1 DESCRIPTION

- The IS40 uses Microwave technology for motion detection and Active Infrared technology for presence detection.

2 SPECIFICATIONS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SENSOR TILT ANGLE</td>
<td>15° to 45°</td>
</tr>
<tr>
<td>SUPPLY VOLTAGE</td>
<td>12 to 24VAC ±10% / 12 to 24VDC ±30% / -5%</td>
</tr>
<tr>
<td>MAIN FREQUENCY</td>
<td>50 to 60Hz</td>
</tr>
<tr>
<td>POWER CONSUMPTION</td>
<td>&lt; 3.5W</td>
</tr>
<tr>
<td>RELAY OUTPUT</td>
<td>2 Relays with switch-over contact (voltage free) 60 VDC / 125 VAC 1A (resistive) 30W (DC) / 60VA (AC)</td>
</tr>
<tr>
<td>INSTALLATION HEIGHT</td>
<td>IS40: 8 ft - 16 ft (2.5 - 6 m) IS40XL: 6.5 ft - 11.5 ft (2 - 3.5 m)</td>
</tr>
<tr>
<td>TEMPERATURE RANGE</td>
<td>-22°F (-30°C) to + 140°F (60°C)</td>
</tr>
<tr>
<td>PROTECTION DEGREE</td>
<td>IP65 / NEMA 4</td>
</tr>
<tr>
<td>NORM CONFORMITY</td>
<td>Electromagnetic compatibility (EMC) according to 2004/108/EEC, R&amp;TTE: 1999/5/EC</td>
</tr>
<tr>
<td>DIMENSIONS (D X W X H)</td>
<td>5 in. X 4 in. X 3.75 in. (127mm x 102mm x 96mm)</td>
</tr>
<tr>
<td>MATERIAL</td>
<td>ABS Polycarbonate</td>
</tr>
<tr>
<td>COLOR</td>
<td>Black Transparent Purple</td>
</tr>
<tr>
<td>CABLE LENGTH</td>
<td>32 feet (10m)</td>
</tr>
</tbody>
</table>

- **TECHNOLOGY**
  - **MICROWAVE DOPPLER RADAR**
    - Radiated Frequency: 24.175 GHz
    - Radiated Power Density: < 5 mW/cm²
    - Detection Mode: Presence
    - Maximum Detection Field: IS40: 13 ft x 16 ft (4m x 5m) IS40XL: 13 ft x 6.5 ft (4m x 2m)
    - Output Hold Time: 0.5 sec. to 9 sec.
    - Reaction Time: 100ms / 250ms
    - Minimum Target Speed: 2 in/sec (5cm/sec) in sensor axis / 0 in/sec (0cm/sec)
    - LED Signal: Green = Activation Relay Red = Presence Relay
    - Radar Angle / Sensor Angle: -8° to 22° (relative to sensor front face)
  - **INFRARED**
    - Radiated Frequency: 875 nm

3 PRECAUTIONS

- This device IS NOT intended for use as a safety sensor.
- Not recommended for dynamic environments. (snow, rain, fog, etc.)
- Shut off all power before attempting any wiring procedures.
- Maintain a clean & safe environment when working in public areas.
- 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.

4 DIMENSIONS

Wall mounting  Ceiling mounting  Bracket dimensions

5 INSTALLATION TIPS

The sensor must be firmly fastened to prevent vibration.
DO NOT cover the sensor.
Avoid exposing the sensor to sudden temperature changes
Avoid proximity to neon lamps, fluorescent lights or moving objects
The sensor must not have any object likely to move or vibrate in its sensing field.

6 MOUNTING

Remove the bracket from the sensor.
Drill 2 holes accordingly. If necessary, drill an additional hole to facilitate wire routing. Fix the bracket firmly.

Position the sensor on the bracket and fasten the angle adjustment screws.
7 WIRING AND RELAY CONFIGURATION

Notes:
1. It is important to adjust sensor angle first to position IR field correctly. Next adapt angle of radar field as shown in step 10 by using tilt angle adjustment screw.
2. To obtain an IR pattern that's straight down (closest to the door threshold); wall mounted sensors need to be set at 20°; sensors mounted on an extension bracket or out from the wall should be set to approximately 15°.
3. The graphics above are not to scale and for illustration purposes and represent an approximate IR detection field when at 16 ft. The point of emphasis is to show the IR detection area with respect to the sensor angles.

