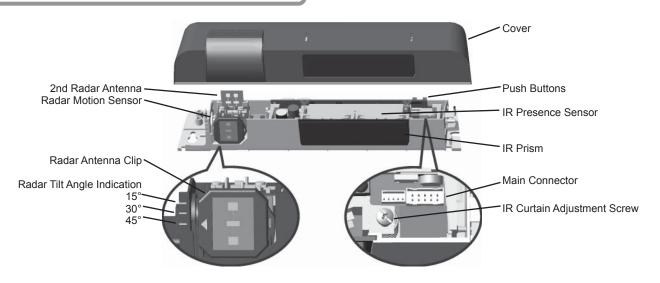


WIZARD II SMR USER'S GUIDE

COMBINED RADAR ACTIVATION AND ACTIVE INFRARED SAFETY SENSOR

1 Description



2 Specifications

DESCRIPTION	SPECIFICATION
Supply voltage	12 to 24 VAC / VDC: -5% to +10%
Power frequency	50 / 60 Hz
Power consumption	< 3 W
Mounting height • Standard • High	5'9" to 8'2" 8'2" to 13"
SMR data input	10 to 30 VDC
Delay of the output activation after stimulation	Transistor: < 1ms
3-color LED	RED: presence detection GREEN: motion detection ORANGE: monitoring process
Temperature range	-30°F to +131°F
Degree of protection	NEMA 3S / (IP54)
Product conformity	R&TTE 1999/5/EC & EMC 89/336/EEC BZT Germany, TÜV
Dimensions	10.4" x 2.2" x 1.9"
Weight	.55 lbs / 250 g
Housing material	ABS & LURAN S
Color of Housing	Anthracite gray (standard), aluminum or white finish
Cable length	10' of 9-conductor cable

DESCRIPTION	MOTION SENSOR	PRESENCE SENSOR
Technology	Microwave and microprocessor Transmitter frequency: 24.125 GHz Transmitter radiated power: <20 dBm EIRP Transmitter power density: < 5 mW/cm²	Focused active infrared and Self-monitored microprocessor Spot diameter (standard): 4" max Number of spots: 24 or 12 spots by curtain Number of curtains: 2
Detection field (standard) • Wide field • Narrow field	13'0" W x 6'6" D 6'6" W x 8'2" D	6'6" W x 13.75" D 3'3" W x 13.75" D

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2 Specifications (Continued)

DESCRIPTION	MOTION SENSOR	PRESENCE SENSOR
Detection mode:	Minimum detection speed 2 inches / sec. (measured in the sensor axis)	Response time: < 128ms
Angle:	From 15° to 50° in elevation (adjustable)	From - 4° to + 4° (adjustable)
Output specification:	Relay (free of potential change-over contact): • Max contact voltage: 42V AC/DC • Max contact current: 1A (resistive) • Max switching power: 30W (DC) / 60VA (AC)	Transistor (optocoupled transistor) • Max output current: 100 mA • Max switching power: 48 VDC
Output hold-time	0.5s to 9s (adjustable)	1s (fixed)
Manual adjustment:	orientation of sensing field (mechanically) shape of the sensing field (choice of antenna) multiple functions (using push buttons)	orientation of sensing field shape of the sensing field (choice of front lens) multiple functions (by push buttons)
Remote control adjustments	Sensitivity Hold time Detection mode Immunity Output configuration	Sensitivity Auto-learn time Monitoring mode Number of Curtains Relay / Transistor configuration Rain Mode Snow Mode

3 Precautions



- □ Shut off all power going to header before attempting any wiring procedures.
- Maintain a clean & safe environment when working in public areas.
- ☐ Constantly be aware of pedestrian traffic around the door area.

CAUTION

- 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 charge.
- Always check placement of all wiring before powering up to insure 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 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 will result in a voided product warranty.

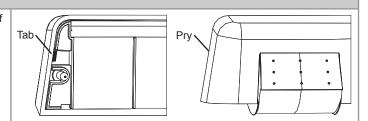
4 Pre Installation Check

- When preparing to wire multiple devices together for a "system" configuration, it is best to ensure the correct operation of each device independently before starting to help reduce troubleshooting time later in the event of a discrepancy.
- 2. Prior to installing any equipment, ensure the correct line voltage and stability. When applying equipment on a new installation utilizing new electrical supply circuits, always ensure that correct line voltage exists and is stable. Remember to shut the power back off after this is checked and before performing any wiring to the system.

