Quick-Start Operating Guide   *Document No. 1800-83*

ULPA-Filtered High-Velocity Air Curtain

Your Comprehensive
Equipment Source

Particle Filtration

Laminar Flow Control

Ultra-Clean Materials

Vibration Isolation

Ergonomics

Process Gas Generation

Temperature Control

Biohazard Containment

Sterilization

Static Control

Chemical Vapor Removal

Anti-Microbial Treatments

Humidification/ Dehumidification

Vacuum Control

Exhaust Fume Ventilation

Proprietary Notice

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Safety Notice

A thorough familiarity with all operating guidelines is essential to safe operation of the product. Failure to observe safety precautions could result in poor performance, damage to the system or other property, or serious bodily injury or death.

The following symbols are intended to call your attention to two levels of hazard involved in operation:

The information presented here is subject to change without notice.

Terra Universal makes no warranties applying to information contained in this manual or its suitability for any implied or inferred purpose. Terra Universal shall not be held liable for any errors this manual contains or for any damages that result from its use.

CAUTION

Cautions are used when failure to observe instructions could result in significant damage to equipment.

WARNING

Warnings are used when failure to observe instructions or precautions could result in injury or death.

⚠ **WARNING: Suitable for commercial or industrial use only.**

1.0 Introduction

This manual provides information on installing and operating your ULPA-Filtered High-Velocity Air Curtain from Terra Universal.

By thoroughly reviewing this document, you can guarantee your system's longevity and optimal performance.

2.0 Description

Terra Universal's Air Curtain offers an effective way to prevent contaminants from entering into a controlled clean environment. A sensor mounted directly above the doorway activates the unit when the door is opened or an operator is detected, directing ULPA-filtered air downward at up to 1900 feet/minute to reduce particle influx as personnel enter or exit the clean room. The ULPA filters are rated at 99.999% of all particles as small as 0.12 microns. This barrier of high-velocity, clean air also removes particles from clean room garb and minimizes escape of conditioned air from the clean room, reducing load on the HVAC system.

3.0 Installation

⚠️ **WARNING: TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:**

a) Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
b) Before servicing or cleaning unit, switch power off at service panel and lock the service disconnecting means to prevent power from being switched on accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.
c) When servicing or replacing a component in an appliance requires removing or disconnecting filters, reinstallation or remounting is necessary.

⚠️ **WARNING: TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:**

a) Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.
b) When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities.

⚠️ **CAUTION: Install Fan at least 2.5 m (8.2 feet) above the floor**

The ULPA-Filtered High Velocity Air Curtain should be installed above the door frame on the dirty side. Keyhole slots are provided on the rear housing to accommodate mounting hardware.

Site locations and mounting surface materials differ, installation should be performed by a qualified contractor, using fasteners or customer-supplied mounting plate(s) appropriate to the air Curtain's weight (129 lbs.) and size (approximately 28"W x 19"H).

The unit comes with a 6 foot cord to plug into existing electrical outlet.

4.0 Operation

The Air Curtain has two operational settings:
1. Motion Detection
    - Engage the right switch if motion sensor is desired.
    - Air Curtain is motion sensor-controlled continuing fan operation for 5 seconds before motion stops, automatically turning off
    - To resume operation, either resume motion under the sensor or turn switch.
    - Pressing the Motion Control operation switch while the unit is in operation will shut the fan off.
    - Refer to separate documentation (appended to this manual) on motion control sensor adjustment.

2. Continuous Operation
    - Engage the left button if continuous operation is desired.
    - Continuous operation button overrides the motion detection switch, enabling continuous operation until the button is disengaged.

5.0 Sensor Configuration

Refer to attached manufacturer manuals for sensor configurations.

6.0 Specifications

Overall Dimensions:	48"W X 17.5"D X 19"H
Air Velocity:	1,900Ft/Min
Material (Housing)	304 Stainless Steel
Weight:	129 lbs.

Blower Specifications (1 per Air Curtain):

Model #	EL08657
Power Rating	1/2HP
Phase	Single
Max. Amps	6
Max. RPM	1625

Filters Specifications (4 per Air Curtain): Ultra Low Particulate Air (ULPA) rated 99.999% efficient at 0.12-micron particle size.

