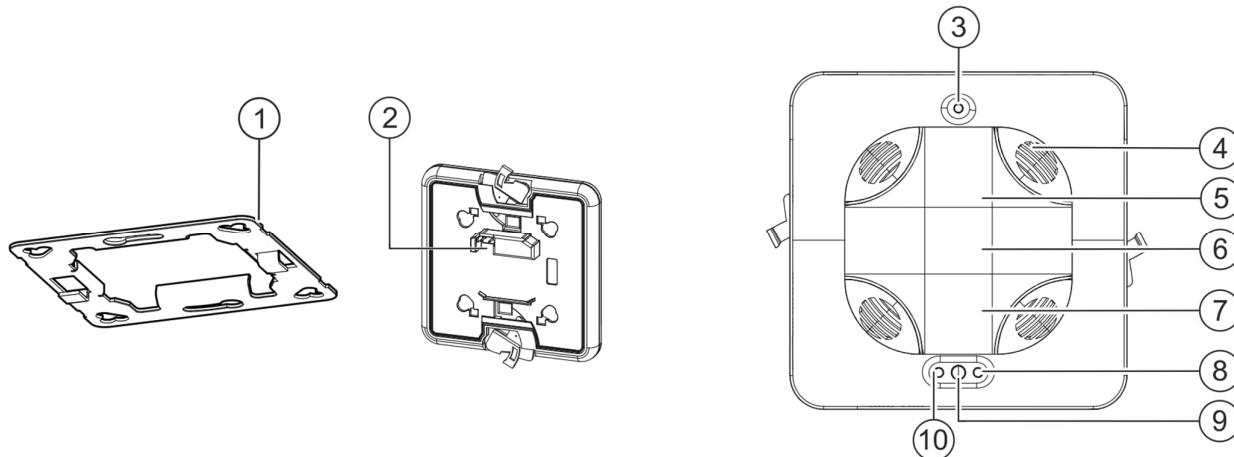
Pos.	
1	Mounting plate
2	Bus terminal block
3	Programming button
4	Ultrasound sensors (US)
5	Detection lens
6	Test LED for motion under the lens
7	Temperature sensors
8	Infrared receiver
9	Brightness sensor
10	Programming LED

Power supply	
KNX bus voltage	DC 24 V (DC 21...30 V)
KNX bus current	approx. 20 mA
Power loss (internal consumption)	approx. 0.46 W

KNX-Medium	TP1-256

Motion detection	
Type	Ultrasound: 4 sensors PIR: 1 sensor
Optimal installation height	2.8 m
Possible installation height	2.5 m – 3.5 m
Detection area	Horizontal 360°, vertical approx. 150° See image and table

Brightness measurement	
Type	Mixed light measurement
Measuring range	1...1000 Lux

Temperature measurement	
Type	NTC
Measuring range	0...50 °C

Physical specifications	
Housing material	Plastic
Dimensions	See dimension drawing
Weight	128 g
Color	polar white (similar to RAL 9016)
Fire load	approx. 4 MJ

Environmental conditions	
Ambient temperature in operation	-5 °C...+45 °C
Storage temperature	-20 °C...+70 °C
Transport temperature	-25 °C...+70 °C
Rel. humidity (non-condensing)	5 % to 95 %
Environmental category (as per EN 60721-3-3)	EN 60721-3-3 class 3k5

Protection settings	
Pollution degree rating as per IEC 60664-1	2
Overvoltage category as per IEC 60664-1	III
Protection type IP	IP20
Electrical safety, bus	Safety extra low voltage SELV DC 24 V

Protection settings	
Electrical safety, device complies with	EN 50428
EMC compatibility	EN 61000-6-1
	EN 61000-6-3

Reliability	
Failure rate (at 40°C)	5034 fit

Test mark	
KNX approval mark	Yes
CE marking	Yes

Motion detection

The UP 258D61 presence detector has detection capabilities that use PIR technology and ultrasound.
Actively emitted by the ultrasound sensor (US), ultrasound waves (40 kHz) propagate around the rest of the room. They envelop objects that are in the room and penetrate into all corners. This means that the ultrasound sensor (US) can even detect movements when there is no line-of-sight contact between it and the person.

The following diagram shows the maximum diameter of the individual zones in meters at an installation height of 2.8 m.