8 SENSOR ANGLE

Adjust the angle of the sensor to position the detection fields.

Tighten the screws firmly.
Approximate default IR pattern size using a 15° sensor tilt angle. The higher the mounting height the larger the IR pattern.

<table>
<thead>
<tr>
<th>Mounting Height</th>
<th>Width</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>A = 8 ft</td>
<td>5 ft</td>
<td>5 ft</td>
</tr>
<tr>
<td>B = 10 ft</td>
<td>7 ft</td>
<td>7 ft</td>
</tr>
<tr>
<td>C = 11.5 ft</td>
<td>7.5 ft</td>
<td>7.5 ft</td>
</tr>
<tr>
<td>D = 13 ft</td>
<td>8.5 ft</td>
<td>8.5 ft</td>
</tr>
<tr>
<td>E = 16 ft</td>
<td>10 ft</td>
<td>10 ft</td>
</tr>
</tbody>
</table>

Maximum Mounting Height
- IS40XL: 11.5 ft
- IS40: 16 ft

* Dimensions are approximate.

Use of BEA Spotfinder may be utilized to locate IR field.

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**MICROWAVE FIELD ADJUSTMENTS**

By turning this dial, the radar field angle is reduced or increased (from -8° to +22°).
Refer to page 5.

Adjust the Microwave field size.
Refer to page 5.

Choose the correct rejection mode for your application.
Refer to page 6.
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**

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

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

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

**IS40XL**

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

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

Sensor angle: 30°  
Radar field angle: +11°  
Total angle: 41°
**REMOTE CONTROL PARAMETERS**

### Motion Detection Settings

**SENSITIVITY**
- XXS
- XS
- S
- >
- >
- >
- XL
- XXL

**DETECTION MODE**
- bi = two-way detection
- uni = one-way detection towards sensor
- uni depart = one-way detection away from sensor

**ACTIVATION RELAY HOLD TIME**
- .5 s
- 1 s
- 2 s
- 3 s
- 4 s
- 5 s
- 6 s
- 7 s
- 8 s
- 9 s

**REJECTION MODE**

<table>
<thead>
<tr>
<th>REJECTION MODE</th>
<th>FUNCTION DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: bi</td>
<td>Detection of all kind of Targets in Motion</td>
</tr>
<tr>
<td></td>
<td>2: uni</td>
</tr>
<tr>
<td></td>
<td>3: uni depart</td>
</tr>
<tr>
<td></td>
<td>4: bi</td>
</tr>
<tr>
<td></td>
<td>5: uni depart</td>
</tr>
<tr>
<td></td>
<td>6: bi</td>
</tr>
</tbody>
</table>

### OUTPUT CONFIGURATION

**PRESENCE RELAY**
- 0 - 6: ALL MODES
- Activates when object is in presence zone.

**ACTIVATION RELAY**
- 0: STANDARD MODE
- Activates when motion detected.
- 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 ZONE 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 IR is detected and remains active until the presence zone is cleared.

### IR / Presence Settings

**FREQUENCY**
- low
- high

**IR IMMUNITY**
- low
- medium
- high

**AUTOMATIC LEARN TIME**
- 30 s
- 1 min
- 2 min
- 5 min
- 10 min
- 20 min
- 1 h
- 1.5 h
- 2 h
- ∞

**Note:** The automatic learn time is the amount of time a static object needs to be in the IR field before the sensor will learn it.
IR / Presence Settings (Continued)

The target (Target Size) can vary location within the field (IR Pattern Size)

<table>
<thead>
<tr>
<th>IR PATTERN SIZE</th>
<th>AVAILABLE TARGET SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><img src="image1" alt="Target Size 1" /></td>
</tr>
<tr>
<td>2</td>
<td><img src="image2" alt="Target Size 2" /></td>
</tr>
<tr>
<td>3</td>
<td><img src="image3" alt="Target Size 3" /></td>
</tr>
<tr>
<td>4</td>
<td><img src="image4" alt="Target Size 4" /></td>
</tr>
<tr>
<td>5</td>
<td><img src="image5" alt="Target Size 5" /></td>
</tr>
<tr>
<td>6</td>
<td><img src="image6" alt="Target Size 6" /></td>
</tr>
<tr>
<td>7</td>
<td><img src="image7" alt="Target Size 7" /></td>
</tr>
</tbody>
</table>

