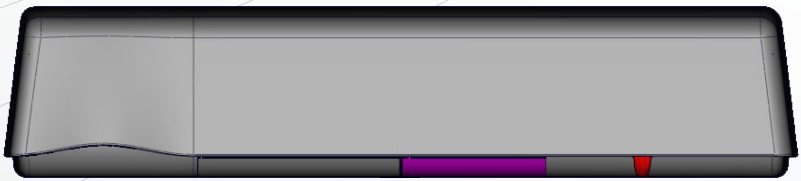
EN



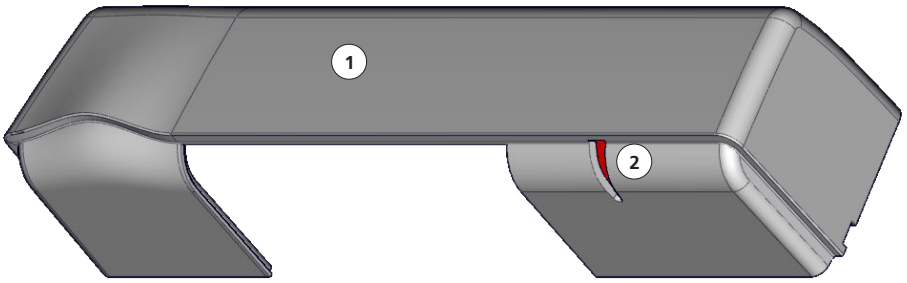
ULTIMO

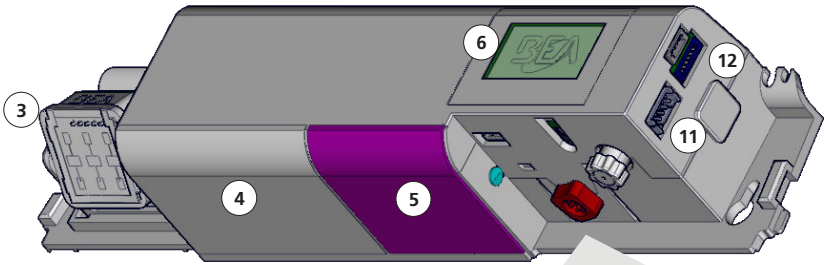
ACTIVATION AND SAFETY SENSOR FOR AUTOMATIC, SLIDING DOORS

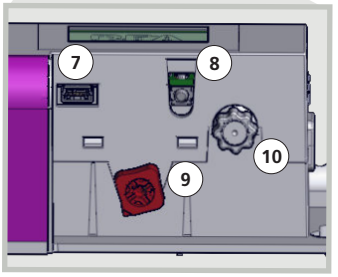
Visit website for available languages of this document.

Software version 2.5 / Configuration version 7.0
(refer to Admin menu for product software vesion)

DESCRIPTION







1. cover
2. light pipe
3. radar antenna
4. AIR receiver
5. AIR emitter
6. LCD
7. [for internal use only]
8. LED
9. AIR curtain angle adjustment knob
10. main adjustment knob
11. main connector
12. [for future development]

