

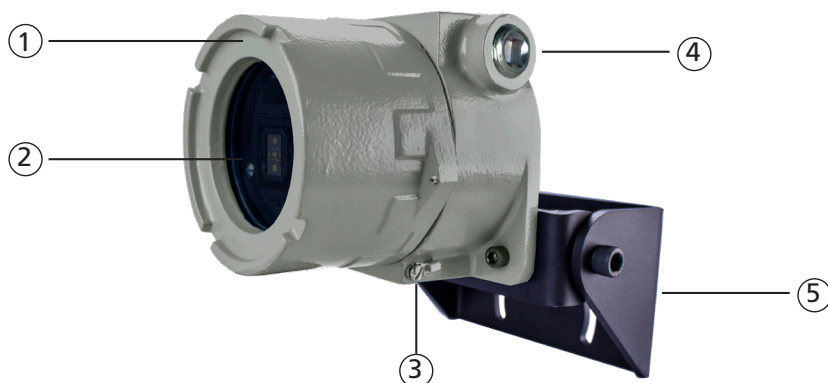
# FALCON EX

## Motion Sensor with Explosion-Proof Housing



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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

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

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

FALCON 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
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)
max. voltage:	42V AC/DC
max. current:	1A (resistive)
max. power:	30 W (DC) / 60 VA(AC)
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



## 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

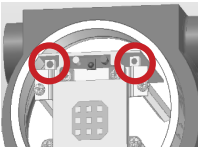


## DELETING AN UNKNOWN ACCESS CODE



# HOW TO USE THE PUSH BUTTONS

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

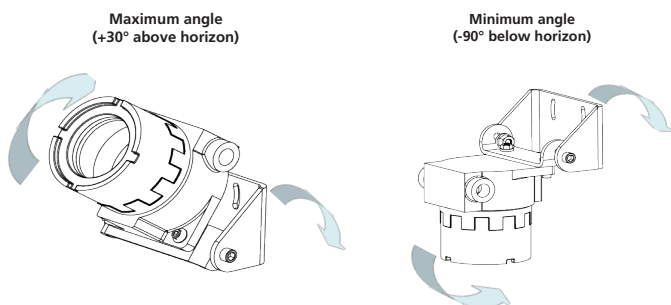
**SCROLL THROUGH PARAMETERS:** press the **right** push button

**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.



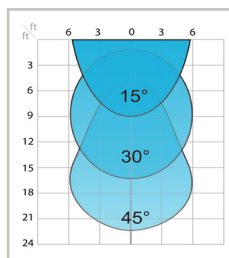
# 2 WIRING

Connect the wires to the door controller. Choose between NO and NC contact.

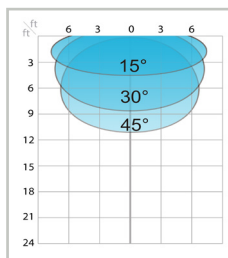
RED	12-24 VAC/VDC
BLACK	12-24 VAC/VDC
WHITE	COM
GREEN	NO
YELLOW	NC

# 3 DETECTION FIELD DIMENSIONS

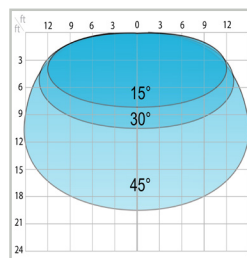
**FALCON EX**  
Mounting height: 16 ft



**FALCON EX XL**  
Mounting height: 8 ft



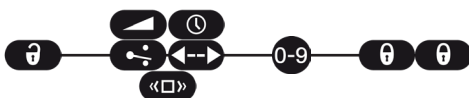
**FALCON EX WIDE**  
Mounting height: 11.5 ft



## 4 SETTINGS



Use the BEA Universal Remote Control to make adjustments to the sensor.



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 below)		1	2	3	4	5	6			

FACTORY VALUES



RESETTING TO FACTORY VALUES:



«□»  
1-6

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.

## 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)

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.



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## 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.

