EXPLOSION-PROOF HOUSING AND MOTION SENSOR FOR INDUSTRIAL DOORS
FALCON EX: for normal to high mounting (11.5 ft - 23 ft)
FALCON EXXL: for low mounting (6.5 ft - 11.5 ft)

## 1   DESCRIPTION



1. Explosion-proof housing
2. Microwave sensor
3. Adjustable bracket

## 2   SPECIFICATIONS

| DESCRIPTION | SPECIFICATION |
|---|---|
| Technology: | microwave doppler radar |
| Transmitter frequency: | 24.150 GHz |
| Transmitter radiated power: | < 20 dBm EIRP |
| Transmitter power density: | < 5 mW/cm² |
| Mounting height: | FALCON EX: 11.5 - 23 ft; FALCON EXXL: 6.5 - 11.5 ft |
| Detection zone: | FALCON: 13 x 16 ft @ 16ft ; FALCON XL: 13 x 6.5 ft @ 8.2ft. (typical at 30° and field size 9) |
| Minimum derection speed: | 2 in/s* |
| Supply voltage: | 12V to 24V AC ±10%; 12V to 24V DC +30% / -10% |
| Mains frequency: | 50 to 60 Hz |
| Power consumption: | < 2 W |
| Output: <br> - Max. contact voltage: <br> - Max. contact current: <br> - Max. switching power: | relay (free of potential change-over contact) <br> 42V AC/DC <br> 1A (resistive) <br> 30W (DC) / 60VA (AC) |
| Temperature range: | from -22 °F to + 140 °F |
| Housing certification | (Adalet / Scott Fetzer Co., UL Listing # E81696) <br> UL Class I, Group B,C,D; UL Class II, Group E,F, G; UL Class III <br> CENELEC: EExd IIC, IP66; NEMA 4x, 7BCD, 9EFG |
| Dimensions: | 9 in (D) x 7 ½ in (W) x 5 ½ in (H) |
| Materials: | Copper-free aluminum (Housing); Aluminum (Bracket) |
| Tilt adjustment angle: | - 90° to + 30° in elevation |
| Weight: | 10 lbs |
| Cable length: | FalconEX / FalconEXXL: 30 ft (10m); FalconEX100/ FalconEXXL100: 100 ft (30 m) |
| Cable diameter: | 1/4 in (6.5 mm) (maximum) |
| Eletrical access: | 3/4'' NPT pipe thread |
| Norm conformity | R&TTE 1999/5/EC; EMC 2004/108/EC |

Specifications are subject to changes without prior notice. * Measured in optimal conditions

## 3   INSTALLATION TIPS

**CAUTION**

▢ 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.

## 4   WIRING/ HOUSING OPENING AND CLOSING

| | |
|---|---|
| RED | 12-24 V |
| BLACK | AC-DC |
| WHITE | COM |
| GREEN | NO |
| YELLOW | NC |

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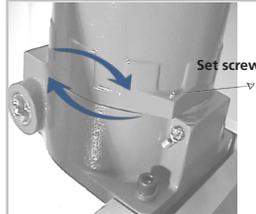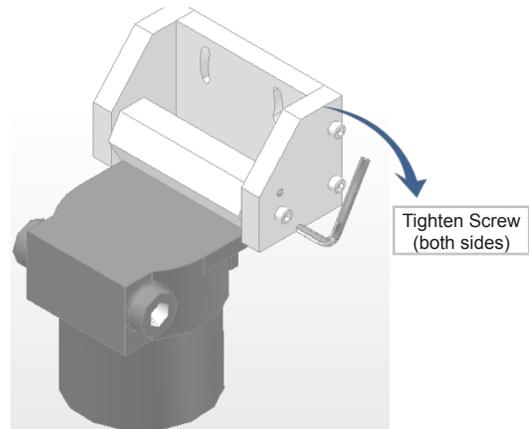
Set screw

**NOTE: Normally, opening the sensor is not necessary, unless access to the manual pushbuttons is required.**

- Using a hex key loosen or tighten the setscrew located on the side of the housing.
- Unscrew/ Screw the housing cover.

## 5   MOUNTING ADJUSTMENT

Tighten Screw (both sides)
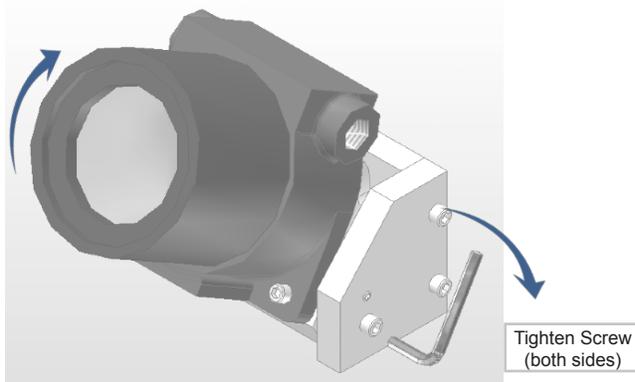
**Maximum angle ( +30° above horizon)**
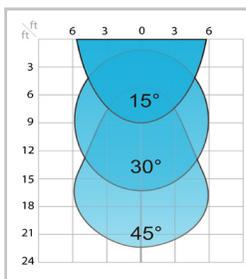
Tighten Screw (both sides)

**Minimum angle ( -90° below horizon)**

1. Bolt the bracket securely to the wall or other rigid surface.
2. Make sure that the two 5/16 - 18 Allen head bolts are loose so that the sensor can rotate freely.
3. Rotate the sensor to the appropriate angle for the application. When the bracket rotates, it will click. Every click represents a 7 1/2 angle adjustment.
4. Lock the angle adjustment by tightening the two 5/16 - 18 Allen head bolts.
5. Horizontal angle adjustments can be made by loosening the mounting bolts on the base and twisting to the desired angle.