= FACTORY VALUES
**REMOTE CONTROL PARAMETERS (CONTINUED)**

Check parameter values

**SENSOR SETUP SEQUENCE / FACTORY VALUES / ACCESS CODE**

**IMPORTANT:** ENSURE TO SAVE ANY CHANGES DURING THE ADJUSTMENT SESSION VIA PRESSING **LOCK**.

**IMPORTANT:** ALWAYS FINISH AN ADJUSTMENT SESSION BY LAUNCHING A SETUP.

**RESETTING TO FACTORY VALUES**

**SETTING AN ACCESS CODE**

**DELETING AN ACCESS CODE**

If you do not know the access code, cycle the power supply. Within 1 minute, you can access the sensor without introducing any access code or delete the existing access code per the instructions above.

**TROUBLESHOOTING**

**SYMPTOMS**

- The door never closes and the red LED is on.
  - Objects in the IR detection area.
  - Move objects or reduce automatic learn time.
  - Wait for learn time to expire and/or Launch a setup.

- The red LED is on during rain or snow.
  - The presence detection is disturbed by the rain or snow.
  - Increase the immunity of the IR field. (value 2 or 3 respectively).

- The red LED is permanently on after a setup.
  - Setup has failed due to motion in the IR field during setup.
  - Launch a setup with the IR area clear of moving objects.

- The door keeps recycling open or closed.
  - The sensor detects door movement.
  - Change the sensor angle and/or microwave field angle.
  - Increase microwave rejection and/or IR immunity. Secure mounting bracket.

- The door never closed and the LED(s) is off.
  - Output relay(s) could be wired or configured backwards.
  - Change wiring at output(s) and/or change relay configuration.
14 TROUBLESHOOTING (CONTINUED)

**SYMPTOMS**

- Application requires an access code or sensor will not unlock after entering an access code.
- The green LED is on during rain or snow.
- The sensor detects objects outside of its detection field.
- The sensor does not respond to the remote control.

**POSSIBLE CAUSES**

- You must enter a code or the wrong code was entered.
- The microwave detection is disturbed by the rain or snow.
- To much reflection due to a metallic environment.
- The batteries in the remote control are not installed properly, dead or the remote is poorly aimed.
- The sensor is not powered.

**CORRECTIVE ACTION**

- Cycle the power. No code is required to unlock during the first minute after powering on. Unlock, then lock and enter a new access code or “0000” to delete the current access code.
- Increase the microwave rejection.
- Consider using the unidirectional mode under the Detection Mode.
- Increase the microwave rejection.
- Verify or replace batteries or aim remote towards sensor.
- Check the power supply of the sensor.

15 ACCESSORIES

- Telescoping HD Bracket P/N: 10HDBRACKET
- Remote control P/N: 10REMOTE
- Spotfinder P/N: 10SPOTFINDER
- Transformer P/N: 1024VAC

16 COMPANY CONTACT

Do not leave problems unresolved. If a satisfactory solution cannot be achieved after troubleshooting a problem, please call BEA, Inc. If you must wait for the following workday to call BEA, leave the door inoperable until satisfactory repairs can be made. Never sacrifice the safe operation of the automatic door or gate for an incomplete solution.

Our Service Technicians can be called 24 hours a day, 7 days a week. For more information visit www.beasensors.com.

For email support contact us at: Tech_Services@beainc.com

<table>
<thead>
<tr>
<th></th>
<th>Phone: 1-800-523-2462</th>
<th>Fax: 1-888-523-2462</th>
</tr>
</thead>
<tbody>
<tr>
<td>After Normal Business Hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>West / Mexico</td>
<td>1-888-419-2564</td>
<td>Central</td>
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<td>1-800-407-4545</td>
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<tr>
<td>Central</td>
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<td>AK, MI, WI, TX, Canada</td>
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<td>1-866-836-1863</td>
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<tr>
<td>East</td>
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<td></td>
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<td>1-866-249-7937</td>
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