ULPA Filter
Model #	2100-29	(2 required)
Dimensions:	12" X 12" X 3"	
Model #	1681-10	(1 required)
Dimensions:	27.75" X 13" X 3"	

Prefilter
Model #	9202-50	(2 required)
Dimensions:	12" X 12" X 1"	
Model #	1681-04A	(1 required)
Dimensions:	27.75" X 13" X 3"	

7.0 Maintenance

Under typical conditions (2 hours of operation per day), filters should be replaced every year.

For optimal operation, the Air Show should be monitored periodically with an Air Velocity Meter. Air velocity will initially average about 1,900 feet/minute, measured at air curtain. When reading drops to below 80% of the initial value, the corresponding HEPA filter is approaching the end of its service life and should be replaced.

8.0 Filter replacement

⚠️ **CAUTION: Because ULPA filter mini-pleats are easily damaged, always handle the filter by the edges. Avoid touching the filter face.**

⚠️ **WARNING: Before servicing your unit, make sure unit is turned off and unplugged. Failure to do so could result in damage to your unit and serious bodily injury.**

To replace ULPA filters, ensure the unit is turned off and unplugged (refer to warnings and cautions above). Remove screws on top panel to remove top panel. To replace ULPA filter model number **2100-29**, loosen the screws marked with red arrows. Slide the used filter out and replace with new filter (Figure 1).

Repeat steps above to replace ULPA filter model number 1681-10 (Figure 2).
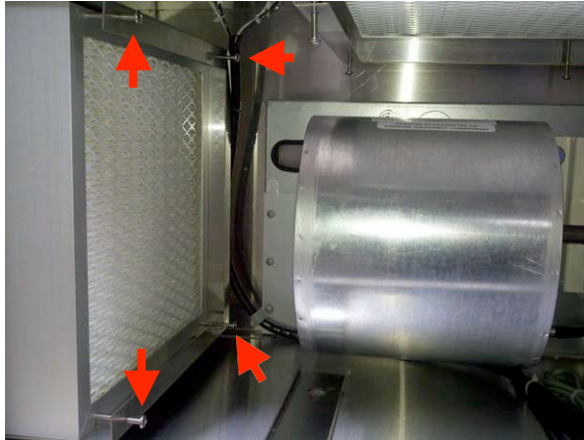
(Figure 1)
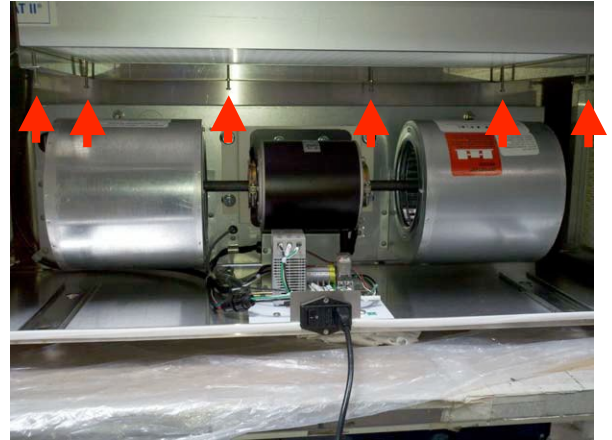
(Figure 2)
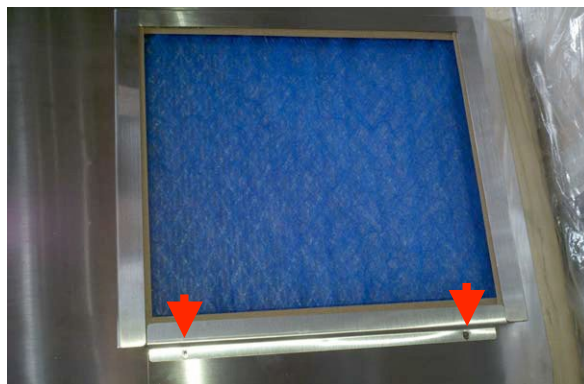
(Figure 3)

(Figure 4)

To replace prefilter models 9202-50 and/or 1681-04A, simply unfasten the retaining brackets by removing its screws. Slide the prefilter out and replace with new (Figure 3 and 4).