5 Installation

Remove Sensor Cover

 Remove cover from unit by gently prying the tab on the backside of the sensor housing or if the sensor is installed on the header insert a screwdriver behind the unit and gently pry off the cover.



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5 Installation (Continued)

2 Mount Sensor



 Attach mounting template to center of door header as shown above. Template should be 0" to 2" above bottom edge of header. Drill hole marked for wire passage and drill pilot holes for screw mounting.

NOTE: Flush mount with bottom of header is necessary for all negative IR angles.



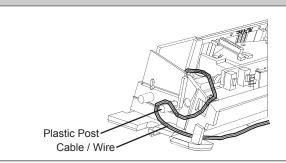
- 2. Mount the sensor at a maximum height of 2" from the bottom line of the door operator.
- Insert mounting screws approximately halfway in and install the Wizard on the screws. When in place, tighten screws to secure to header

NOTE: Leave cover off until mechanical adjustments are complete.

3 Cable Routing

- 1. With Wizard in place, locate the enclosed cable and feed the stripped end through the wire passage hole in the header.
- Leave enough slack to allow connection to the Wizard and proper routing of wire around the plastic post.

NOTE: Observe proper routing of the cable as shown. This is to divert rainwater from the Wizard if water should run down the cable. Proper routing of the wire also provides easier installation of the cover.



4 Sensor Wiring

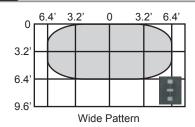
1. When connecting to a microprocessed control box, the motion output and presence output wires may be connected to separate inputs or may also be connected to a mutual input. Some controls may only have an activation input, while others may have an activation input, as well as a safety (or presence) input.

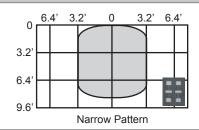
salety (or presence) input.				
Wiring the Wizard to an Automatic Door Control with Separate Activation and Safety Inputs				
0	Color	Microprocessed Controls		
P	Red	12 to 24 VAC / VDC: -5% to +10%	• PWR: Red - 12 to 24 VAC / VDC: -5% to +10% C	
Ţ	Black	12 to 24 VAC / VDC: -5% to +10%	PWR: Black - 12 to 24 VAC / VDC: -5% to +10%	
0	White	Common at Door Control	COM: White - Common at Door Control	
N	Green	Activation Input at Door Control	R COM: Brown - Common at Door Control	
	Brown	Common at Door Control	D • SAFETY: Blue - Safety at Door Control L	
1	Blue	Safety Input at Door Control		
Wiring the Wizard to an Automatic Door Control with Activation and Safety Wired to One Input				
	Color	Controls Without Safety Circuit		
O P	Red	12 to 24 VAC / VDC: -5% to +10%	PWR: Red - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% to +10% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC: -5% C PWR: Black - 12 to 24 VAC / VDC	
Т	Black	12 to 24 VAC / VDC: -5% to +10%	Z • COM: White - Common at Door Control	
1 0	White	Common at Door Control	A ACTIV: Green - Activation at Door Control	
N	Green	Activation Input at Door Control	COM: Brown - Connected to White Common SAFETY: Blue - Connected to Green Activation	
_	Brown	Common at Door Control		
2	Blue	Activation Input at Door Control	Brown and Blue may be connected to White and Green	
		Wiring the Wizard to an Automatic Door Cor	ntrol with Activation and Safety Signal through Relay Only	
0	Color	Controls Without Safety Circuit	W	
P	Red	12 to 24 VAC / VDC: -5% to +10%	PWR: Black - 12 to 24 VAC / VDC: -5% to +10% O	
T	Black	12 to 24 VAC / VDC: -5% to +10%	COM: White - Common at Door Control	
1 0	White	Common at Door Control	R R R R R R R R R R	
N	Green	Activation Input at Door Control	D	
_	Brown	Not Used	White and Green provide output for motion and presence detection	
3	Blue	Not Used	On Remote Control Set: F1 To 1	

