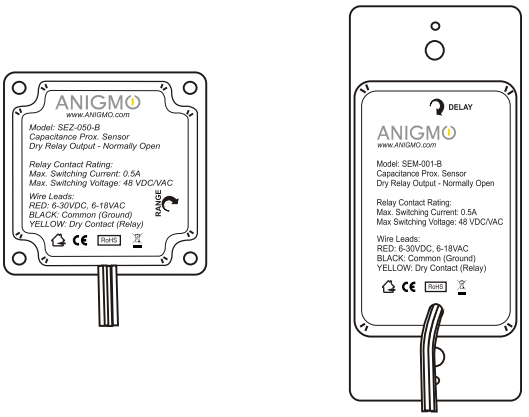
ANIGMO TOUCHLESS SWITCHES. *WHEN THE DESIGN NEEDS TO BE ABSOLUTELY PERFECT*

PROXIMITY SENSORS
SEZ/SEM SERIES



Description

SEM/SEZ series touchless sensors are designed to detect objects through most materials. They operate from low voltage power source and provide simple digital or analog output when an object is detected in front of the button.

Sensors works trough most materials and can be used as an input device for wide variety of electronic devices They use proprietary sensor technology for reliable detection of objects while maintaining large sensing range.

SEM/SEZ series touchless sensors can be completely hidden from view, behind panelling or inside walls. SEZ series sensors come in three different sizes and can be fixed using 4 screws. SEM series sensors can be fixed into a US wallbox or Italian style 3-gang wallbox. All SEZ/SEM models use same sensor technology, the only difference is in size and mounting options for each model. Sensing range is dependant on the sensor size and is different for each model. See technical data for more details.

If mounting into a EU style round wallbox or British Standard wallbox is preferable, please check our Touchless Buttons. They use same sensor technology and have similar output options as touchless sensors, but are meant to be mounted inside the wallbox and covered variety of decorative switchplates.

Features

- *Innovative alternative to pressure, thermal, infrared, microwave, ultrasonic and motion sensors.*
- *Reliable way to detect any object (user's hand, foot etc.) through most materials.*
- *Can be completely hidden from view for true invisible operation*
- *Wide variety of mounting options*
- *Comes with variety of output options for use as an input device with any device needing pushbutton control.*
- *Momentary or latching output*
- *Range adjusted with potentiometer.*
- *Low power consumption.*
- *Excellent noise immunity.*

Applications

- *Controlling devices requiring pushbutton (digital) control (push-button dimmers, opening doors etc.).*
- *Home automation systems (using digital input).*
- *Invisible or unobtrusive operation*
- *Controlling DMS or DDM series of low voltage dimmers.*

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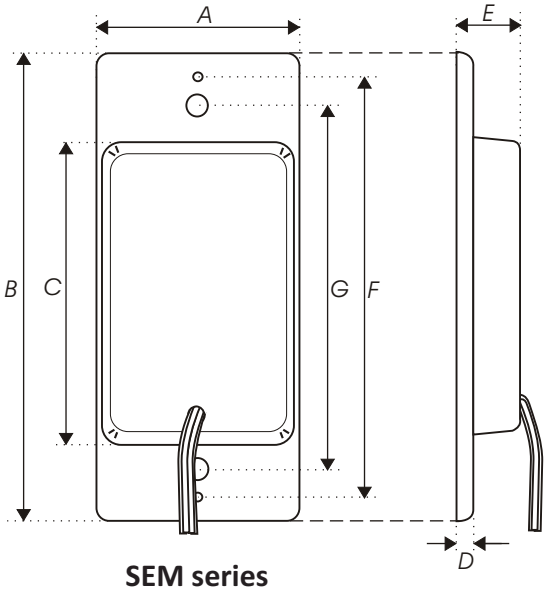
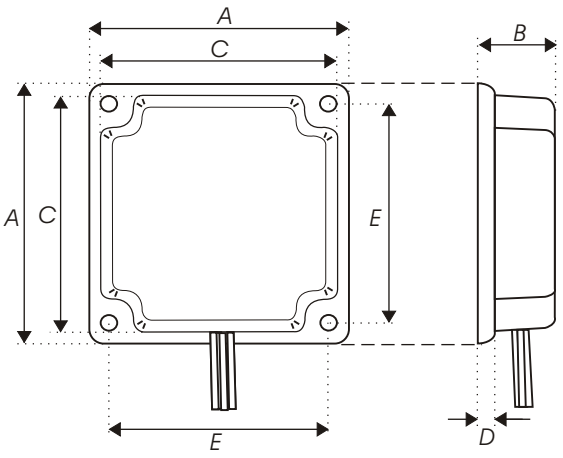
Specifications