9.0 Warranty

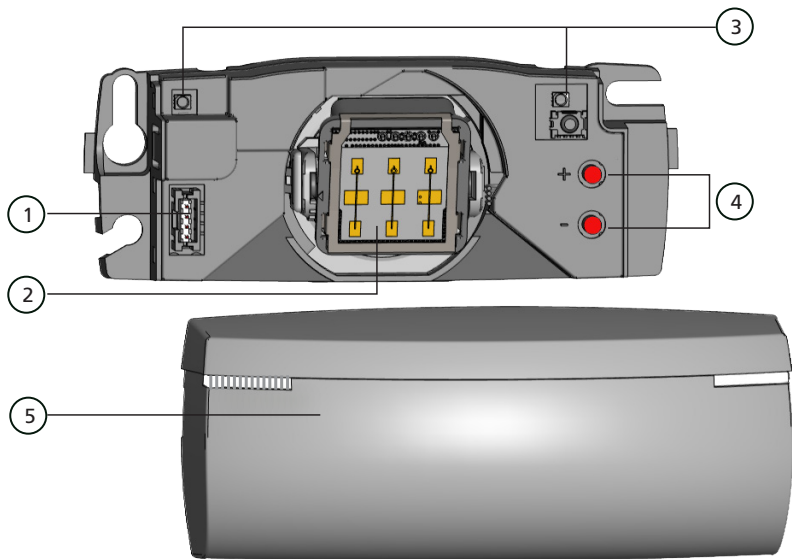For more information about our warranty system, please visit our company's warranty website.

EAGLE ARTEK
Unidirectional opening sensor for automatic doors
(US version)

1. main connector
2. antenna
3. LEDs
4. push buttons
5. cover
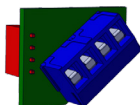
retrofit interface

harness (35.1563)
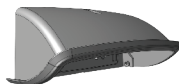
ACCESSORIES

Rain accessory
10EARA

Ceiling accessories
10EACA (white)
10EACA-BLK (black)

Replacement covers
35.0303 - black
35.0319 - white
35.0320 - silver

Bracket accessory
10EABA
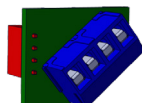
Retrofit interface
10EARETROFIT

EAGLE ARTEK

Next Generation Motion Sensor For Automatic Sliding And Swing Doors

EAGLE ARTEK is equipped with BEA's DRO Radar technology that provides full digital adjustment of the radar field shape eliminating the need to swap antennas manually. Many hours of research, development and testing have been invested to create and develop the Artek technology. Thanks to the know-how of our engineers, this active digital antenna takes motion detection to the next level. The robust and sustainable design, cutting edge electronics and software allow for precision, reliability, and more flexibility.

Other benefits include:
- Robust & sustainable design
- Cutting edge electronics
- In-House production for better quality control and supply chain autonomy

Our goal is to provide you with user-friendly solutions. EAGLE ARTEK comes with the following *improvements*:
- Compact design - Allows discreet integration with all types of door control, even the slimmest ones
- Utilizing ARTEK technology developed by BEA and based on the EAGLE, this antenna inherits the stability and flexibility of our motion sensors
- Electronic management of the radar field shape and push-button adjustments for detection field allow for quick installation and setup
- Same mounting references and plug-in interface accessory make it easy to retrofit **EAGLE**

PUSH BUTTON PROGRAMMING

MANUALLY ADJUSTED ANTENNA

DRO RADAR

PUSH BUTTON PROGRAMMING

RETROFIT INTERFACE

79.0745.01 | 20231013
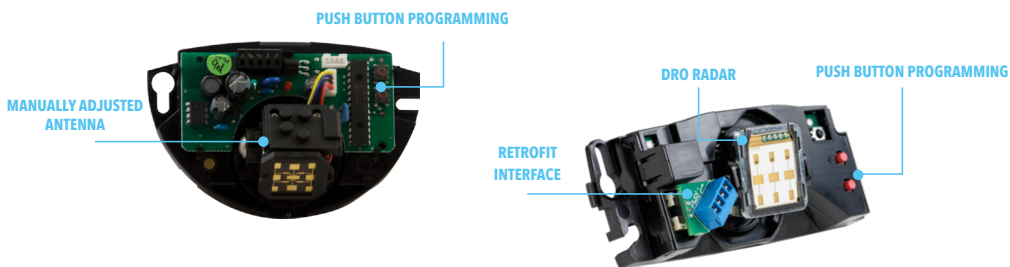
TECHNOLOGY / PERFORMANCE