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6 Mechanical Adjustments

Radar Motion Sensing Field: Width

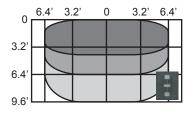


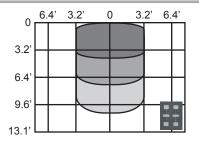


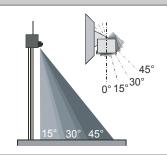


1. Insert the desired microwave antenna for a wide or narrow field of detection. The optional narrow field antenna is located in the slot behind the mounted antenna as shown. To remove the antenna, carefully remove the protective cover and change the antenna. Once the proper antenna is in place, adjust the angle of antenna as necessary.

Radar Motion Sensing Field: Depth

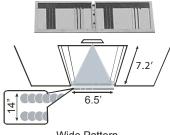




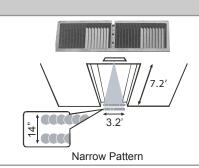


- 1. The position of the sensing field is determined by the vertical angle of the planar antenna. The angle is adjusted by gently rotating the antenna forward or backward. The default angle is 30°.
- 2. The tilt angle is determined by the position of the sensor with relation to the face of the door. A 15° angle will result in the pattern being drawn back toward the door. A 45° angle will place the pattern further away from the door. Be certain to walk test the detection field and ensure compliance with applicable ANSI standards.

3 IR Presence Sensing Field: Width

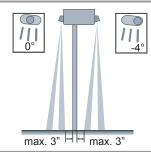


Wide Pattern



1. Install the lens for the desired IR pattern. The wide pattern offers 2 curtains of 24 overlapping spots and the narrow pattern offers 2 curtains of 12 overlapping spots. When installing the lens ensure the smooth part of the lens is installed facing outward.

4 IR Presence Sensing Field: Depth







Sensor Plastic Pin Indicator

Sensor Adjustment Screw

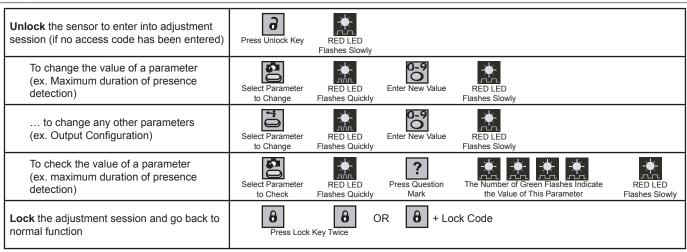
1. The IR pattern may be adjusted by moving the pattern nearer or further away from the face of the door by adjusting the tilt angle from +4° to -4°. A counterclockwise rotation of the adjustment screw will move the curtain further away from the door and clockwise rotation will move the curtain toward the door. Precise location of the IR beam may be found by using BEAs Spotfinder P/N 10SPOT.

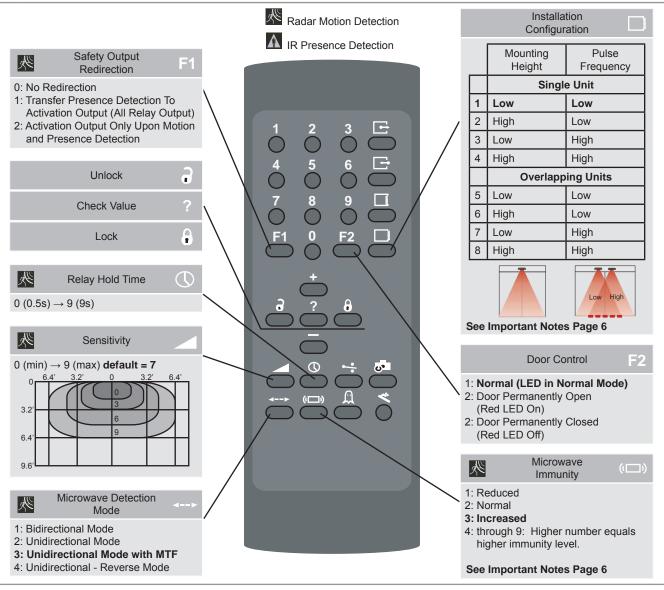
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7 Remote Control Adjustments