TECHNICAL DATA	SEM-001-xy	SEZ-050-xy	SEZ-100-xy	SEZ-150-xy
Supply input voltage range nom:	12 - 24 V DC			
Supply input voltage (min - max):	6 - 30 V DC (12-30 V DC for Output version D)			
Supply current:	6 mA (20mA when signal relay is activated in Output version B)			
Output:	Output version (x = A) - NPN Open collector (x = B) - Dry (isolated) relay contact (0.5A / 48V max) (x = C) - Active high TTL (0-5V) (x = D) - 0 - 10V output (0V - off; 1-10V - output level) (y = <empty>) - momentary output (y = S) - latching output			
Detection frequency:	5 Hz			
Temperature range:	0 °C to +50 °C			
Input and output connections:	Screw terminal for wire 2mm² (AWG 14) max.			
Range (adjustable):	0-60mm	0-60mm	0-130mm	0-200mm
Mounting	2 fixing screws	4 fixing screws	4 fixing screws	4 fixing screws
Housing dimensions (W x H x D):	45 x 105 x 15mm	52 x 52 x 15mm	102 x 102 x 15mm	152 x 152 x 21mm

Dimensions



SEM series



SEZ series

	SEM-001
A (width)	47 mm (1.85")
B (height)	107 mm (4.2")
C (back housing height)	69 mm (2.7")
D (front sensor thickness)	3.5 mm (0.14")
E (depth)	15 mm (0.59")
F (mount. hole ϕ3 pitch)	96 mm (3.75")
G (mount. hole ϕ5 pitch)	82.5 mm (3.25")

	SEZ-050	SEZ-100	SEZ-150
A (width / height)	52 mm (2.0")	102 mm (4.0")	152 mm (6.0")
B (depth)	15 mm (0.59")	15 mm (0.59")	21 mm (0.825")
C (back housing)	48 mm (1.9")	98 mm (3.85")	148 mm (5.85")
D (sensor thickness)	3.5 mm (0.14")	3.5 mm (0.14")	3.5 mm (0.14")
E (mount. hole pitch)	41 mm (1.6")	91 mm (3.6")	140 mm (5.5")
mount. hole diam.	4x4mm (0.16")	4x4mm (0.16")	4x4mm (0.16")

Installation

Connect the unit according to the output signal used. Take connection diagram of the controlled unit (touch dimmer, home automation system, Anigmo DMS series dimmer etc.) into account

Unit can be mounted using screws, double-sided tape or cable ties.

It is recommended that chasis ground is connected to the sensor negative wire. Ground loops should be avoided. Make sure that wire connections are secure, any loose contact in any connection could lead to unstable operation.

Touchless sensors can work trough a variety of different materials, however, it is recommended to test the type and thickness of the intended covering material before final installation. Material should be fixed in front of the sensor to observe any change in range.

IMPORTANT: *the sensor and test material in front of the sensor should be fixed. Any slight movement could force the sensor into a calibration mode, blocking it for about 30s.*

IMPORTANT: *sensors with relay output (B suffix) have signal relay output. The ouput relay should NOT be used to switch loads. Suitable power relay or Anigmo DMS type dimmer should be connected to control the load. Please observe application note at the end of this datasheet.*

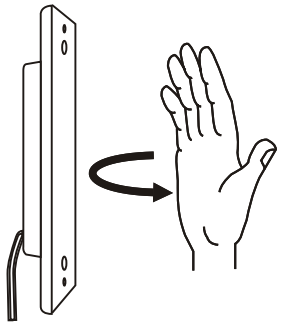
Output options

OPTION 1 - momentary output

Models SEM-001-A, SEM-001-B, SEZ-xxx-A, SEZ-xxx-B

Touchless sensors have digital output, output version 'A' has an NPN OC output and version 'B' has an isolated (dry) relay contact output.