Technology	microwave
Detection mode	motion
Transmitter frequency:	24.15 GHz
Transmitter radiated power:	< 20 dBm EIRP
Transmitter power density:	< 5 mW/cm²
Max. detection range:	wide: 13' × 6.5' narrow : 6.5' × 7' (@ 7' high)
Min. detection speed:	2 in/s
ELECTRICAL	
Supply voltage*:	12 – 24 VAC ±10% (50 – 60 Hz) 12 – 24 VDC +30% / -10%
Max. power consumption:	< 1 W
Output*:	solid-state relay (free of polarity)
Max. switching voltage:	30 VAC / 42 VDC
Max. switching current:	100mA (resistive)
PHYSICAL	
Mounting height:	6 – 13'
Tilt angles:	0 – 90° vertical -30 – 30° lateral
Temperature range:	-4 – 131 °F (-20 – 55 °C)
Dimensions:	4.72" (L) × 1.96" (H) × 1.96" (W)
Material:	ABS
Weight:	120 g
Cable length:	8'
COMPLIANCE	
Degree of protection:	IP54 (IEC 60529)
FCC certification:	FCC: G9B-100606 IC: 4680A-100606

* External electrical sources must be within specified voltages, max 100 W, and ensure double insulation from primary voltages

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

MOUNTING OPTIONS

HEADER MOUNT

swing / folding

HEADER MOUNT

sliding

HEADER (FASCIA) MOUNT

revolving

CEILING MOUNT

swing / sliding / revolving
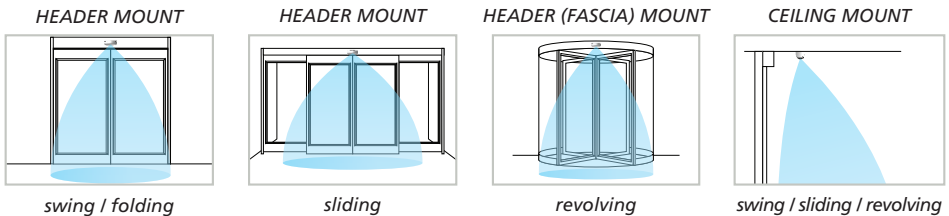
PRECAUTIONS

CAUTION

- ❑ Shut off all power going to header before attempting any wiring procedures.
- ❑ Maintain a clean and safe environment when working in public areas.
- ❑ Constantly be aware of pedestrian traffic around the door area.
- ❑ Always stop pedestrian traffic through the doorway when performing tests that may result in unexpected reactions by the door.
- ❑ *ESD (electrostatic discharge)*: Circuit boards are vulnerable to damage by electrostatic discharge. Before handling any board, ensure you dissipate your body's ESD charge.
- ❑ Always check placement of all wiring before powering up to ensure that moving door parts will not catch any wires and cause damage to equipment.
- ❑ Ensure compliance with all applicable safety standards (i.e. ANSI A156.10) upon completion of installation.
- ❑ DO NOT attempt any internal repair of the components. All repairs and/or component replacements must be performed by BEA, Inc. Unauthorized disassembly or repair:
    1. May jeopardize personal safety and may expose one to the risk of electrical shock.
    2. May adversely affect the safe and reliable performance of the product resulting in a voided warranty.

INSTALLATION TIPS
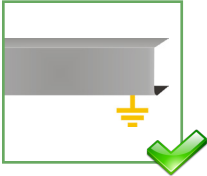
The door control system and the header cover profile must be correctly grounded.

Only trained and qualified personnel are recommended to install and set up the sensor.
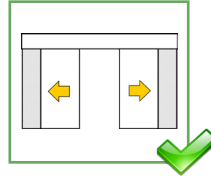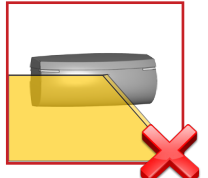

Always test the proper operation of the installation before leaving the premises.
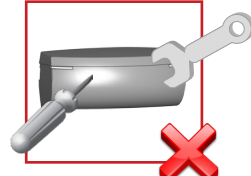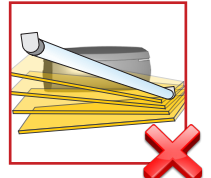

The warranty is invalid if unauthorized repairs are made or attempted by unauthorized personnel.

