IS40 / IS40 XL

Motion and presense sensor for automatic industrial doors

Other use of the device outside of its permitted purpose cannot be guaranteed by the manufacturer.
The manufacturer cannot be held responsible for incorrect installations or inappropriate adjustments of the sensor.

IS40: for normal to high mounting 8 ft - 16 ft
IS40 XL: for low mounting 6.5 ft - 11.5 ft

DESCRIPTION

1. push buttons
2. LED's
3. infrared detection (AIR)
4. radar angle
5. radar detection
6. sensor angle indicator
7. bracket
8. cable

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

TECHNICAL SPECIFICATIONS

Supply voltage:	12V to 24V AC ±10%; 12V to 24V DC +10% / -3%
Power consumption:	< 3.5 W
Mains frequency:	50 to 60 Hz
Output:	2 relays (free of potential change-over contact)
Max. contact voltage:	42 V AC/DC
Max. contact current:	1 A (resistive)
Max. switching power:	30 W (DC) / 48 VA (AC)
Mounting height:	IS40: 8 ft - 16 ft; IS40 XL: 6.5ft - 11.5ft*
Temperature range:	from -22 °F to + 140 °F
Humidity:	0 - 95% non condensing
Degree of protection:	IP65 / NEMA4
Dimensions:	5 in (L) x 4 in (H) x 3.75 in (W)
Materials:	ABS and polycarbonate
Weight:	14 oz
Cable length:	32 ft / 9.7 m
Norm conformity:	R&TTE 1999/5/EC; EMC 2004/108/EC, R&TTE: 1999/5/EC

Technology:	microwave doppler radar	active infrared (AIR)
Transmitter frequency/wavelength:	24.150 GHz	875 nm
Output holdtime:	0.5 s to 9 s	0.5 s
Transmitter power density:	< 5 mW/cm²	< 250 mW/m²
Detection mode:	motion	presence
Detection field:	IS40:13ft x 16.5ft; IS40 XL:13ft x 6.5ft**	IS40:10ft x 10ft; ***
		IS40XL:7.5ft x 7.5 ft ***
Min. detection speed:	2 in/s	0 in/s to activate detection
Reaction time:	100 ms	250 ms
Tilt angle:	-8° - 22° (relative to sensor front face)	15° - 45°

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

* detertimes field size
** measured at 30°, field size 9, mounting height: 16 ft, XL: 11.5 ft
*** Zone detected with the Spotfinder, ie slightly larger than the effective detection field

PRECAUTIONS

- This device IS NOT intended for use as a safety sensor.
- Not recommended for dynamic enviornments. (snow, rain, fog, etc.)
- Shut off all power before attempting any wiring procedures.
- Maintain a clean & safe environment.
- Constantly be aware of pedestrian/vehicle traffic around the area.
- Always stop pedestrian/vehicle 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 charge.
- Always check placement of all wiring before powering up to insure that moving parts will not catch any wires and cause damage to equipment.
- Ensure compliance with all applicable safety standards upon completion of installation.
- DO NOT attempt any internal repair of the sensor. 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 and will result in a voided product warranty.

LED- SIGNAL

Activation/Pulse detection

Presence detection

LED flashes
Parameter indication for manual setup
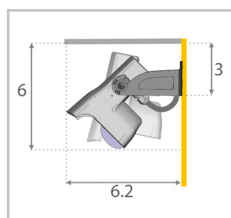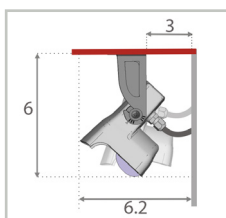
LED flashes quickly

Setup

LED flashes
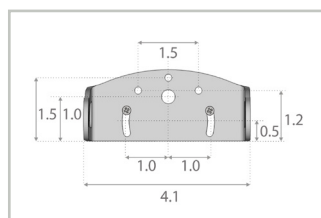Value indication for manual setup

DIMENSIONS (inches)

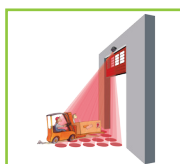Wall mounting

Ceiling mounting
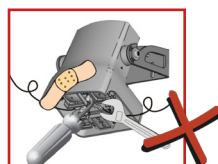
Bracket dimensions

SAFETY INSTRUCTIONS

Only trained and qualified personnel may install and setup the sensor.