TECHNICAL SPECIFICATIONS

Mounting height	6'6" – 11'6" typical: 7'2"
Detection mode	motion and presence
Technology	microwave doppler radar and active infrared (AIR) with background analysis
Radar detection speed (min)	2 in/s
AIR response time (typ.)	< 200 ms (max. 500 ms)
Radar transmitter	
frequency	24.150 GHz
radiated power	< 20 dBm EIRP
power density	< 5 mW/cm^2
lobe angles	0 – 45° (typical adjustment), default 25°
AIR spots	
size	2" × 2" (typ.)
number of spots	max. 32 per curtain
number of curtains	3
curtain angles	-3 – 11°, default 0°
Relay output 1	electromechanical relay (potential- and polarity-free)
max. contact current	1 A
max. contact voltage	30 VDC
adjustable hold time	0.5 – 9 seconds
Optofet output 2	solid-state relay (potential- and polarity-free)
max. contact current	400 mA
max. contact voltage	42 VAC/VDC
hold time	0.3 – 1 second
Test/Monitoring input	
sensitivity	low: < 1 V high: > 10 V (max. 30V)
response time on request	<5 ms (typ.)
Supply voltage	12 – 24 VAC ±10%, ***DO NOT EXCEED 26.4 VAC*** 12 – 30 VDC ±10%
Power consumption	< 3.2 W
Temperature range	-13 – 131 °F * 0 – 95% relative humidity, non-condensing *LCD screen is operational from 14 – 131 °F. The sensor may still be programmed in colder temperatures, but with the remote control.*
Cable length/gauge	10' / 26 AWG
Degree of protection	IP54
Compliance	R&TTE 1999/5/EC; MD 2006/42/EC; LVD 2006/95/EC; ROHS 2 2011/65/EU

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

LED SIGNALS

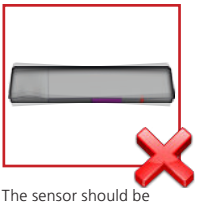
COLORS

- (green) Motion detection
- (red) Presence detection
- (white) IR synchronization

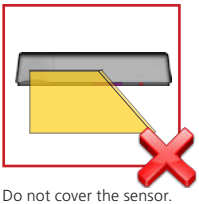
BEHAVIORS

- LED flashes
- LED flashes quickly
- LED flashes x times
- LED flashes red-green
- LED is off

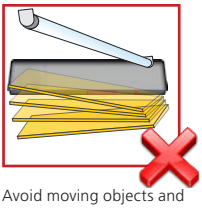
INSTALLATION



The sensor should be mounted securely to avoid extreme vibrations.



Do not cover the sensor.

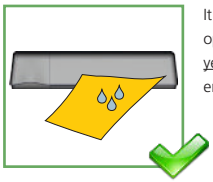


Avoid moving objects and light sources in the detection field.

Avoid highly reflective objects in the infrared field.

This device can be expected to comply with Part 15 of the FCC Rules, provided it is assembled in exact accordance with the instructions provided with this kit. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

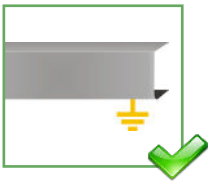
MAINTENANCE



It is recommended to clean the optical parts at least once a year or more if required due to environmental conditions.

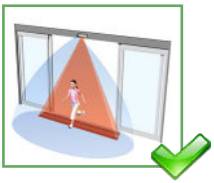
Do not use aggressive products to clean the optical parts.

SAFETY

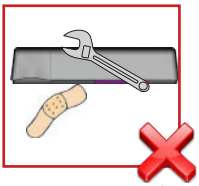


The door control unit and the header cover profile must be correctly grounded.

Only trained and qualified personnel are recommended for installation and setup of the sensor.



Following installation, always test for proper operation (according to ANSI 156.10) before leaving the premises.

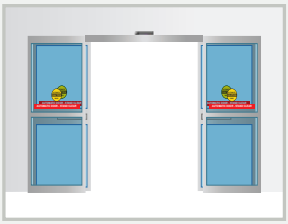


The warranty is invalid if unauthorized repairs are made or attempted by unauthorized personnel.

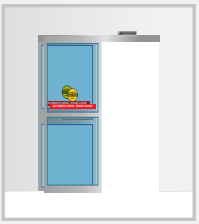
1 MOUNTING & WIRING

MOUNTING

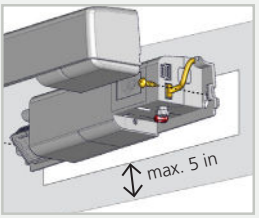
1. Using the provided mounting template, mount the sensor centered over the clear opening*, ensuring that the bottom of the sensor is no higher than 5 inches from the bottom of the door header.