Avoid vibrations.
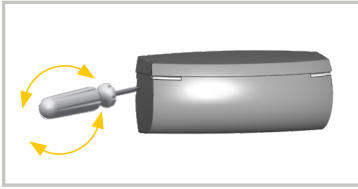

Do not cover the sensor.

Avoid proximity to neon lamps or moving objects.

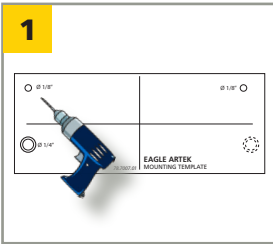## CLEANING & MAINTENANCE

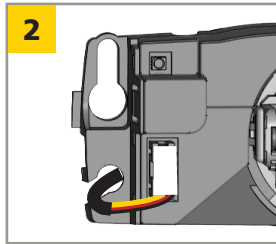Do not use harsh cleaning agents.

OPENING THE SENSOR

Insert the screwdriver on the left or right notch of the sensor and twist to remove the cover.
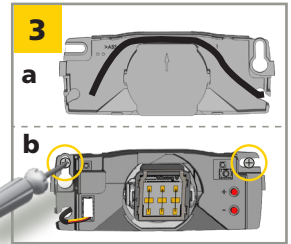
MOUNTING & WIRING

1

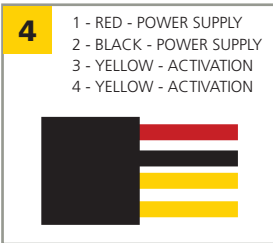Using the mounting template, drill the cable pass-thru hole and 2 mounting holes.

Cable pass-thru: Ø 1/4"
Mounting holes: Ø 1/8"

2

Pull the cable through the pass-thru hole, and plug in the connector accordingly.

3

a

b

a) Route the cable relative to the pass-thru hole. To avoid damage, use the dedicated cable path on the sensor base.
b) Secure the sensor by hand-tightening the mounting screws.

4

1 - RED - POWER SUPPLY
2 - BLACK - POWER SUPPLY
3 - YELLOW - ACTIVATION
4 - YELLOW - ACTIVATION

Wire to the door controller.
Logic selectable via remote control (see following page)

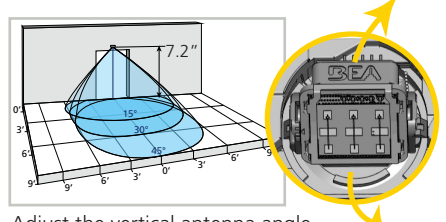### RETROFITTING: OPTIONAL HARDWIRING

If you wish to utilize the existing cable from the door control, simply install the Retrofit Interface module (10EARETROFIT).
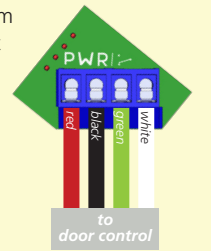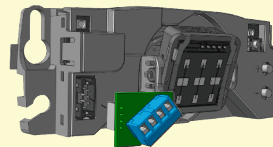
FIELD ANGLE ADJUSTMENTS
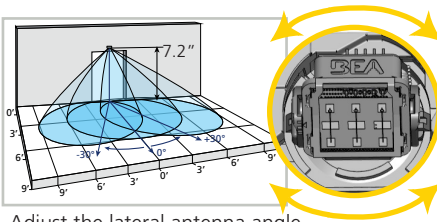
Adjust the lateral antenna angle.

Adjust the vertical antenna angle.

SETTINGS

via REMOTE CONTROL

FACTORY VALUES:

	0	1	2	3	4	5	6	7	8	9
FIELD SIZE	XXS	XS	S	>	>	>	>	L	XL	XXL

FIELD SHAPE

+ = wide (**default**)

− = narrow

To query the specific width, press [remote] [field] [?].

The sensor will blink the number of times that it is set to, and then the green LED will blink either 1 time (narrow shape) or 2 times (wide shape).

Example: If **FIELD SIZE** = large and **FIELD SHAPE** = narrow, the LED with blink 7 times, and then 1 time.