After installation, save an access code to lock the sensor.

Test the sensor for proper performance before leaving the premises.

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

The installer of the door system is responsible for carrying out a risk assessment and installing the sensor and the door system in compliance with applicable national and international regulations and standards on door safety.
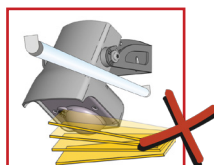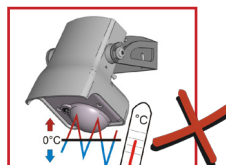
MOUNTING TIPS
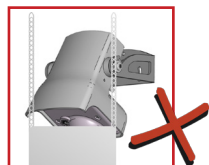
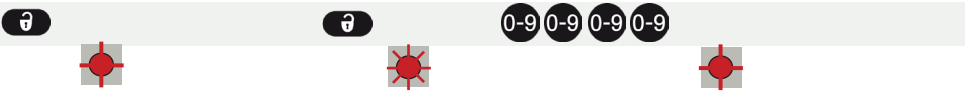Do not cover the sensor.
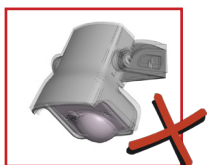
Avoid extreme vibrations.

Avoid proximity to neon lamps or moving objects.

Avoid exposing the sensor to sudden temperature changes.

HOW TO USE THE REMOTE CONTROL?

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

If the red LED flashes quickly after unlocking, enter an access code from 1 to 4 digits.
If you do not know the access code, **cut and restore the power supply** and within the first minute, you can access the sensor without introducing any access code.

ADJUSTING ONE OR MORE PARAMETERS

CHECKING A VALUE
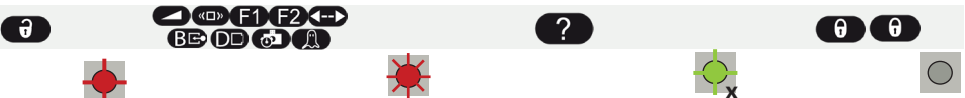
The number of flashes indicates the value of the chosen parameter.

RESTORING TO FACTORY VALUES

SAVING AN ACCESS CODE

The access code is recommended for sensors installed close to each other.
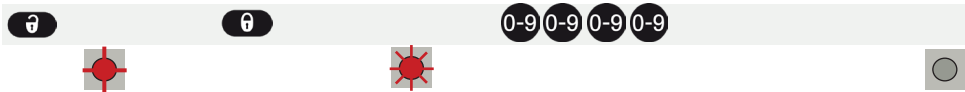
DELETING AN ACCESS CODE

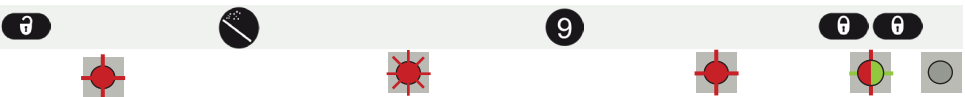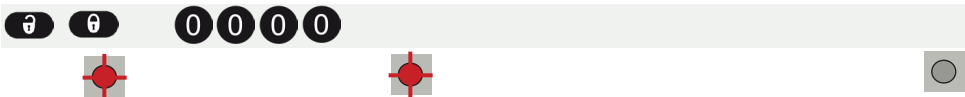If you do not know the access code, **cut and restore the power supply** and, within the first minute, you can access the sensor without introducing any access code. Additionally, within this minute an unknown access code may be deleted via the remote following the steps outlined below. Press unlock, lock, 0, 0, 0, 0.
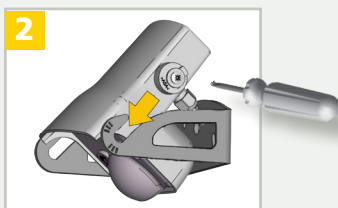
DELETING AN <u>UNKNOWN</u> ACCESS CODE

1 MOUNTING

Remove the bracket from the sensor.
Drill 2 holes accordingly.
Attach the bracket to a solid surface.