1 Important Remote Control Adjustments

Every programming session begins by unlocking the sensor. Thereafter a program setting may be altered by pressing the desired function key followed by the desired value for that function. When all programming is complete press the lock key twice to retain settings. Use the following as a guide:



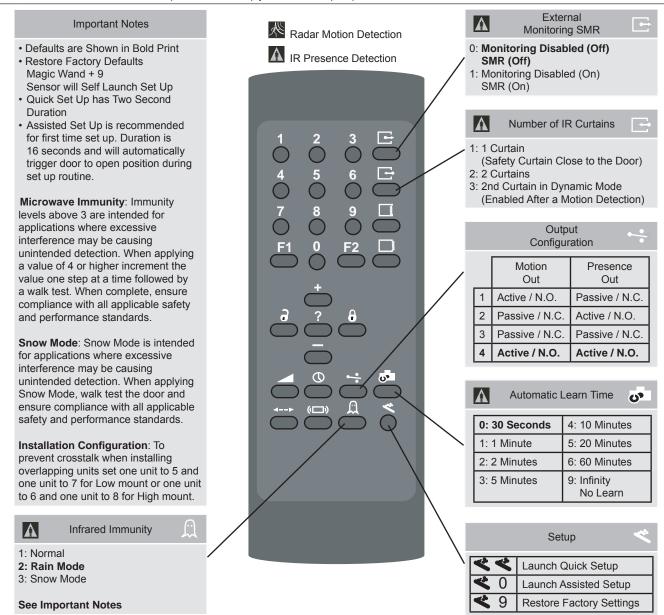


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7 Remote Control Adjustments (Continued)

2 Important Remote Control Adjustments

Rain Mode and Snow Mode: The Rain Mode or Snow Mode is designed to minimize the effect of heavy rain or snow on the Wizard's auto learn requirements. When programmed for these modes, the mode will be enabled after the Wizard goes through two auto learn cycles with in six detections of the sensor. To exit the special mode, simply launch a setup or power the sensor off and back on.



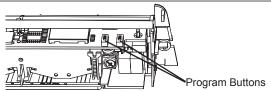
Launch Set Up of Infrared Curtains 9 Unlock the sensor to enter into adjustment session Press Unlock Key RED LED Flashes Slowly The sensor performs a door opening and 8 8 To Launch an Assisted Set Up closing cycle to check the influence of the → Required after mechanical adjustments of RED / GREEN LED door leaves to the safety curtains. See the IR sensor module Alternating Flashes Troubleshooting if RED LED flashes quickly Required once after first installation after set up.

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Manual Set Up Without Remote

Manual Set Up

Set up of the Wizard may be accomplished by the use of two Wizard mounted programming buttons. The procedures below indicate how to program using these buttons.



To begin programming:	Briefly press the right button and move away from the sensing patterns.
To reset the unit to factory defaults including access code:	Press and hold both buttons simultaneously until both Red and Green LEDs flash alternately.
To customize the settings from factory defaults:	To enter the customizing mode: Press the right button until the LED flashes and then release. To return to standard mode: Press the right button again until the LED stops flashing and then release.
Customizing Mode:	The Red LED light indicates the number for the parameter being altered (1 flash = parameter #1). The Green LED light indicates the value for the parameter being altered (1 flash means value = 1). The Right Button enables selection of the parameter number being altered (+1 for each press). The Left Button enables alteration of the parameter (+1 for each press).
Helpful Hint:	When the sensor is wired correctly pressing and holding the left button will result in disconnecting all outputs from that sensor, allowing the door to close, if no other devices are being activated.