	0	1	2	3	4	5	6	7	8	9
MOUNTING HEIGHT (D)		< 10 ft	> 10 ft							
IMMUNITY FILTER («□»)		low	normal	high	>	>	>	>	>	highest
DETECTION MODE (◄--►)		bi	uni	uni MTF	uni AWAY	MTF & AWAY				
OUTPUT CONFIG		NO	NC							
HOLD-OPEN TIME (⏱)	0.5 s	1 s	2 s	3 s	4 s	5 s	6 s	7 s	8 s	9 s
DOOR CONTROL (F2)		auto	open	closed						
FACTORY RESET									full	partial *

DETECTION MODE:
bi = two-way detection
uni = one-way detection towards sensor
uni MTF = one-way detection with motion-tracking feature
uni AWAY = one-way detection away from sensor

DOOR CONTROL:
open = sensor detects constantly, LED on
closed = sensor is in standby and does not detect, LED off

* outputs are not reset

ACCESS CODE

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

Saving an access code: [remote] [lock] [0-9] [0-9] [0-9] [0-9] [lock] [lock]

Deleting a known access code: [remote] [0-9] [0-9] [0-9] [0-9] [lock] [0] [lock] [lock]

Deleting an unknown access code: [Cycle power] [remote] [lock] [0] [0] [0] [0]
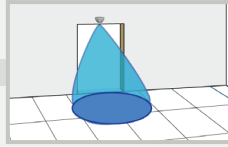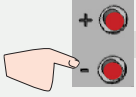
Once you have saved an access code, you must always enter this code to unlock the sensor.

If you forget the access code, **cut and restore the power supply**. Within 1 minute, you can access the sensor without introducing any access code.
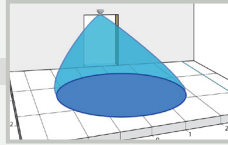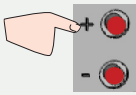
SETTINGS (cont.)

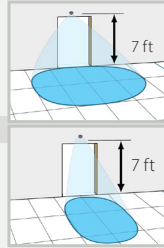## FIELD SIZE

... S, XS, XXS

... L, XL, XXL

FIELD SHAPE

ENTER

long push (2 sec)

wide
or
narrow

7 ft

7 ft

OK

X 1
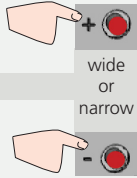
EXIT

long push (2 sec)

IMMUNITY

ENTER

long push (2 sec)

or

increase
or
decrease

OK

X 1

EXIT

long push (2 sec)

FACTORY RESET – full reset only
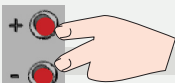
long push (4 sec)

TROUBLESHOOTING

⬜	Door remains closed, LED off	Sensor power is off	Check the wiring and the power supply.
		Door control (F2) is set to 3 (closed)	Change the door control setting (F2) to value 1 (automatic).
⬜	Door does not react as expected	Incorrect output configuration on the sensor	Change the output configuration setting on each sensor that is connected to the door operator.
⬜ 3	Door does not react as expected	Wire to the antenna is disconnected or damaged	1. Check wire to the antenna. 2. If damaged, replace sensor.
⬜	Door opens and closes repeatedly	The sensor is disturbed by the door motion or vibrations caused by the door motion	1. Ensure the sensor is secured. 2. Ensure the detection mode is unidirectional. 3. Increase antenna angle. 4. Increase immunity filter. 5. Reduce field size.
⬜	Door opens for no apparent reason	Sensor detects rain	1. Ensure detection mode is unidirectional. 2. Increase immunity filter.
		Sensor detects objects outside of its detection field (in highly reflective environment)	1. Change antenna angle. 2. Decrease field size. 3. Increase immunity filter.
		Sensor detects movement of the opposite door (in an airlock vestibule)	1. Change antenna angle. 2. Adjust field shape. 3. Increase immunity filter.
✳	LED flashes quickly after unlocking	Sensor requires access code to unlock	1. Enter the correct access code. 2. If you forgot the code, cut and restore the power supply to access the sensor without access code. 3. Change or delete the access code.
	Sensor does not respond to remote control	Weak or incorrectly installed batteries	Check batteries and change if necessary.
		Remote control not aimed at sensor	Point the remote control towards the sensor.
	Door remains open, LED stays on	Door control is set to "open"	Set the door control to "auto" (see pg. 8).

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.

Tech Support & Customer Service: 1-800-523-2462
General Tech Questions: techservices-us@BEAsensors.com | Tech Docs: www.BEAsensors.com

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