— · — · — · — · — · — · — · — · — PIR radial and presence detection

--------------------------------- PIR tangential detection

— — — — — — — — — — — — — US tangential and presence detection

····························· US radial detection
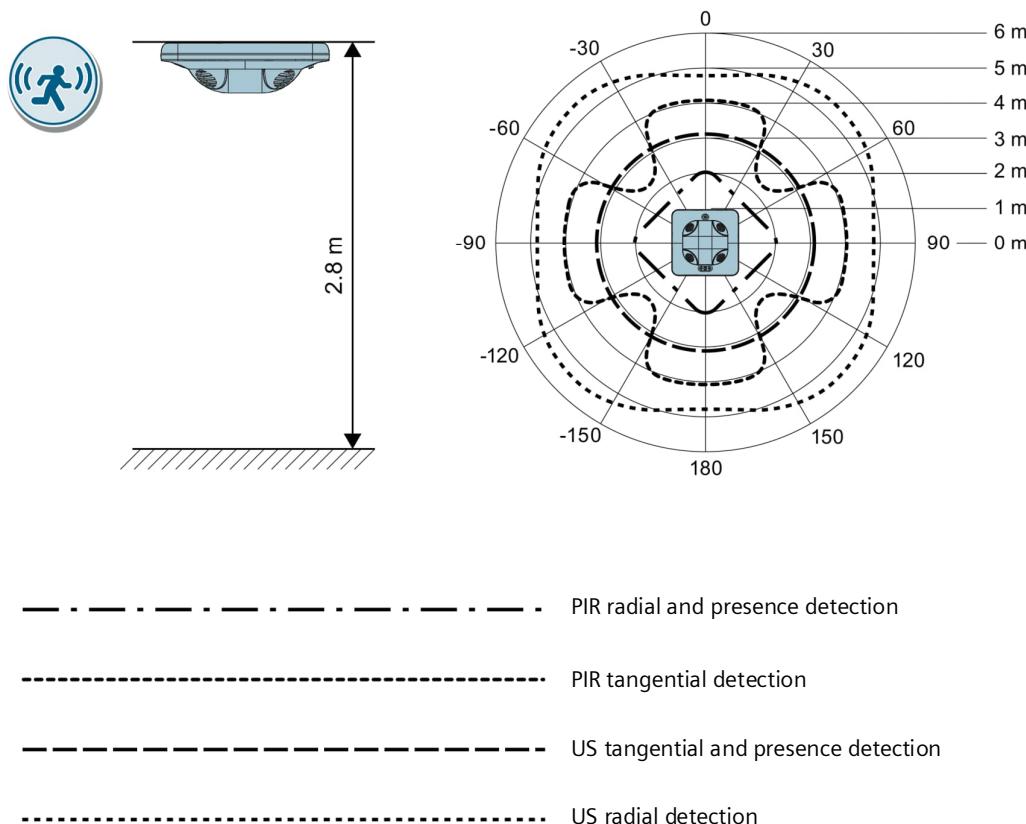
Infrared (IR) receiver

The IR receiver that is built into the presence detectors allows you to remotely control the lighting and solar protection as well as store and recall scenes. The physical address can also be programmed with the IR remote control.

Version of the Engineering Tool Software and application program

Application	Version
Engineering Tool Software (ETS)	ETS 5 or above
Application program	9A0F01 or above

Behavior with bus voltage failure/recovery

As the electronics of the presence detector are bus-powered, a loss of voltage only results in a loss of function for the presence detector if the voltage failure also causes the bus voltage to fail as well.

Each channel can be independently configured with parameters to define what status it is to assume in case of bus voltage failure.

In case of bus voltage failure, the current status and other values for each channel are saved permanently so that they can be restored when the bus voltage is recovered.

When the bus voltage is recovered, one of the following functions can be selected as the starting value: on, off and as before bus voltage failure. A delay can be configured for the starting value. In addition, a starting behavior when bus voltage is recovered can be configured for each active override.

On bus voltage recovery, the configured actions are executed and, if applicable, new status values are reported.

Behavior on unloading the application program

After "unloading" the application program with the ETS, the unloaded presence detector has no functions.

Pushing the programming button for longer than 20 seconds resets the presence detector to its factory settings.

How the presence detector works

The presence detector has three independent function blocks (evaluation units), each with four communication objects, i.e. a total of 12 different communication objects. Depending on how the parameters are configured, these communication objects can be used to each send one or two telegrams on KNX at the end of a detected movement. The values of the communication objects are set via corresponding parameters for each function block (presence detector, presence detector (HVAC) or slave).

Sensors with adjustable sensitivity

The presence detection can be evaluated with an ultrasound and/or PIR signal. Both methods allow for a flexible sensitivity adjustment depending on the situation.