When the touchless sensor detects the object in front of the sensor surface, output signal is activated. Output remains active until the object is moved out of the sensing range.



Whenever the objects enters the sensing range in front of the sensor surface output is activated. It stays active as long as the object stays in the range.

Note 1: *Touchless sensor without anything between the sensing surface and the hand is depicted in the above example. The sensor is visible in the image for clarity, but with typical installation it would be hidden inside the wall behind the drywall, panelling etc.*
Note 2: ***T****he trimmer on the side of the button labeled "Range" can be used to adjust sensing range.*

This output option is useful for controllers needing pushbutton control, for example pushbutton dimmers, door activation controllers etc. It can be connected to the home automation systems or any controller requiring push button control.

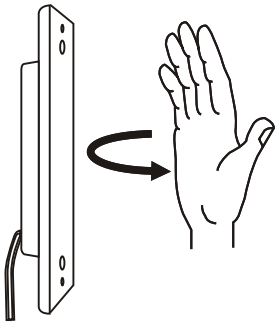
This output option is also suited for connection to single switch input of ANIGMO DMS or DDM series universal low voltage dimmers. Please check DMS and DDM series universal low voltage dimmers for details.

OPTION 2 - latching output

Models SEM-001-AS, SEM-001-BS, SEZ-xxx-AS, SEZ-xxx-BS

Touchless sensors have a digital output, output version 'A' has an NPN OC output and version 'B' has an isolated (dry) relay contact output.

When the touchless sensor detects the object in front of the sensor surface, output signal state changes. When the output is active, it dectivates and when it is inactive, it activates. Output remains unchanged, until next object is detected. The output state change occurs at the moment when object enters sensing range. After the output state is changed, no further change occur, regardles how long an object remains in the sensing range. For next change to occur, the object must first leave sensing range.



Whenever the objects enters the sensing range in front of the sensor surface output on/off state is changed. If the object remains in the range, state doesn't change.

Note 1: *Touchless sensor without anything between the sensing surface and the hand is depicted in the above example. The sensor is visible in the image for clarity, but with typical installation it would be hidden inside the wall behind the drywall, panelling etc.*
Note 2: ***T****he trimmer on the side of the button labeled "RANGE" can be used to adjust sensing range.*

This output option is useful for controlling power relays or power packs, that can switch loads on and off.

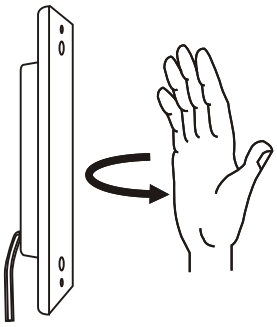
OPTION 3 - 0-10V output

Models SEM-001-D, SEZ-xxx-D

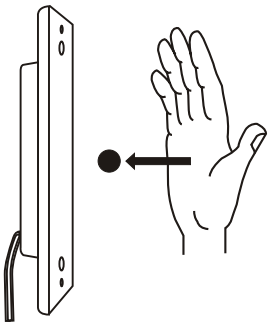
Sensor has an analog output and a PNP OC digital output. Analog voltage <1V corresponds with off state and output voltages 1-10V correspond to set dimming level. Digital OC output is active when analog voltage is above 1V and inactive otherwise. This output can be used to switch off the power to the load via a power relay or a power pack whenever the load is turned off by the analog control voltage, reducing any load standby current and improving the efficiency of the system.

When the touchless sensor detects the object in front of the switch plate for time period shorter than 1s, the output state changes between on/off state. If the light is on, output turns the light off. If the light is off, output turns the light on, setting the light brightness sets to the last set dimming level. Please note that the stated change occurs when the object LEAVES the range and not when it enters the range.*
If an object remains in sensing range for longer than 1s, the light intensity slowly decreases, until it reaches minimum brightness or until the object leaves the sensing range. If opposite direction of dimming is needed, the object should leave the range for a short period of time and enter It again, staying in the range for longer than 1s. Now the light intensity will slowly increase, until it reaches maximum brightness or until the object leaves the sensing range.