PARAMETER NUMBER (Altered by the right button and confirmed by RED LED)	PARAMETER	VALUES (Altered by the left button and confirmed by GREEN LED)	DEFAULT VALUE
1	Radar Sensitivity	0-9	7
2	Relay hold time	0-9	0
3	Output configuration	1-4	4
4	Auto-learn presence sensing	0-9	0
5	Detection mode	1-4	3
6	Microwave Immunity	1-9	3
7	IR Immunity	1-3	2
8	Not Used	Displays 8 Orange Flashes	Displays 8 Orange Flashes
9	SMR mode	0-1	0
10	IR curtain	1-3	3
11	Secondary Sensitivity	0-9	0
12	Height & Frequency	1-4	1
13	Output Re-Direction	0-2	0
14	Door Control Function	1-3	1

EXAMPLE: Change radar sensitivity from 7 to 9 and set hold time to 4 seconds:

Press the right button for 2 seconds, you will enter the customizing

NOTE: When the highest value for the parameter has been reached, the value will "roll over" to its lowest value (e.g. for radar

• The green LED flashes once (parameter 1) • The red LED flashes 7 times (sensitivity = 7)

mode: 1, 2, 3, then 1, 2, ...).

· Press the left button twice to move from

sensitivity = 7 to sensitivity = 9

The sensor automatically returns to standard mode if neither button has been pressed for one minute.

Press the right button once to move to Parameter 2 (relay hold time):

REQUIRED: If the IR frequency has been manually changed, to prevent the sensors from being in permanent detection, momentarily depress the right program button to launch

an assisted setup.

• The green LED flashes twice (parameter 2) • The red LED does not flash (hold time = 0 seconds)

• Press the left button four times to move from hold time = 0 to hold time = 4 seconds

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9 Power Up

1 Power Up Procedures

STEP	USER'S ACTION	RESULT
Step 1	With all wiring in place, apply power to door control and 12 to 24 VAC / VDC: -5% to +10% to Wizard. Once powered, observe LED status on the Wizard. Stop all traffic through the doorway while performing this step, and remain clear of the Wizard's detection zones.	The Wizard will show a steady red LED during the set-up procedure. Once the Wizard completes setup, the door will close and begin normal operation thereafter. Setup process takes approximately 6 seconds, if uninterrupted.
Step 2	If the sensor is being powered for the first time, because of new installation or sensor is being replaced, unlock the Wizard and Press the Magic Wand Key, followed by a number 0. Observe the LED status during setup. Once set-up is complete, the LED indication will reflect the status of the set-up. Observe the LED while standing outside of the detection zones.	NO LED UPON COMPLETION = Successful setup RED LED ON = Presence being detected -Wizard is seeing an object. GREEN LED MOMENTARILY ON = MOTION DETECTION (Wizard sees movement). Adjust microwave functions: angle, sensitivity, immunity. ORANGE LED ON = Possible fault. If LED stays on, reset power and observe LED. If it comes back on steady, replace Wizard.
Step 3	Proceed with fine tuning the mechanical, as well as the program adjustments of the Wizard. Refer to the applicable sections of this manual for altering any settings. Be sure to check: • Motion width & depth • Presence width & depth • Position of infrared curtain • Sensitivity of motion field	Sensor must always be adjusted to be in compliance with the current version of ANSI A156.10.

10 Troubleshooting

1 Troubleshooting Procedures

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Orange LED is illuminated on Wizard.	Wizard IR is in saturation Internal fault within the Wizard Faulty Power Input	Launch a new setup and remain all clear from the detection area. Remove power, then re-apply. Input power may have fluctuated beyond tolerances.
Red LED on at Wizard.	1. Wizard in detection.	1. If red LED is on at Wizard: a. Adjust infrared pattern away from the door and launch a new set-up. Refer to page 5 for infrared adjustments. Use BEA Spotfinder to accurately adjust the position of the pattern. b. If hi-intensity lights or high gloss floors are saturating the area of detection, change the Infrared Sensitivity setting to reduced sensitivity – see page 5, and launch a new set-up to re-learn the environment.
Red LED flashes for approximately 10 seconds when attempting a set-up.	Infrared curtains are too close to the door and the sensor detects a door influence.	Adjust Infrared curtain as necessary. Use of BEA's Spotfinder during this process is recommended.
Door opens when it should close.	Relay Configuration on wrong setting.	Check Relay Configuration setting.
Door will not close Red LED off at Wizard.	On-Off switch at door control in wrong position or is faulty. Improper Relay Configuration on Wizard. Faulty door control.	1. Check to insure On-Off switch for door is in the ON or AUTOMATIC position. If switch is in correct position, check switch with multi-meter for proper operation. 2. Insure correct polarity at Brown and Blue wires 3. Check Relay Configuration setting on each Wizard. Refer to page 6 for settings. 4. Remove all sensor inputs from the door control. If door remains open, fault exists with door control or motor. Refer to manufacturer's manual for further troubleshooting. If door closes with sensor inputs removed, fault exists with sensors or related wiring.
Door will not open.	On-Off switch at door control in wrong position or is faulty.	Check to insure On-Off switch for door is in ON or AUTOMATIC position. If it is in correct position, check switch with multi-meter for proper operation.