HVAC presence detector

The presence detector has a control output for HVAC applications.
This function can be used to switch systems used for heating, ventilation and air conditioning (HVAC) the room from "power saving mode" when the room is not in use to "comfort mode" when the room is in use and back to "power saving mode" when the room is no longer in use.

Presence detector, manager-subordinate

The presence detector can be used as a standalone device, master or secondary (subordinate) detector.
Depending on the requirements, additional presence detectors can be connected as "slave connectors" to the "master detector" via KNX in order to extend the presence detection area or cover larger areas. The "slave detectors" only supply motion information to the master detector.

Presence detector extension input

Two extension inputs are provided for three different use cases with external button:
* Semi-automatic auto-off,
* Semi-automatic auto-on and
* Switching on in spite of excessive brightness value.

Presence detector - blocking the sensor and output

There are two options for blocking the operating modes "presence detector" and "presence detector (HVAC):" Sensor and/or output. Slave operating mode has sensor blocking only.
The difference is that the response of the channel to activating or deactivating the output block can be configured.

Brightness measuring - can be calibrated via KNX

The presence detector has a light sensor. The measured value for indirect measurement can be calibrated so that it can be adapted to the respective installation location. The brightness sensor can be calibrated in four different ways:
* with adjustment factor and offset for rooms without daylight,
* with adjustment factor without offset for rooms without daylight,
* via object (mixed light, artificial light) for rooms with artificial and daylight, without massive shift between artificial and daylight,
* via two separate objects (artificial light and daylight) for rooms with constant light control because the calibration detects the lighting characteristics.

Integrated 2-point brightness controller

If the brightness controller is activated (automatic mode), the lighting is switched on as soon as the brightness falls below the configured lower brightness limit. The lighting is switched off once the configured upper brightness limit is exceeded. The brightness limits can be set using parameters or communication objects.

Integrated steady constant lighting control

The illuminance of daylight entering a room through the window decreases the deeper it enters into the room. In order to use the entering daylight in the best possible way with constant lighting control, the presence detector offers the option to control a main lighting group directly and up to four additional sub-lighting groups, each via a separate characteristic curve and a separate controller (manager/subordinate mode). All lighting groups are dimmed to the same target value (e.g. 500 Lux).

Temperature sensor - can be calibrated via KNX

The presence detectors each have a built-in temperature sensor to measure the room temperature. ETS can be used to calibrate the internal actual value to the ambient conditions.

Temperature control

The presence detectors offer room-specific temperature control for heating and/or cooling. The room temperature controller sends a control value to the actuator. This value is calculated by a control algorithm (2-point control, steady PI control or steady PI control with sequence control) based on the actual room temperature that is measured and the set target value. This actuator controls a heating or cooling valve that changes the room temperature.

The temperature controller has a comprehensive range of functions, including target value settings for target value shifting or absolute target value, automatic/manual operation, comfort extension, permanent protective mode, dew point mode and ventilation control.

Calculator

This module is used when external measured values are to be taken into account in setting the setpoints used in the sensor controllers. Percentage values can also be used.

For each value recorded by the sensors (brightness, temperature, relative humidity and CO_2), the following values can be calculated based on the internal and external value:

- Maximum of the two values
- Minimum of the two values
- Composite value: Weighting of internal and external value can be set via parameters

Threshold monitoring

2 threshold values for 8 evaluation logics can be defined via parameters for each of the measured values for temperature, humidity and CO_2. Parameters for going below or over the threshold values with an evaluation time are available for this purpose.

Comparator

With the value comparator, two equivalent analog values (e.g. temperature) can be compared with each other. The internal and calculated values, the external value (received via communication objects) and constant values can be used as input values.

The result is output in binary form.

Safety

	WARNING
⚠⚡ 🧑‍🔧⚡	• The presence detector should only be installed and put into operation by a certified electrician. • Do not open the casing of the presence detector. • For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered.

Note on installation

The presence detector can be used for fixed installations indoors and in dry locations.

Commissioning

Brightness measuring

The daylight measurement calculates an average brightness value in the room. The value may differ from the brightness on the work surface. Installation locations with extreme brightness contrasts should therefore avoided.

If the presence detector is mounted near lights that emit a large percentage of indirect light, the artificial lighting brightness at the installation location of the presence detector must not exceed the desired illuminance value in the room. This can be compensated for by increasing the distance between the light cone and the presence detector. For constant light control, direct artificial light pointing at the presence detector should be avoided.

We recommend facing the programming button towards the window if possible and the brightness sensor away from the window. Increasing the installation height decreases the sensitivity of the brightness detection.