Position the sensor on the bracket and
tighten the screws

2 WIRING

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

POWER SUPPLY

RADAR OUTPUT
Motion signal

AIR OUTPUT
Presence signal

RELAY CONFIGURATION

	Motion Relay	Presence Relay
1	Active	Passive
2	Passive	Active
3	Passive	Passive
4	Active	Active

Description	Detection	No Detection
Active Relay	COM ● NO / ● NC	COM ● NO / ● NC
Passive Relay	COM ● NO / ● NC	COM ● NO / ● NC

3 SENSOR ANGLE

CEILING
45°
30°
15°
45° 30° 15°
WALL
45°
30° 15°
45°
30° 15°
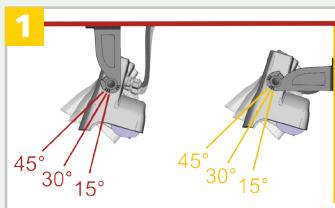
Adjust the angle of the sensor to position the detection fields.
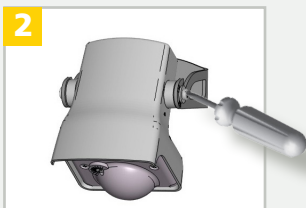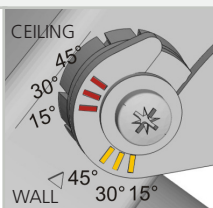
Tighten the screws firmly.

15°

DOOR

30°

RECOMMENDED

DOOR
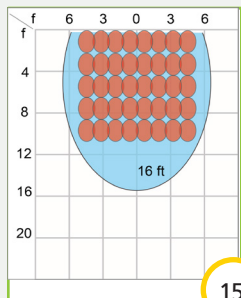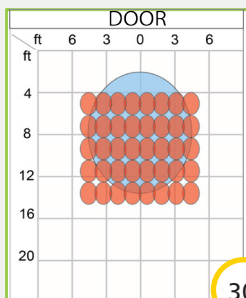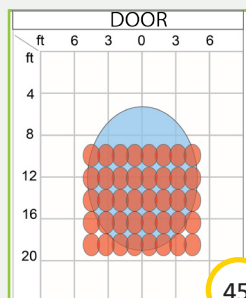
45°

- The graphics above are not to scale and for illustration purposes and represent approximate detection fields when mounted at 16 ft./4.9m. AIR-Infrared field = emitting spots detectable by using the Spotfinder. The actual detection field is slightly smaller and influenced by external factors.
- It's important to adjust the sensor angle to position the deteciton fields correctly for your application. Utilizing a mounting bracket, sensor location and reveal will dictate the sensor angle for your application.

4 RADAR FIELD AND AIR PATTERN

1
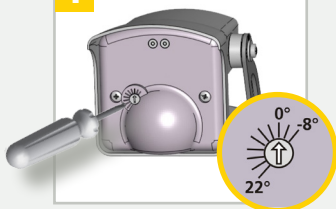
By turning this screw, the radar field angle can be adjusted from -8° to +22°.

0°
-8°
22°

2 0-9
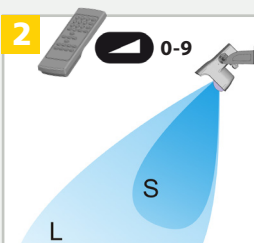
Adjust the field size. S = 2, L = 7.

S

L

p. 6

3 ⟪□⟫ 1-6

30°
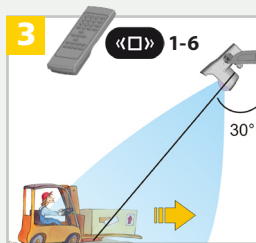
Choose the right detection filter for your application.

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The total angle is the sum of the sensor angle and the radar field angle. All detection field dimensions were measured in optimal conditions and a sensitivity value of 7.