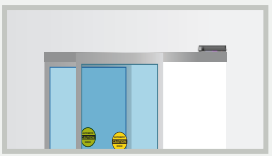
DUAL SLIDER



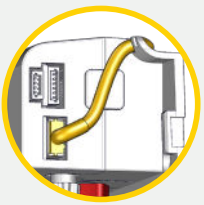
SINGLE SLIDER



* *Extreme left or right mounting is an option for single-sliders when using IR:Width settings 4 or 5 (see page 12). Be sure that the edge of the sensor is aligned with edge of the door header*



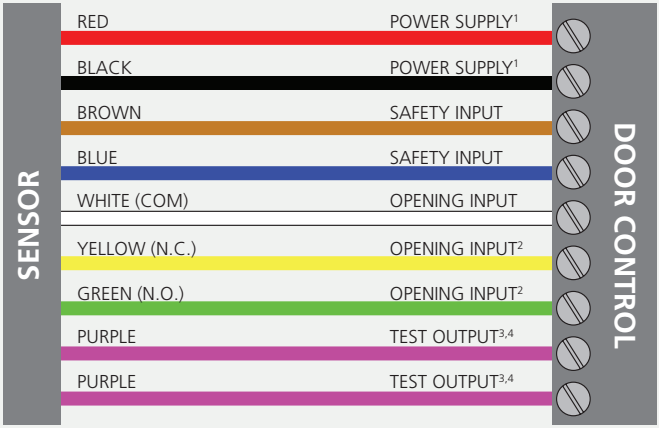
2. Route the harness (20.5349) using the wire stay as shown.



- Sensor connectivity (power and relays) must utilize only the supplied harness.
- Sensor is intended to be monitored for proper operation by the door operator or system.
- Harness shall be routed separated from any Mains or non-Class 2 voltage cable for correct operation or shall be rated for the Mains voltage, and suitable protection and routing means shall be used according to National and Local Codes to prevent damage to the harness and/or sensor.

1 MOUNTING & WIRING

WIRING



1. Voltage: 12 – 24 VAC, 50/60 Hz; 12 – 30 VDC; < 3.2 W (max)
   DO NOT EXCEED 26.4 VAC
   If a power supply is needed, BEA recommends using only the 12V transformer (1012VAC).

2. Use either yellow or green, not both.

3. Test monitoring input: low = < 1 V, high = > 10 V (30 V max.); response time: typ. < 5 ms

4. The sensor LED will briefly flash RED and the LCD will display a monitoring notification during monitoring communication with the door control. This indicates that external monitoring is functional. Sensor monitoring functionality is automatic by default. Ensure purple wires are properly connected to the door controller and monitoring is enabled. Sensor monitoring logic is defaulted to ActiveLow. ActiveHigh monitoring logic is selectable via InTestLogic on menu 3. To turn sensor monitoring OFF, navigate to menu 3 on the LCD and set InTestMode to OFF.

HOW TO USE THE LCD

DISPLAY DURING NORMAL FUNCTION

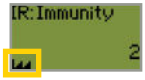
motion AIR

negative display = active output

To adjust contrast, push and turn the gray button simultaneously.

During normal function only.

FACTORY VALUE VS. SAVED VALUE



displayed value
=
factory value

displayed value
=
saved value

NAVIGATING IN MENUS

1) Push to enter the LCD menu. 2) Enter password, if necessary. 3) Select language before entering the first LCD menu.

Not during the first minute after power-on of the sensor.

= scroll

= select

Select **Back** to return to previous menu or display.

Select **More** to go to next level:
- IR menu
- Radar menu
- Outputs & Diagnostics menu

VALUE CHECK WITH REMOTE CONTROL

Pressing a parameter symbol on your remote control displays the saved value directly on the LCD screen. Do not unlock first.

HOW TO USE THE REMOTE CONTROL

UNDERSTANDING LED ACTIVITY

After unlocking, the red LED flashes and the sensor can be adjusted by remote control.