## 6   DETECTION FIELD DIMENSIONS
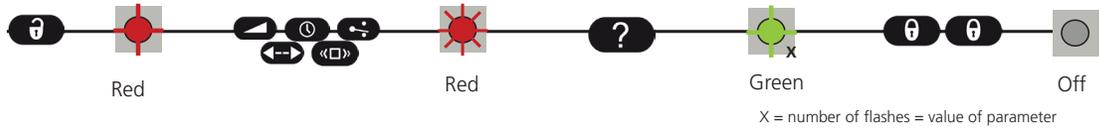
**FALCON EX**
Mounting height: **16 ft**

**FALCON EXXL**
Mounting height: **11.5 ft**

## CHECKING A VALUE



Red     Red     Green     Off

X = number of flashes = value of parameter
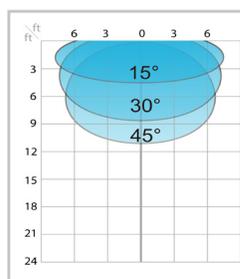


| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **FIELD SIZE** | 🔲 | XXS | XS | S | > | > | > | > | **L** | XL | XXL |
| **RELAY HOLD TIME** | 🕐 | **0.5 s** | 1 s | 2 s | 3 s | 4 s | 5 s | 6 s | 7 s | 8 s | 9 s |
| **OUTPUT CONFIGURATION** | ⇄ | | **A** | P | | | | | | | |
| **DETECTION MODE** | ◀--▶ | | bi | **uni** | uni AWAY | | | | | | |
| **DETECTION FILTER** | «□» | | **1** | 2 | 3 | 4 | 5 | 6 | | | |

OUTPUT CONFIGURATION:
A = active output (relay active when detection)
P = passive output (relay active when no detection)

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

🔲 FACTORY VALUES     RESETTING TO FACTORY VALUES:

## DETECTION FILTER (REJECTION MODE)

Choose the right detection filter for your application with the remote control

«□» 1-6

**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 ft - 11.5 ft | 8 ft |
|---|---|---|
| -75° | 3 | 3 |
| -60° | 4 | 4 |
| -45° | 5 | 4 |

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.

## LED SIGNALS

- When the power is turned ON, the red and green LEDs flash for few seconds.
- During a detection the red LED lights illuminates.
- During configuration, the red LED flashes a number of times corresponding to the parameter being changed (see next table). The green LED flashes a number corresponding to its setting.

**TO START OR END AN ADJUSTMENT SESSION,** press and hold either push button until the LED flashes or stops flashing.

**TO SCROLL THROUGH THE PARAMETERS,** press the right push button.

**TO CHANGE THE VALUE OF THE CHOSEN PARAMETER,** press the left push button.

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) |

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

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

SAVING AN ACCESS CODE:

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

DELETING AN ACCESS CODE:

ERASE AN UNKOWN ACCESS CODE:   If you do not know the access code, **cut and restore the power supply**. During 1 minute, you can erase an unkown access code:

## 10   TROUBLESHOOTING

| Symptom | Cause | Solution |
|---|---|---|
| Sensor appears unresponsive | The sensor power is off. | 1 Check the wiring and the power supply. |
| Discrepency between sensor state and sensor output | Improper output configuration on the sensor. | 1 Check the output configuration setting on each sensor connected to the user equipment. |
| The sensor cycles in and out of detection | The sensor is disturbed by vibration, a moving object, or electrical noise from nearby environment. | 1 Make sure the sensor is fixed properly. 2 Make sure the detection mode is unidirectional. 3 Increase the tilt angle. 4 Increase the detection filter value. 5 Reduce the field size. |
| The sensor goes into detection for no apparent reason | The sensor detects raindrops or vibrations. | 1 Make sure the detection mode is unidirectional. 2 Increase the detection filter value. |
| | In highly reflective environments, the sensor detects objects outside of its detection field. | 1 Change the antenna angle. 2 Decrease the field size. 3 Increase the detection filter value. |
| The LED flashes quickly after unlocking. | The sensor needs an access code to unlock. | 1 Enter the right access code. 2 If you do not know the access code, cut the power supply and restore it to access the sensor and change the access code or delete it. |
| The sensor does not respond to the remote control | The remote control batteries are weak or improperly installed. | 1 Check the batteries and change them if necessary. |

**SAFETY INSTRUCTIONS**
The manufacturer of the end-user equipment is responsible for carrying out a risk assessment and installing the sensor and the end-user equipment in compliance with applicable national and international regulations and standards of the end-user equipment.
Only trained and qualified personnel may install and setup the sensor.
The warranty is void if unauthorized repairs are made or attempted by unauthorized personnel.

The complete declaration of conformity is available on our website: www.bea.be

**BEA**
OPEN UP NEW HORIZONS

Only for EC countries: According the European Guideline 2012/19/EU for Waste Electrical and Electronic Equipment (WEEE)

24/7 Tech Support: 1-800-407-4545 | Customer Service: 1-800-523-2462 | General Tech Questions: Tech_Services@beainc.com | Tech Docs: www.beasensors.com

75.5355.01   FALCON EX   20160314                                                                                    Page 4 of 4