Testing the setup is recommended particularly when installing at heights above 3 m. The presence detector must also be calibrated when installing at heights above 3 m. In general, the brighter the room is, the more accurate the presence detection will be.

The brightness sensor has an opening angle of 60°.
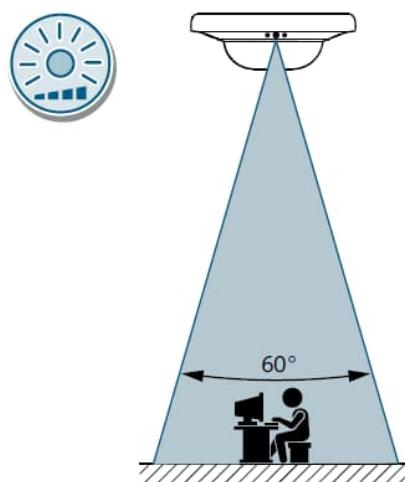
Temperature sensor

The presence detector measures the temperature of the ambient air with its integrated sensor elements. These measured values are used as control variables for the integrated room temperature controller and can be transferred to other bus devices.

For best performance:
- The presence detectors must not be installed near heat sources and air currents.
- The presence detectors must not be exposed to direct sunlight.
- The box or conduit must be sealed to prevent air currents from triggering fault indicators on the sensors.
- The permissible ambient conditions are to be observed.

Calibration

All measured values can be calibrated so that they can be adjusted at the specific installation location. Several methods are available. More information:

➲ *Functions for configuration with ETS Brightness measuring - can be calibrated via KNX*

Presence motion detection

The perimeter-wide dynamic presence detection of the presence detector also works reliably behind objects. Even the smallest movements are detected due to their ultrasonic waves in the room.

The presence detector is mounted either in the ceiling with a flush-mounting box, in a separately ordered surface-mounting housing or on a mounting plate for 4x4 boxes. The presence detector has a programming button that enables quicker programming without requiring disassembly.

Mounting with flush-mounting box

1. Screw the metal mounting brackets onto the flush-mounting box.
2. Fold out the mounting wings on the side of the presence detector.
3. Connect the KNX cable to the presence detector.
4. Attach the presence detector to the metal mounting brackets.
5. Push the mounting wings on the presence detector to the end position (flush with the edge of the housing).
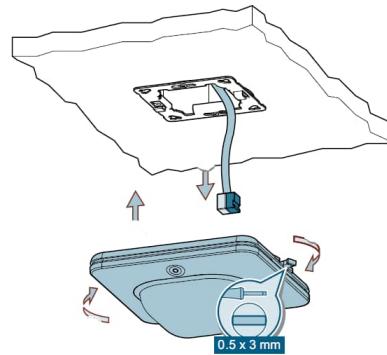
Mounting with surface-mounting housing

1. Attach the surface-mounting housing to the ceiling.
2. Guide the KNX cable through the surface-mounting housing.
3. Place the metal mounting bracket into the surface-mounting housing.
4. Fold out the mounting wings on the side of the presence detector.
5. Connect the KNX cable to the presence detector.
6. Attach the presence detector to the metal mounting brackets.
7. Push the mounting wings on the presence detector to the end position (flush with the edge of the housing).
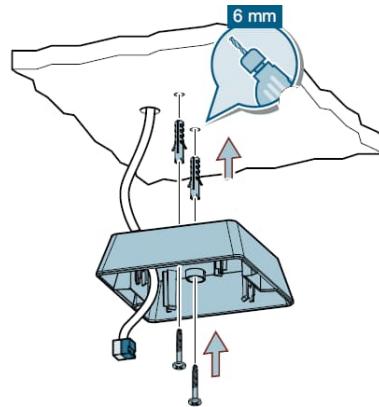
Mounting with the mounting plate for 4 x 4 boxes

1. Screw the mounting plate onto the 4 x 4 boxes on ceiling.
2. Fold out the mounting wings on the side of the presence detector.
3. Connect the KNX cable to the presence detector.
4. Attach the presence detector to the mounting plate.
5. Fold in the mounting wings on the side of the presence detector.