If the red LED flashes quickly after unlocking, you need to enter an access code from 1 to 4 digits.
If you do not know the access code, **cycle the power**. During 1 minute, you can access the sensor without introducing any access code.

To end an adjustment session, always lock the sensor.

ACCESS CODES

⚠ It is recommended to use a different access code for each sensor in order to avoid changing settings on both sensors at the same time.

SAVING AN ACCESS CODE

The access code is recommended for sensors installed close to each other.

DELETING AN ACCESS CODE

Enter the existing code

DELETING AN UNKNOWN ACCESS CODE

ADJUSTING ONE OR MORE PARAMETERS

CHECKING A VALUE

x = number of flashes = corresponds to the remote control button assignment for the current setting (see page 16 for parameter assignments)

Example: For a sensor still programmed to factory default, the value check for AIR Presence Time will result in 2 green LED blinks.

RESTORING TO FACTORY VALUES

full reset = restores to factory defaults

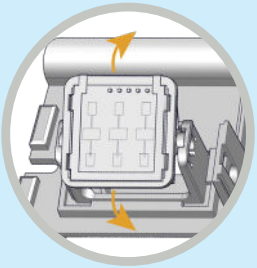
partial reset = restores all settings except monitoring and outputs

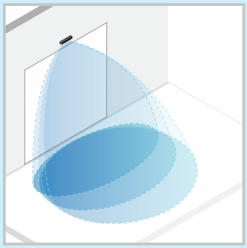
2 RADAR FIELD

The size of the detection field varies according to the mounting height and parameter settings of the sensor.

ANGLE

Tilt the antenna up to adjust the depth outward and down to adjust inward from the doorway.

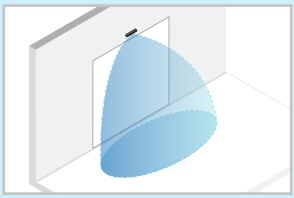


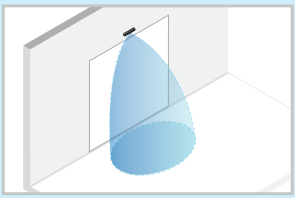


Graphics are representations, not default settings.

SHAPE

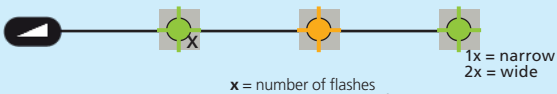
Navigate to menu 2 of the LCD to choose the desired width shape – wide lobe or narrow lobe.





If using remote control, you can also press  and the plus sign () to select Wide shape or the minus sign () to select Narrow shape.

To check the existing radar field size/shape, use the following sequence:



x = number of flashes
= corresponds to the field size

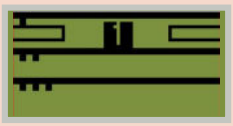
3 ACTIVE INFRARED SAFETY FIELD

NUMBER OF CURTAINS / POSITION OF CURTAINS (IR:CURTAINS, MENU 1)

Choose the number of and position of the AIR curtains based on your application.

NOTE: The sensor is defaulted to Non-Threshold setting (3). If threshold is desired, you may choose Threshold setting 1, 2, 4, or 5; be sure that the curtain placement matches the LCD screen.

If necessary, use visible spots and red adjustment knob to position properly (see page 11).



DEFAULT

UNDERSTANDING THE LCD "CURTAINS" GRAPHICS

GENERAL SETTINGS	
■	*the number of squares on a line indicates the curtain number (i.e. C1, C2, or C3)*
▭ ▭	*the rectangles on each side of the setting number represent sliding door panels*
THRESHOLD SETTINGS (1, 2, 4, 5)	
- - - -	*a dotted line indicates that curtain C1 is active at full open and inactive during door closing cycle (settings 2 and 5)*
———	*a solid line indicates that curtain C1 is active at full open and partially active during door closing cycle (settings 1 and 4)*

