

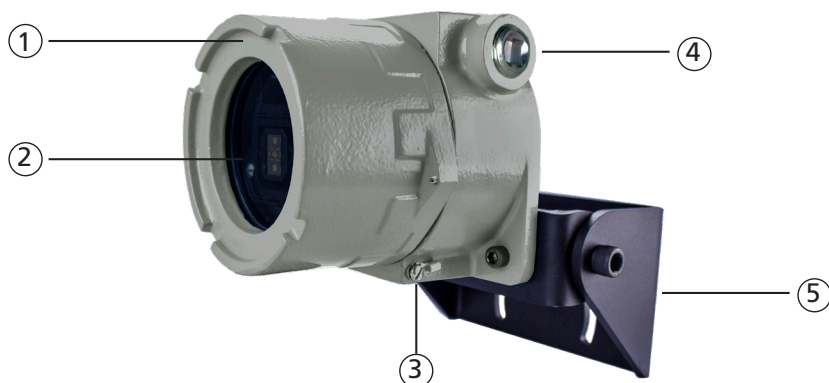


Visit website for  
available languages of  
this document.

# PHOENIX EX™

Motion Sensor with Explosion-Proof Housing  
and Tamper Alert

## 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)

TECHNICAL SPECIFICATIONS

Technology:	microwave doppler radar	
Transmitter frequency:	24.150 GHz	
Transmitter radiated power:	< 20 dBm EIRP	
Transmitter power density:	< 5 mW/cm²	
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:		
EX	11.5 – 23 ft	
EX XL	6.5 – 11.5 ft	
EX WIDE	11.5 – 21 ft	
Detection zone:	(typical at 30° and field size 9)	
EX	13 x 16 ft @ 16 ft	
EX XL	13 x 6.5 ft @ 8.2 ft	
EX WIDE	30 x 11 ft @ 21 ft	
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)	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)	
Tilt adjustment angle:	-90 – 30° in elevation	
Materials:	Copper-free aluminum (Housing); Powder-coated steel (Bracket)	
Weight:	10 lbs	
Cable length:	100 ft	
Cable diameter:	0.216" (5-conductor cable)	
Electrical Access:	¾" NPT pipe thread	
Norm conformity:	R&TTE 1999/5/EC; EMC 2004/108/EC	

\* Measured in optimal conditions

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

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

  red   red 0-9  red    off

CHECKING A VALUE

  red   red ?  green x    off

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.

  0-9 0-9 0-9 0-9  

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

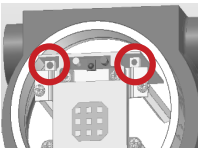
 0-9 0-9 0-9 0-9  0  

DELETING AN UNKNOWN ACCESS CODE

Cycle power   0 0 0 0

HOW TO USE THE PUSH BUTTONS

Refer to page 5.



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

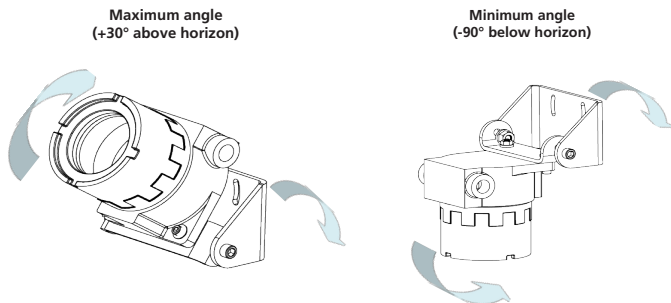
**CHANGE VALUE OF CHOSEN PARAMETER:** press the **left** push button

**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  $7.5^\circ$  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

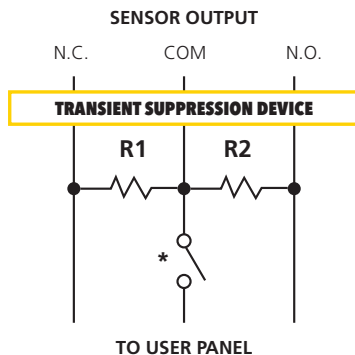
Connect the wires to the controller/PCB (i.e. intrusion detection system).

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.

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

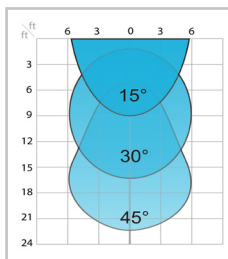


\* **Tamper Switch** location is COM and will operate with N.O. or N.C. outputs.

## 3 DETECTION FIELD DIMENSIONS

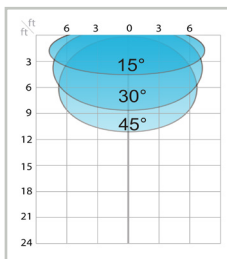
### PHOENIX EX™

Mounting height: 16 ft



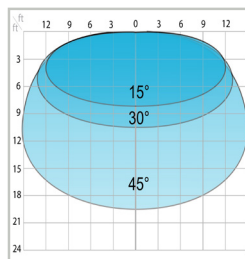
### PHOENIX EX™XL

Mounting height: 8 ft



### PHOENIX EX™WIDE

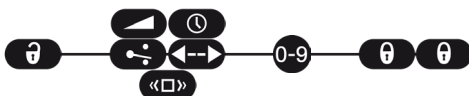
Mounting height: 11.5 ft



## 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



OUTPUT HOLD TIME

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



OUTPUT CONFIGURATION

A P

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



DETECTION MODE

bi uni uni AWAY

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

FACTORY VALUES



RESETTING TO 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

	Sensor appears unresponsive	Sensor power is off.	Check wiring and power supply.
		Batteries in the remote control are weak or installed improperly.	Check batteries and change if necessary.
	Discrepancy between sensor state and sensor output	Improper output configuration on sensor.	Check the output configuration setting on each sensor connected to the door operator.
	The sensor cycles in and out of detection	The sensor is disturbed by motion, vibrations, or environmental elements	Ensure sensor is secured properly.
			Ensure detection mode is unidirectional.
			Change tilt angle.
			Increase detection filter value.
			Reduce field size.
	Vehicle detection filter is used, but pedestrians are still detected.	Chosen value is not optimal for the given application.	Increase detection filter value.
			Change 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.



Can't find your answer?  
 Visit [www.BEAensors.com](http://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.