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10 Troubleshooting (Continued)

1 Troubleshooting Procedures

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Door will not open (Continued).	Wizard not detecting traffic. Faulty wiring between sensor and door control. Faulty door control.	2. Walk in and out of Wizard detection area, if red LED does not illuminate check: a. Power supply for Wizard: 12 to 24 VAC / VDC: -5% to +10% b. Check SMR setting on each Wizard. The SMR should be disabled unless system is being used with BEA's Door Control Unit (DCU). c. Check Relay Configuration for each Wizard. 3. Remove all sensor inputs from the door control. Jumper the common and activate terminals of the door control. If door does not open, fault lies within door control or motor. Refer to manufacturer's manual for further troubleshooting. If door opens, fault lies with sensors or related wiring. 4. Refer to Step 3.
Door keeps recycling open.	Wizard is seeing door. Wizard is seeing movement from unwanted objects. Wibration is triggering the Wizard.	Observe LED status on each Wizard. Green LED indicates motion detection, red LED indicates presence. If LED's are on, make sensor adjustments as necessary to eliminate unwanted detection. Check angle, sensitivity, and immunity for presence and motion. Check for moving objects in the path of detection, such as posters, banners, etc. Locate source of vibration and correct as necessary.
Wizard will not respond to remote control.	Batteries in remote are dead or are installed improperly.	Ensure batteries are installed correctly. Replace batteries: AAA 1.5 volt.
Wizard will not unlock when access code is entered.	Improper code being entered.	Reset code to the default value of 0000 by performing the following: a. Cut and restore power supply. No code is required to unlock during the first minute after powering. Reset code prior to locking.
Red LED is flashing rapidly after attempting setup.	Detection field was violated during setup of the Wizard.	Launch a new setup and insure that the detection field remains all clear until setup is complete. Wizard may be seeing the door as it is closing. Adjust infrared curtain and launch a new setup.
Wizard will not detect – door stays open.	1. Improper SMR setting.	If the Wizard is NOT being used with a BEA DCU, set SMR to a value of 0.

11 Accessories



Ceiling Adapter 10WCA



Universal Rain Cover 10URC



Spotfinder 10SPOT



Cable Adapter 20.5048

12 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 B.E.A., 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.

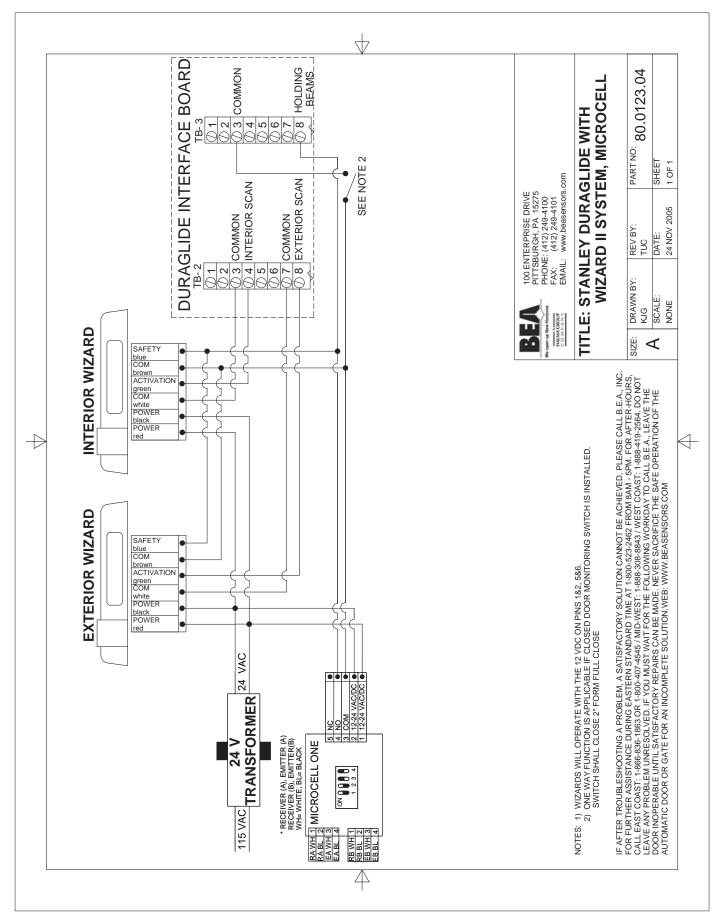
The following numbers can be called 24 hours a day, 7 days a week. For more information, visit www.beasensors.com.

