

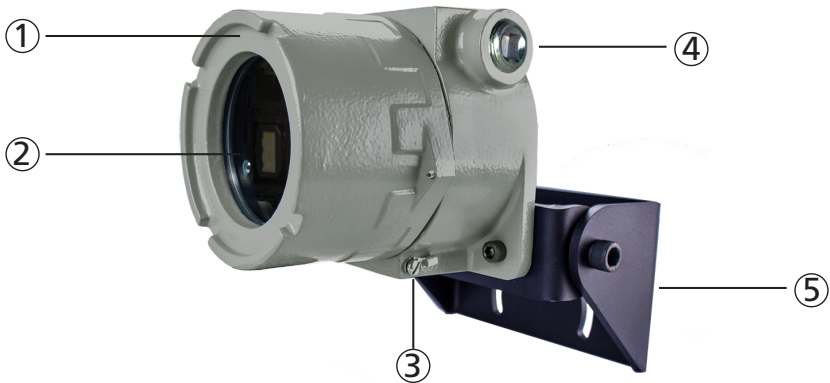
PHOENIX EX™

Motion Sensor with Explosion-Proof Housing
and Tamper Alert



Visit website for
available languages of
this document.

DESCRIPTION



1. Explosion-proof housing
2. Microwave sensor
3. Grounding lug
4. Cable port ($\frac{3}{4}$ " NPT pipe thread)
5. Adjustable bracket

PHOENIX EX™: for normal to high mounting (11.5 – 23 ft)

PHOENIX EX™XL: for low mounting (6.5 – 11.5 ft)

PHOENIX EX™WIDE: for wide detection field (11.5 – 21 ft)

MICROWAVE SENSOR SPECIFICATIONS

Technology:	microwave doppler radar	
Transmitter frequency:	24.150 GHz	
Transmitter radiated power:	< 20 dBm EIRP	
Transmitter power density:	< 5 mW/cm ²	
Anti-tamper:	1) product anti-tamper (magnetic switch within cover, alerts when cover is unscrewed) 2) application-based anti-tamper (tamper alert via end-of-line resistor)	
Mounting height:	PHOENIX EX™: 11.5 – 23 ft; PHOENIX EX™XL: 6.5 – 11.5 ft; PHOENIX EX™WIDE: 11.5 – 21 ft	
Detection zone:	PHOENIX EX™: 13 x 16 ft @ 16ft; PHOENIX EX™XL: 13 x 6.5 ft @ 8.2ft PHOENIX EX™WIDE: 30 x 11ft @ 21ft. (typical at 30° and field size 9)	
Min. detection speed:	2 in/s*	
Supply voltage:	12 – 24 VAC ±10%; 12 – 24 VDC +30% / -10%	
Mains frequency:	50 – 60 Hz	
Max. power consumption:	< 2W	
Output**:	relay (free of potential change-over contact)	Optional end-of-line resistor(s)
max. voltage:	42V AC/DC	
max. current:	1A (resistive)	
max. power:	30 W (DC) / 60 VA(AC)	1/8 Watt
Temperature range:	-22 – 140 °F	
Housing certification:	(Adalet / Scott Fetzer Co., UL Listing # E81696) UL Class I, DIV 1 Group BCD; Class II, DIV 1 Group EFG; Class III; NEMA Type 4X; IP66; UL 1203; CSA C22.2 No.30&CSA C22.2 No.25 FM 3615; ATEX (FLAMEPROOF - DEMKO), Ex d IIC, IEC60529	
Dimensions:	9 in (L) x 7.5 in (W) x 5.5 in (H)	
Materials:	Copper-free aluminum (Housing); Powder-coated steel (Bracket)	
Weight:	10 lbs	
Cable length:	100 ft (PHOENIX EX™100, PHOENIX EX™XL 100, PHOENIX EX™WIDE) 30 ft (PHOENIX EX™, PHOENIX EX™XL)	
Cable diameter:	¼" max	
Electrical Access:	¾" NPT pipe thread	
Norm conformity:	R&TTE 1999/5/EC; EMC 2004/108/EC	

*Specifications are subject to change without prior notice.
All values measured in specific conditions.*

* Measured in optimal conditions

** Output ratings may vary depending on optional end-of-line resistor values

INSTALLATION TIPS

- The sensor must be firmly fastened in order not to vibrate.
- The sensor must not be placed directly behind a panel or any kind of material.
- The sensor must not have any object likely to move or vibrate in its sensing field.
- The sensor must not have any fluorescent lighting in its sensing field.
- The sensor housing cover is adjusted at factory; there is no need to adjust at installation location.