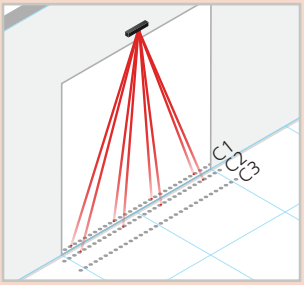
3 ACTIVE INFRARED SAFETY FIELD

ANGLE

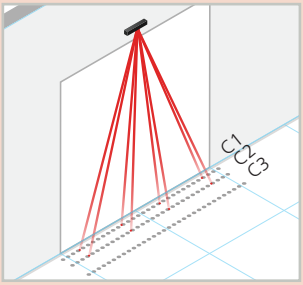
1. Activate the four visible spots (press gray knob twice) to verify the position of the AIR curtains.

   Visibility depends on external conditions. When spots are not visible, use the Spotfinder to locate the curtains.

THRESHOLD



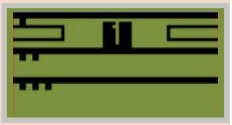
NON-THRESHOLD



2. If necessary, adjust the AIR curtain angles using the red adjustment knob (see below) and then select the corresponding IR:Curtains setting on menu 1 of the LCD (see right).

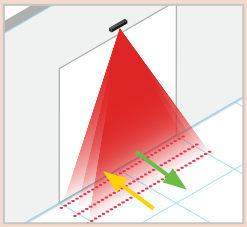
   NOTE: Be sure that setting shown on the LCD matches the AIR curtain position.

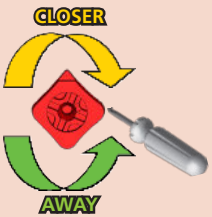
THRESHOLD



NON-THRESHOLD

default

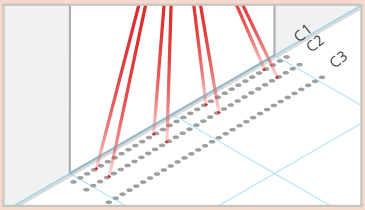


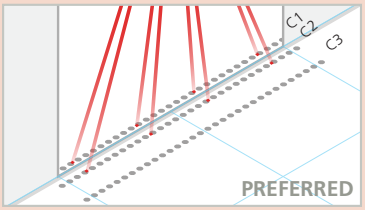


3. When in Threshold mode, verify correct positioning of the threshold curtain:

   First, turn on the red spots, and then verify that either C1 is at least in line with the moving door panel (see image below, left) or ***preferred*** through the door opening (see image below, right).

   Next, ensure that C2 is within 3 inches of face of door for the width of the door opening.