 West:
 1-888-419-2564
 Mid-West:
 1-888-308-8843

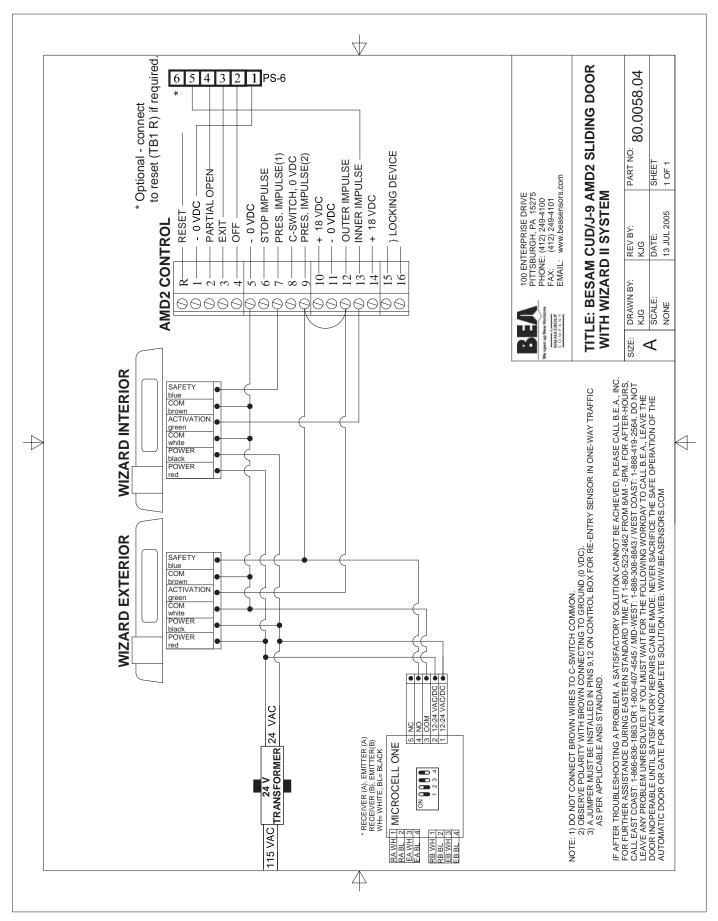
 South-East:
 1-800-407-4545
 North-East:
 1-866-836-1863