Connecting	• Insert the wires into the bus terminal block • Notice the bare wire length. • Attach the bus terminal block to the connector in the presence detector.
Disconnecting	• Release bus terminal block from the presence detector (e.g. with a screwdriver). • Rotate the wires to release them from the bus terminal block.
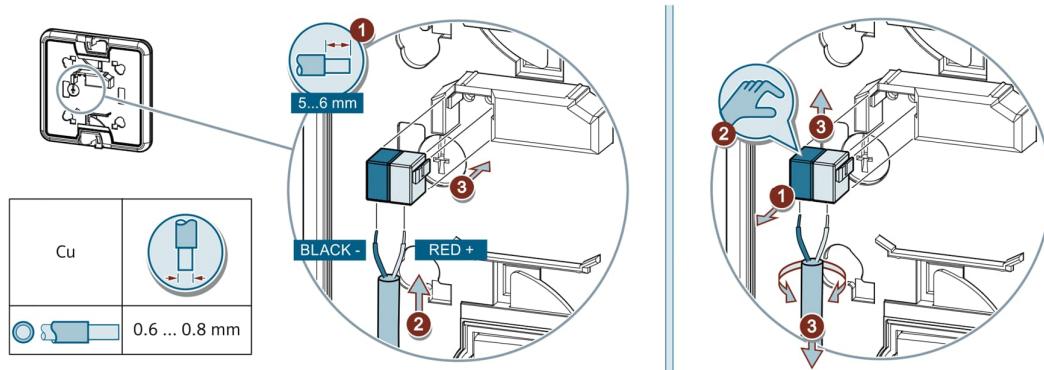
Delivery state

After connecting the presence detector to the bus voltage, the presence detector must first "start up", i.e. the motion sensor takes up to 40 seconds to initialize. While this is happening, no motion is detected and no telegrams are sent.

In the delivery state, the device can be tested without programming. A green LED will light up for as long as motion is detected.

Address mode

Briefly pressing the programming button (< 2 s) activates address mode. This is indicated through constant illumination of the programming LED.

Pressing it again deactivates address mode. In the delivery state, the address mode can also be activated or deactivated using the IR remote controller S 255/11 5WG1255-7AB11
(S3 = On / S4 = Off), which is available as an accessory.

Resetting the presence detector to factory default settings

Pushing the programming button for longer than 20 seconds resets the presence detector to its factory default settings. This is indicated by an even blinking of the programming LED with a duration of 8 seconds. All configuration settings are deleted.

> ℹ **Holding down the programming button (> 5 s to 20 s) starts the connection test for commissioning with Desigo. Briefly pressing the button exits this mode.**

120 mm [4.72 in]

120 mm [4.72 in]

134.5 mm [5.29 in]

40.9 mm [1.61 in]

RS-AB

Update: http://www.siemens.com/gamma-td

July 2023
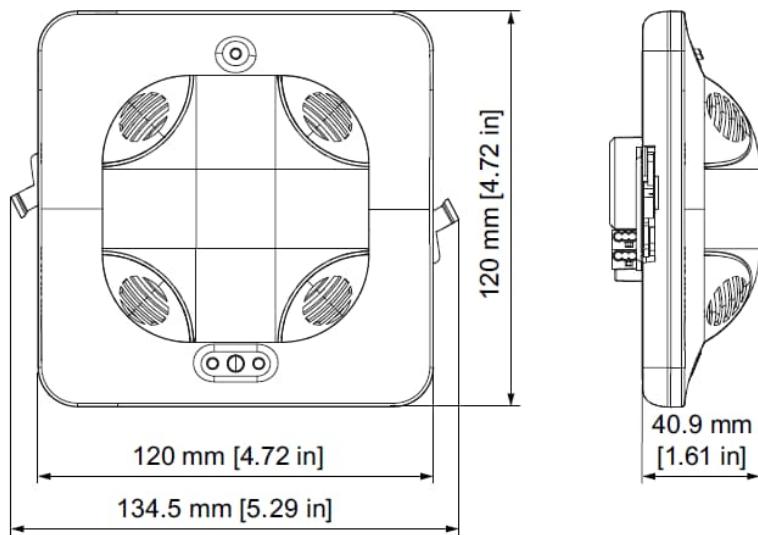
Product documentation

Associated documents such as the operating and installation instructions, application program description, product database, additional software, product image, CE declaration etc. can be downloaded from the following internet address:

http://www.siemens.com/gamma-td

Support

- Provision of operating/installation instructions
- Return a defective device to the appropriate sales office.
- Contact details for technical support in case of additional questions relating to the product:
  - ☎ +49 911 895-7222
  - 🖨 +49 911 895-7223
  - ✉ support.automation@siemens.com

  http://www.siemens.com/supportrequest

Technical Support:
http://www.siemens.com/supportrequest

FAQ:
https://support.industry.siemens.com/cs/ww/en/ps/faq