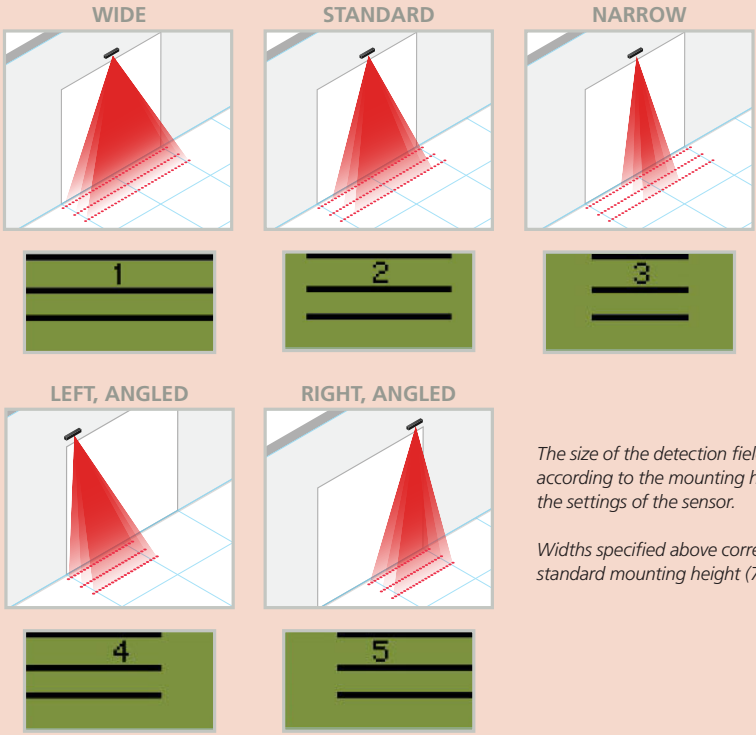




3 ACTIVE INFRARED SAFETY FIELD

WIDTH

1. If desired, adjust the field width using the LCD menu or remote control buttons (see page 16, IR:Width menu).

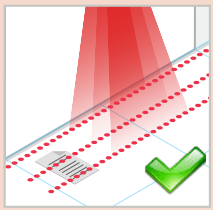


The size of the detection field varies according to the mounting height and the settings of the sensor.

Widths specified above correlate to standard mounting height (7'2").

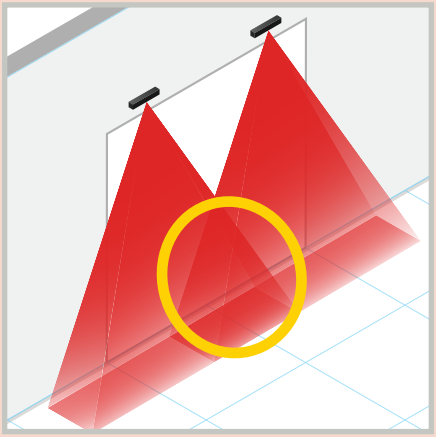
Settings 4 and 5 are only optional in single-slider applications.

2. Always verify the actual AIR detection field by walk-testing according to ANSI 156.10.
Do not use a SPOTFINDER to verify the AIR detection field.



Additional adjustments are possible by LCD or remote control (see OVERVIEW OF SETTINGS).

ULTI-SYNC: AUTOMATIC SAFETY FIELD SYNCHRONIZATION



ULTI-SYNC is used to eliminate AIR crosstalk when safety fields are overlapping in the threshold of the door or when safety fields are overlapping side-to-side.

If installed with another sliding door sensor (BEA or otherwise), see the ULTI-SYNC CROSSTALK Application Note (78.6038)

The LED will flash white, confirming the synchronization is detected. If an overlapping safety field is found in the threshold of the door, ULTIMO will remain synchronized for 2 minutes while the door is closed. If activation does not occur for 2 minutes, the white LED will flash, confirming synchronization is lost. The fields will be synchronized again upon the next activation and will be confirmed by a flash of the white LED.

To check the synchronization status, navigate to menu 3, IR:Synch.

4 SETUP

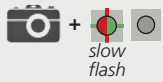
Ensure that the infrared field is clear of any obstructions.

The sensor can be set up using either the push button or the remote control:

PUSH BUTTON:
Press and hold the gray knob for 2 seconds.

REMOTE CONTROL:
Use the following remote control button sequence:

During setup, the LCD will display the camera icon and the LED will slowly flash red/green and then turn off.



Test the proper operation of the system installation before leaving the premises!

SETTINGS

Use the following tables to aid in understanding settings set by either LCD menu or remote control.

default = *shaded*

INFRARED SETTINGS ■□□		0	1	2	3	4	5	6	7	8	9
IR:Width	CD		wide	standard	narrow	left, angled	right, angled				
IR:Curtains	BE		1	2	3	4	5	6	7		
IR:Immunity				normal	outdoor	enhanced					
IR:PresTime				30 sec	1 min	2 min	5 min	10 min	20 min	60 min	infinite
IR:Freq	DD			auto-synch	IXIO (new) [1]	IXIO (new) [2]		IXIO (old) [3]	IXIO (old) [4] other [5]		

1 *For use with IXIO software version 5.0 or higher; ensure that the IXIO is set to freq A*
2 *For use with IXIO software version 5.0 or higher; ensure that the IXIO is set to freq B*
3 *For use with IXIO software version 5.0 or lower; ensure that the IXIO is set to freq A*
4 *For use with IXIO software version 5.0 or lower; ensure that the IXIO is set to freq B*
5 *For use with non-BEA sensors*