 US and Canada:
 1-866-249-7937
 Canada:
 1-866-836-1863

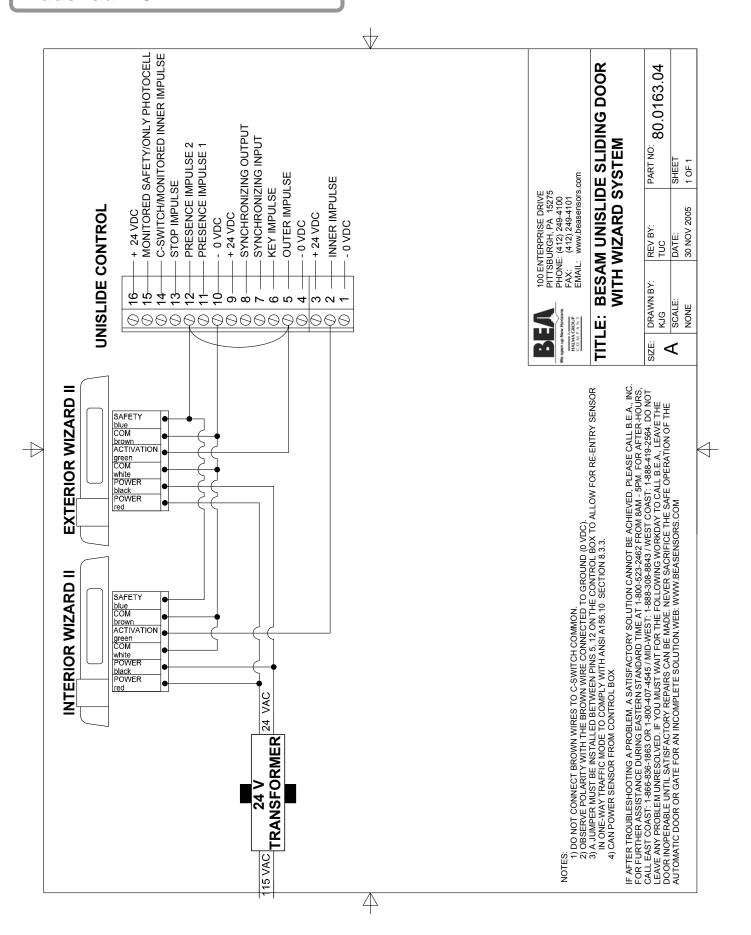
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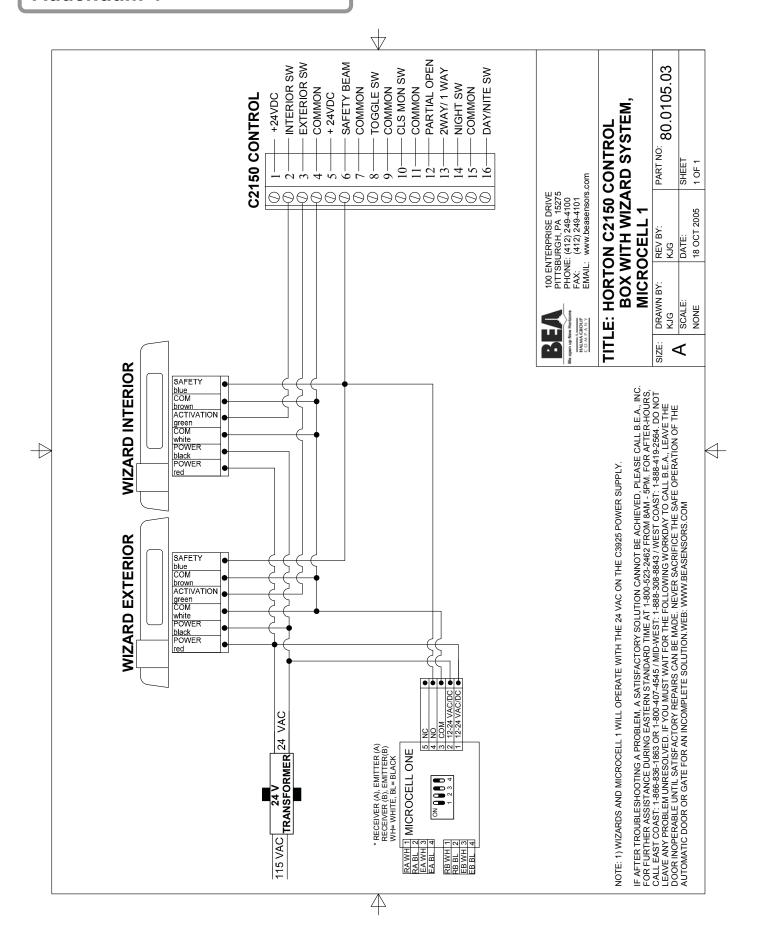
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