**For better understanding the description is formed as if the touchless sensor output is controlling classical 0-10V light dimmer. Actual output is analog 0-10V voltage. "Light off" corresponds to 0V, "maximum brightness" corresponds to 10V and minimum brightness corresponds to 1V on the output.*



Whenever the objects enters the sensing range in front of the sensor surface for period shorter than 1s, the light turns on/off



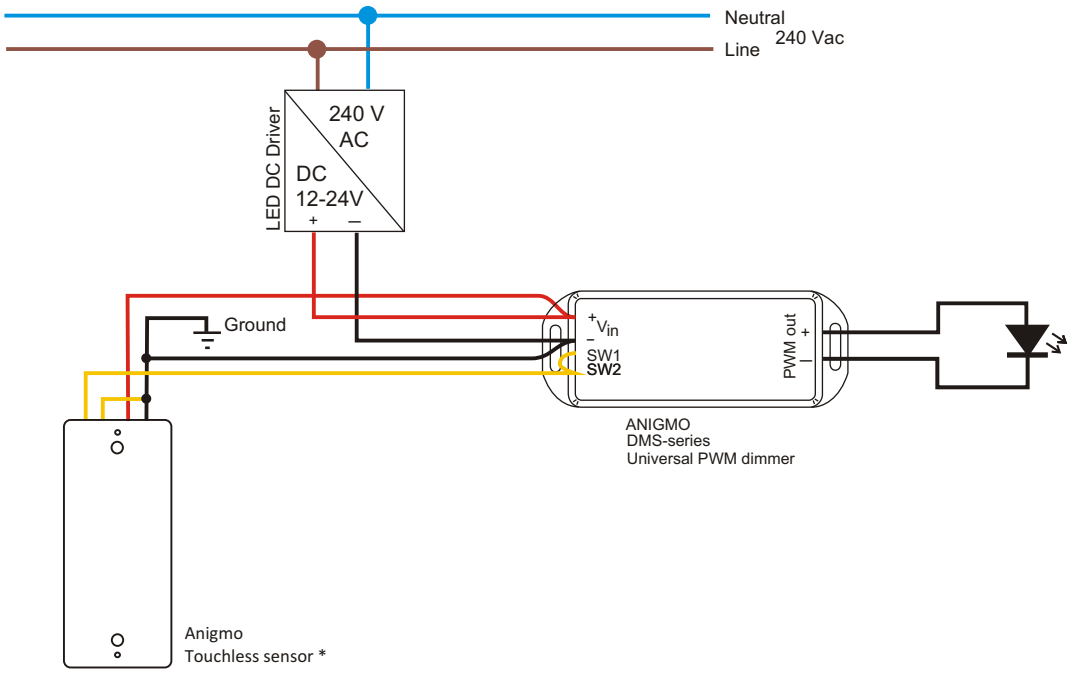
Moving the hand in front of the sensor surface and holding it for more than 1s, light output slowly decreases until it reaches minimum brightness. If the light is off, it first jumps to its minimum brightness and increases from there.

Note 1: *Touchless sensor without anything between the sensing surface and the hand is depicted in the above example. The sensor is visible in the image for clarity, but with typical installation it would be hidden inside the wall behind the drywall, panelling etc.*
Note 2: ***T****he trimmer on the side of the button labeled "RANGE" can be used to adjust sensing range.*

This output option is useful for controlling light drivers, ballasts and dimmers that are controlled by 0-10V voltage. Additional OC output can be used to externally disconnect (by means of a power relay or a power pack) the load when it is turned off by control voltage.

Connection diagrams

Connecting Anigmo Toucless sensor with dry relay contact output to control Anigmo PWM LED dimmer



**Multiple Touchless sensors with momentary output can be used to control a single dimmer by connecting sensor ouputs in parallel.*