LED SIGNALS

ACTIVITY



LED flashes quickly



LED flashes



LED flashes slowly



LED flashes x times



LED is off

COLOR INDICATIONS



none = no detection



red = detection



red/green = power on / learn

HOW TO USE THE REMOTE CONTROL

ADJUSTING ONE OR MORE PARAMETERS



CHECKING A VALUE



x = number of flashes = value of parameter

SAVING AN ACCESS CODE

The access code (1 to 4 digits) is recommended to set sensors installed close to each other.



Once you have saved an access code, you always need to enter this code to unlock the sensor.

If you forget the access code, **cycle the power**. For the first minute, you can access the sensor without an access code.

DELETING AN ACCESS CODE



DELETING AN UNKNOWN ACCESS CODE



HOW TO USE THE PUSH BUTTONS



You must unscrew the explosion-proof cover to access the push buttons.
To do so, loosen the set screw and then unscrew the lid.

START/END AN ADJUSTMENT SESSION: press and hold **either** push button until the LED flashes or stops flashing

SCROLL THROUGH PARAMETERS: press the **right** push button

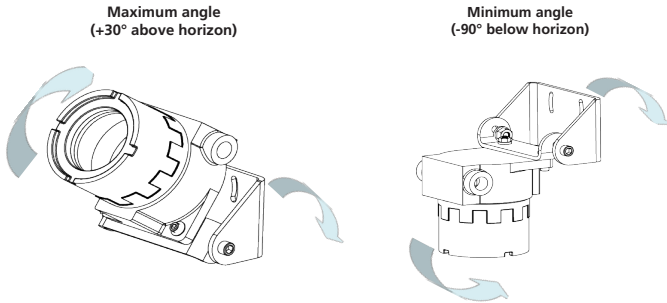
CHANGE VALUE OF CHOSEN PARAMETER: press the **left** push button

RESET TO FACTORY VALUES: press and hold **both** push buttons until both LEDs flash

1 MOUNTING

- Bolt the bracket securely to the wall or other rigid surface.
Make sure that the two $\frac{5}{16}$ - 18 Allen head bolts are loose so that the sensor can rotate freely.
- Rotate the sensor to the appropriate angle for the application. When the bracket rotates, it will click. Every click represents a 7.5° angle adjustment.
- Lock the angle adjustment by tightening the two $\frac{5}{16}$ - 18 Allen head bolts.

Horizontal angle adjustments can be made by loosening the mounting bolts on the base and twisting to the desired angle.



2 WIRING

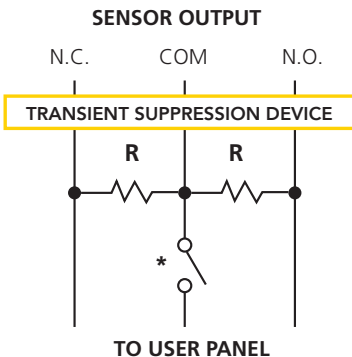
Connect the wires to the controller/PCB (i.e. intrusion detection system).

If necessary, an optional grounding lug is provided to ground the equipment to minimize the risk of electrostatic charge. The equipment must be installed in such a manner that accidental discharge will not occur.

The grounding lug is not required for product functionality but may be required for the application and/or local, national, and international regulations, codes, and standards.

* The Tamper Switch is N.C. with housing face plate cover attached. Removing the housing face plate causes the switch to open. System resistors may be applied at the Tamper Switch inside the housing or outside at a given location.

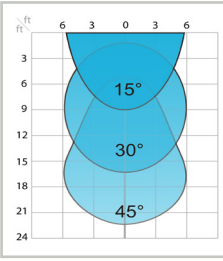
RED	
BLACK	12-24 VAC/VDC
WHITE	COM
GREEN	NO
YELLOW	NC



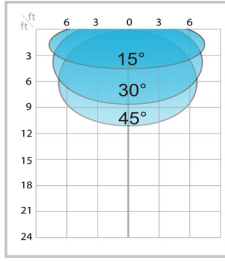
* **Tamper Switch** location is COM and will operate with N.O. or N.C. outputs.