IS40

f	6	3	0	3	6

4 — 8 ft
8 — 11.5 ft
12 — 16 ft
16
20

-8°

Sensor angle: 30°
Radar field angle: -8°
Total angle: 22°

f	6	3	0	3	6

4
8 — 8 ft
12 — 11.5 ft
16 — 16 ft
20

0°

Sensor angle: 30°
Radar field angle: 0°
Total angle: 30 °

f	6	3	0	3	6

4
8
12 — 8 ft
16
20 — 11.5 ft
16 ft

11°

Sensor angle: 30°
Radar field angle: +11°
Total angle: 41°

IS40 XL

f	6	3	0	3	6

4 — 8 ft
10 ft
8 — 11.5 ft
12
16
20

-8°

Sensor angle: 30°
Radar field angle: -8°
Total angle: 22°

f	6	3	0	3	6

4 — 8 ft
10 ft
8 — 11.5 ft
12
16
20

0°

Sensor angle: 30°
Radar field angle: 0°
Total angle: 30 °

f	6	3	0	3	6

4 — 8 ft
10 ft
8 — 11.5 ft
12
16
20

11°

Sensor angle: 30°
Radar field angle: +11°
Total angle: 41°

POSSIBLE REMOTE CONTROL SETTINGS *(motion sensing)*

| | 🔒 | ⬛ | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 🔑 🔑 |

		XXS	XS	S	>	>	>	>	**L**	XL	XXL
FIELD SIZE (SENSITIVITY)	◢	XXS	XS	S	>	>	>	>	**L**	XL	XXL
HOLD-OPEN TIME	🕐	**0.5 s**	1 s	2 s	3 s	4 s	5 s	6 s	7 s	8 s	9 s
DETECTION MODE	◀--▶		bi	**uni**	uni AWAY			

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

| | 🔒 | ⬛ | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 🔑 🔑 |

| DETECTION FILTER (REJECTION MODE) | «□» | **1** | 2 | 3 | 4 | 5 | 6 |

Detection of ALL TARGETS (pedestrians, vehicles and parallel traffic are detected)	Detection only of VEHICLES MOVING TOWARDS THE SENSOR (pedestrians and parallel traffic are not detected + immunity filter)
1 Detection of all kind of Targets in Motion 2 Detection of all kind of Targets in Motion + Interference Immunity	3 Low 'Pedestrian/Parallel traffic' Rejection + Interference Immunity 4 Medium 'Pedestrian/Parallel traffic' Rejection + Interference Immunity 5 High 'Pedestrian/Parallel traffic' Rejection + Interference Immunity 6 Extra High 'Pedestrian/Parallel traffic' Rejection + Interference Immunity

F1 — OUTPUT CONFIGURATION

DOOR EXAMPLE
First Line
Last Line

	PRESENCE RELAY	IS40 / IS40XL	LED
0 - 6: ALL MODES		Activates when object is in presence zone.	🔴 Red
	ACTIVATION RELAY	**IS40 / IS40XL**	**LED**
0: STANDARD MODE		Activates when motion detected.	🟢 Green
1: PULSE ON ENTRY		Activates if object motion is detected and then object enters presence zone.	
2: PULSE ON EXIT		Activates if object motion is detected and then object exits presence zone.	
3: PULSE ON ENTRY FIRST / LAST LINE (See Example to the Left)		Activates if object motion is detected and then object enters presence zone (first or last line).	
4: PULSE ON EXIT FIRST / LAST LINE (See Example to the Left)		Activates if object motion is detected and then object exits presence zone (first or last line).	
5: REMAINS ACTIVE UNTIL PRESENCE ZON E IS CLEARED (Regardless of Motion)		Activates when motion is detected and remains active until the presence zone is cleared.	
6: REMAINS ACTIVE UNTIL PRESENCE ZONE IS CLEARED (Regardless of Motion)		Activates when motion is detected and AIR is detected and remains active until the presence zone is cleared.	

AIR PATTERN SIZE AT 15° SENSOR ANGLE

Approximate default AIR pattern size using a 15° sensor tilt angle. The higher the mounting height the larger the AIR pattern.

Mounting Height	Width *	Depth *
8 ft	5 ft	5 ft
10 ft	7 ft	7 ft
11.5 ft	7.5 ft	7.5 ft
13 ft	8.5 ft	8.5 ft
16 ft	10 ft	10 ft

Maximum Mounting Height	
IS40XL	11.5 ft
IS40	16 ft

* Dimensions are approximate.

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Launch a setup to make a reference picture.
Step out of the detection field and do not leave any tools inside the detection field.

Upon power-up, the sensor launches a short setup.

IMPORTANT: Perform a functional test for proper operation before leaving the site.