RADAR SETTINGS □■□		0	1	2	3	4	5	6	7	8	9
Rad:Fieldsize		small	>	>	>	>	>	>	>	>	large
Rad:Direction			BI <>|	UNI >|	MTF <|						
Rad:Shape		LCD: "narrow" and "wide" setting options (default = wide) Remote Control: After pressing the Rad:Fieldsize button, use the plus sign button to select the Wide shape or the minus sign button to select the Narrow shape. *Numeric remote control buttons are only applicable to the Rad:Fieldsize function.*									
Rad:Immunity			low	>	>	>	>	>	>	>	high
Rad:Reentry		small	>	>	>	>	>	>	>	>	large

SETTINGS (cont.)

OUTPUTS & DIAGNOSTICS SETTINGS ☐☐■		0	1	2	3	4	5	6	7	8	9
Out1Funct	F1	RAD	RAD or IR								
Out1Logic Out2Logic			N.O. N.C.	N.C. N.O.	N.C. N.C.	N.O. N.O.					
Out1HoldTime		0.5 sec	1 sec	2 sec	3 sec	4 sec	5 sec	6 sec	7 sec	8 sec	9 sec
Out2HoldTime		0.5 sec	1 sec	2 sec	3 sec	4 sec	5 sec	6 sec	7 sec	8 sec	9 sec
InTestLogic		Active High	Active Low								
InTestMode [1]		off	on	auto							
Admin menu		*see next page*									
Error log		last 10 errors + day indication									
IR:Synch		status of IR synchronization									
IR:Spotview		view of spot(s) that trigger detection									
IR:C1 Energ.		signal amplitude received on curtain 1									
IR:C2 Energ.		signal amplitude received on curtain 2									
IR:C3 Energ.		signal amplitude received on curtain 3									
IR:ReactTime		reactivity speed of infrared in relation to immunity and environment									
PowerSupply		supply voltage at power connector									
Reset log		no	yes								
FactoryRst [2]										full	partial

NOTES:

1. The sensor LED will briefly flash RED during monitoring communication with the door control. This indicates that external monitoring is functional. Monitoring functionality must be active on the sensor and door control, and monitoring wires must be properly connected to the door control.
2. Partial reset is only available via remote control. Partial restores all adjustable settings except Out1Funct, Out1Logic, Out2Logic, InTestLogic, and InTestMode.

SETTINGS (cont.)

ADMIN SETTINGS ☐☐☐■	password: 1234
ID #	serial number of the sensor
Config P/N	configuration file identifier
Soft P/N	software version identifier
Operating Time	power duration since first startup
TempSensor	degrees in Celsius
Password	LCD and remote control password (0000 = no password)
QR code	scan to obtain ZIP code[1] for BEA technical support

NOTES:

1. ZIP code = a numerical identifier that contains the sensor's current parameters in a zipped format

TROUBLESHOOTING

RED LED

	RED LED flashes quickly after a setup	The sensor sees the door during setup.	Move the AIR curtains away from the door.
			Ensure that the bottom of the sensor is mounted within 5" of the bottom of the door header.
			Launch a new assisted setup.
	RED LED illuminates sporadically	The sensor vibrates.	Check if the sensor is secure. Ensure that the header cover screws and mounting screws are tight.
			Check position of cable and sensor cover.
		The sensor sees the door in a non-threshold application.	Turn on the visible red spots and adjust the angle of the AIR curtains.
		The sensor is disturbed by external conditions.	Change the AIR immunity filter and AIR frequency.
	RED LED flashes quickly when unlocking	The sensor is protected by a password.	Enter the correct password. If you forgot the code, cut and restore the power supply to access the sensor without entering a password during 1 minute.
	RED Visible External Monitoring (Test Indication LED) does not flash	Monitoring installation/setup error.	Verify door control is capable of monitoring and the sensor monitoring wires are properly connected to the door control.
			Verify monitoring (TEST) is ON in the sensor settings.
		Sensor malfunction.	Replace the sensor.
	RED Visible External Monitoring (Test Indication LED) flashes continuously	Wiring issue.	Verify wiring.
		Door control not set correctly.	Verify door control monitoring set to correct test logic according to the door control.
	LT1 - Assisted Setup Error	IR:Curtain set to 1, 2, 4, or 5, C2 and/or C3 interfering with door during closing cycle	Increase tilt angle of the interfering curtain to move the curtain away from the threshold (see pages 10 – 11).
	LT2 - Assisted Setup Error	IR:Curtain set to 1, 2, 4, or 5, C2 and/or C3 interfering with door during opening cycle	Increase tilt angle of the interfering curtain to move the curtain away from the threshold (see pages 10 – 11).
	LT3 - Assisted Setup Error	IR:Curtain set to 1, 2, 4, or 5, C1 not on door threshold	Decrease tilt angle of the interfering curtain to place the curtain on the threshold (see pages 10 – 11).
	N1 - Assisted Setup Error	IR:Curtain set to 3, 6, or 7, C2 and/or C3 interfering with door during closing cycle	Increase tilt angle of the interfering curtain to move the curtain away from the threshold (see pages 10 – 11).
	N2 - Assisted Setup Error	IR:Curtain set to 3, 6, or 7, C2 and/or C3 interfering with door during opening cycle	Increase tilt angle of the interfering curtain to move the curtain away from the threshold (see pages 10 – 11).

troubleshooting continues on the next page

TROUBLESHOOTING

ORANGE LED

	E1 - orange LED flashes once	The sensor signals an internal fault.	Replace sensor.
	E2 - orange LED flashes twice	The power supply voltage is too low/high.	Check power supply voltage in Diagnostics menu (menu 3) of the LCD.
			Check wiring.
	E3 - orange LED flashes 3 times	Radar communication error	Check the connection at the radar.
	E4 - orange LED flashes 4 times	The sensor does not receive enough AIR energy.	Ensure proper mounting height.
			Turn on the visible red spots and adjust the angle of the AIR curtains.
			Deactivate curtain #3 (C3, outer curtain).
	E5 - orange LED flashes 5 times	The sensor receives too much AIR energy.	Ensure proper mounting height.
			Turn on the visible red spots and adjust the angle of the AIR curtains.
		The sensor is disturbed by external elements.	Eliminate the cause of disturbance (lamps, rain cover, etc).
	E8 - orange LED flashes 8 times	AIR power emitter is faulty.	Replace sensor.
	ORANGE LED is on	The sensor encounters a memory problem.	Cut and restore power supply. If ORANGE LED illuminates again, replace the sensor.

GREEN LED

	GREEN LED illuminates sporadically	The sensor is disturbed by rain and/or leaves.	Increase radar immunity filter and adjust the radar field angle.
		Ghosting created by door movement.	Change radar field angle.
		The sensor vibrates.	Check if the sensor and door header is secure.
			Check position of cable and sensor cover.
		The sensor sees the door or other unwanted moving objects.	Remove the objects if possible.
			Change radar field size, angle, or immunity.

troubleshooting continues on the next page

TROUBLESHOOTING

OTHER

	The LED and the LCD displays are off	No power to sensor.	Check wiring.
			Check for correct power supply.
	Door cycles open and remains open	Door control monitoring set to Active High.	Set test logic to Active High.
		Safety output is set incorrectly.	Set the safety output required for the door control.
	The reaction of the door does not correspond with the LED signal	Incorrect output configuration / wiring.	Ensure that the sensor output configuration matches what the door control is expecting.
			Check sensor wiring.
	The LCD or remote control does not react	Batteries dead.	Replace batteries.

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.

AAADM ANSI DASMA DHI IDA

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