3 DETECTION FIELD DIMENSIONS

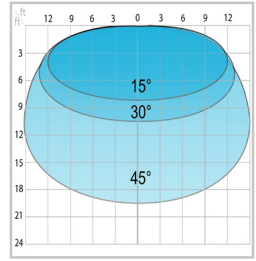
PHOENIX EX™
Mounting height: 16 ft



PHOENIX EX™XL
Mounting height: 8 ft



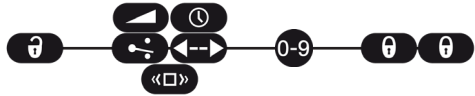
PHOENIX EX™WIDE
Mounting height: 11.5 ft



4 SETTINGS



To make adjustments to the sensor, press



- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9



FIELD SIZE

XXS	XS	S	>	>	>	>	L	XL	XXL
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HOLD-OPEN TIME

0.5 s	1 s	2 s	3 s	4 s	5 s	6 s	7 s	8 s	9 s
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OUTPUT CONFIGURATION

	A	P	
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A = active output; relay energizes upon detection
P = passive output; relay de-energizes upon detection



DETECTION MODE

	bi	uni	uni AWAY
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bi = two-way detection
uni = one-way detection towards sensor
uni AWAY = one-way detection away from sensor



DETECTION FILTER
(see pg. 6)

	1	2	3	4	5	6			
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RESETTING TO FACTORY VALUES:



FACTORY VALUES

POSSIBLE SETTINGS BY PUSH BUTTONS

	Parameter number	Value (factory values)
1	FIELD SIZE	(7)
2	HOLD-OPEN TIME	(0)
3	OUTPUT CONFIGURATION	(1)
4	DETECTION MODE	(2)
5	DETECTION FILTER	(1)

4 SETTINGS (cont.)



Choose the correct detection filter (rejection mode) for your application with the remote control or push buttons.

Detection of all targets

(pedestrians and parallel traffic are detected)

- 1 = no specific filter
- 2 = filter against disturbances
(recommended in case of vibrations, rain etc.)

Detection only of vehicles moving*

(pedestrians and parallel traffic are not detected + disturbances are filtered)


Value recommendations according to angle and height:

	23 – 11.5 ft	8 ft
-75°	3	3
-60°	4	4
-45°	5	4
45°	6	5

Always check if the chosen value is optimal for the application.
The object size and nature can influence the detection.

* The vehicle detection filter increases the response time of the sensor.

TROUBLESHOOTING

	Door remains closed. LED is off.	Sensor power is off.	Check wiring and power supply.
 	Door does not react as expected.	Improper output configuration on sensor.	Check the output configuration setting on each sensor connected to the door operator.
	Door opens and closes constantly.	The sensor is disturbed by door motion or vibrations caused by door motion.	Ensure sensor is secured properly.
			Ensure detection mode is unidirectional.
			Increase tilt angle.
			Increase detection filter value.
	Reduce field size.		
	Door opens for no apparent reason.	It rains and the sensor detects raindrops or vibrations.	Ensure detection mode is unidirectional.
			Increase detection filter value.
		In highly reflective environments, the sensor detects objects outside of its detection field.	Change the antenna angle.
		Reduce field size.	
		Increase detection filter value.	
	Vehicle detection filter is used, but pedestrians are still detected.	Chosen value is not optimal for the given application.	Increase detection filter value.
			Decrease sensor angle.
			Increase mounting height.
			Ensure detection mode is unidirectional.
	LED flashes quickly after unlocking.	Sensor needs access code to unlock.	Enter correct access code.
			If you forgot the code, cycle the power to access the sensor without access code. Change or delete the access code.
	Sensor does not respond to the remote control.	Batteries in the remote control are weak or installed improperly.	Check batteries and change if necessary.

Can't find your answer? Visit www.BEAensors.com or scan QR code for Frequently Asked Questions!



BEA, INC. INSTALLATION/SERVICE COMPLIANCE EXPECTATIONS

BEA, Inc., the sensor manufacturer, cannot be held responsible for incorrect installations or incorrect adjustments of the sensor/device; therefore, BEA, Inc. does not guarantee any use of the sensor/device outside of its intended purpose.

BEA, Inc. strongly recommends that installation and service technicians be AAADM-certified for pedestrian doors, IDA-certified for doors/gates, and factory-trained for the type of door/gate system.

Installers and service personnel are responsible for executing a risk assessment following each installation/service performed, ensuring that the sensor/device system performance is compliant with local, national, and international regulations, codes, and standards.

Once installation or service work is complete, a safety inspection of the door/gate shall be performed per the door/gate manufacturer's recommendations and/or per AAADM/ANSI/DASMA guidelines (where applicable) for best industry practices. Safety inspections must be performed during each service call – examples of these safety inspections can be found on an AAADM safety information label (e.g. ANSI/DASMA 102, ANSI/DASMA 107, UL294, UL325, and International Building Code).

Verify that all appropriate industry signage, warning labels, and placards are in place.



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