POSSIBLE REMOTE CONTROL SETTINGS *(presence sensing)*

		0	1	2	3	4	5	6	7	8	9	
FREQUENCY			A	B								
MAX. PRESENCE DETECTION TIME		30 s	1 min	2 min	5 min	10 min	20 min	1 h	1 h 30	2 h	*no learn	* not guaranteed
AIR-CURTAIN IMMUNITY			low	normal	high							
TARGET SIZE	F2											The target position within the AIR field is random.
AIR-PATTERN SIZE												

The target position within the "AIR" Field is random

NOTE: TARGET SIZE MUST BE CAPABLE TO FIT INSIDE THE CHOSEN AIR PATTERN SIZE

☐ FACTORY VALUES   RESETTING TO FACTORY VALUES:

IMPORTANT: Always finish an adjustment session by launching a setup *(see step 5)* and test the proper operation of the installation before leaving the premises.

TROUBLESHOOTING

LED	Problem	Cause	Solution
🔴	The door never closes and the red LED is on.	Objects in the AIR detection area.	**1** Move objects or reduce automatic learn time. **2** Wait for learn time to expire and/or Launch a setup.
⚪	The door remains closed and the LED is OFF.	The sensor power is off.	**1** Check the wiring and the power supply.
⚪	The infrared sensor does not react.	The infrared power emission is too low according to the mounting height.	**1** Lower the mounting height **2** Step out of the detection field and launch a new setup. **3** Possible target size too large.
🟢	The door opens for no apparent reason.	The sensor detects raindrops or vibrations.	**1** Make sure the detection mode is unidirectional. **2** Increase the detection filter value.
		The sensor is not installed properly.	**1** Fasten the sensor firmly.
		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 vehicle detection filter is used, but pedestrians are still detected.	The chosen value is not optimal for the application.	**1** Increase the detection filter value. **2** Change the sensor angle. **3** Increase the mounting height.
🟢 🔴	The door opens and closes constantly.	The sensor is disturbed by the door motion or vibrations caused by the door motion.	**1** Make sure the sensor is anchored properly. **2** Make sure the detection mode is unidirectional. **3** Change the sensor angle and/or radar angle. **4** Increase the detection filter value. **5** Reduce the field size.
🔴	Sporadic presence detections for no reason.	The presence detection is disturbed by rain or external environment.	**1** Set the AIR-curtain immunity to value 3. Refer to page 7.
		The sensor is not installed properly.	**1** Fasten the sensor firmly.
🔴	The red LED is permanently ON after a setup.	The sensor has failed the AIR-setup.	**1** Step out of the detection field and launch a new setup.
🟢🔴 (flashing)	The setup lasts more than 30 seconds.	The setup is disturbed.	**1** Make sure the detection field is clear and launch a new setup.
		Another sensor causes interferences.	**1** Refer to page 7 and select a different frequency for each sensor.
🔴 (flashing)	The sensor does not unlock and the red LED flashes quickly.	The sensor needs an access code to unlock.	**1** Enter the correct access code. **2** If you do not know the access code, refer to page 3 and delete an unknown code.
	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.
		The remote control is poorly aimed.	**1** Aim the remote control towards the sensor.
		The sensor is not powered.	**1** Check the power supply of the sensor.

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ACCESSORIES

10REMOTE

10SPOTFINDER
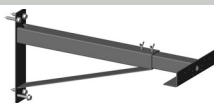
10INDBRACKET

10MINIDBRACKET

10BR3

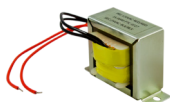**SINGLE LED TRAFFIC LIGHT**

DUAL LED TRAFFFIC LIGHT

COLUMN LIGHT

MODULAR COLUMN LIGHT

1024VAC

Upon completion of the installation or service work, at a minimum, perform a safety inspection for the type of Door/Gate per the manufacturer recommendations and/or per ANSI/DASMA guidelines for best industry practices. Some examples but not limited to are ANSI/DASMA 102, ANSI/DASMA 107, UL 325. Make certain all appropriate industry warning labels are applied. It is the responsibility of the installer/service personell to be familiar with national and local codes, standards, and regulatory requirements. BEA Inc. recommends for installers and service personnel to be factory trained for the type of door/gate system prior to performing installation or service.

BEA hereby declares that the IS40 / IS40 XL is in conformity with the basic requirements and the other relevant provisions of the directive 2004/108/EC.
Angleur, April 2011   Jean-Pierre Valkenberg, authorized representative
The complete declaration of conformity is available on our website: www.bea-industrial.be

OPEN UP NEW HORIZONS

Only for EC countries: According the European Guideline 2002/96/EC for Waste Electrical and Electronic Equipment (WEEE)

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

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