LZR-MICROSCAN

ENGLISH

c UL US LISTED

Stand-Alone, Door Mounted, Safety Sensor for Automatic Swing Doors (US version)

DESCRIPTION

1. tilt adjustment
2. sensor connection ports
3. sensor LED
4. end caps
5. optical window
6. plug-n-play ports
7. adjustment knob
8. LCD
9. hub LEDs

COMPONENTS

DESCRIPTION	PART NUMBER	SINGLE	PAIR/DE	UNIVERSAL
Left LZR-microscan Sensor	10LZRMICROLEFT	1	2	2
Right LZR-microscan Sensor	10LZRMICRORIGHT	1	2	2
LZR-microscan Hub	10LZRMICROSCANHUB	1	1	1
Master Sensor Harness	35.1326	1	2	2
Slave Sensor Harness	35.1327	1	2	2
Door Control Harness	20.5222	1	2	2
System Harness	20.5304	1	1	1
Eagle Harness	20.5069	1	1	1
Power Supply Harness	20.5095	1	1	1
Home Switch (Surface Mount)	50.5283	1	2	2
Door Loop / Cap Kit	70.0202 / 50.0078	1	2	2
On / Off / Hold Open Switch Jumper	20.5310	1	1	1
Left Pass-Through Sensor Endcap	41.7922	1	1	1
Right Pass-Through Sensor Endcap	41.7923	1	1	1
Sensor Spacer	70.5554	1	2	2
Spacer Mount Screws	50.0048	2	4	4
Sensor Mount Screws (Metal)	50.1818	2	4	4
Sensor Mount Scews (Wood)	50.5282	2	4	4
Endcap Screws	41.8632	4	4	4
Velcro Tabs	50.0046	2	2	2
LZR-microscan Mounting Template	75.5754	1	1	1
LZR-microscan User's Guide	75.5753	1	1	1
Power Supply	30.5558	0	0	1
On / Off / Hold Open Switch	10DOORSWITCH	0	0	1

REQUIRED TOOLS

TOOL
Power Drill
Tape Measure
Magnetic Phillips #0
Phillips #2
1/8" Drill Bit
5/16" Drill Bit
3/8" Drill Bit
1/2" Drill Bit
Pencil
Center Punch / Hammer
Wire Nuts
Wire Snips
Wire Fish

MOUNTING KITS

DESCRIPTION	PART NUMBER
Narrow Frame Door	10MICROSCANMOUNT
Glass / Fire Door	10MICROSCAN-Y

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

⚠
- The device should not be used for purposes other than its intended use. All other uses cannot be guaranteed by the manufacturer of the sensor.
- 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.
- The manufacturer of the sensor cannot be held responsbile for incorrect installations or inappropriate adjustments of the sensor.

LASER

IR laser (Class 1); wavelength 905 nm; max. output pulse power 35 W
CAUTION: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure

INSTALLATION

Avoid extreme vibrations.

Do not cover the sensor.

Avoid moving objects and light sources in detection zone.

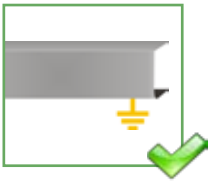
Avoid highly reflective objects in the detection zone.

MAINTENANCE

It is reccommended to clean the opitcal parts at least once per year or more if required due to environmental conditions.

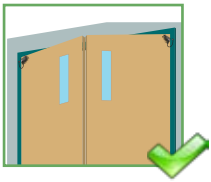
Do not use abrasive cleaning components.

SAFETY



The door conrol unit and the door header must be correctly grounded.

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



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

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

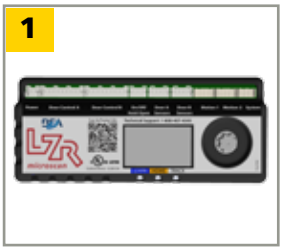
IMPORTANT:

In order to guarantee proper installation, instructions must be followed in order!

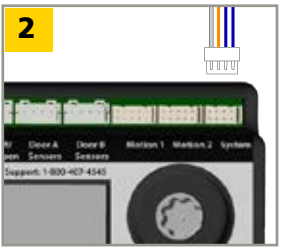
Verify operation/functionality of door control and operator prior to system installation.

PREPARATION

Hub



Install hub in door header, centered and in an easily accessible location.

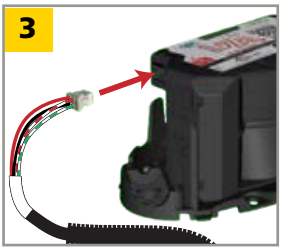


Plug System Harness into hub port labeled **System**. Do not plug in any other harnesses.

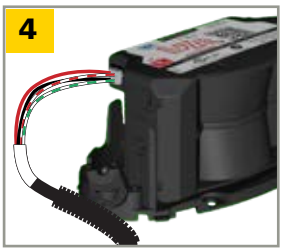
Sensors

Determine on which side of door Door Loop will be installed and cut to shortest length to avoid loop in detection zone.

Take sensor to be mounted on loop side and remove Blank Endcap closest to door hinge [1].



Route Master Sensor Harness through Door Loop.



Plug Master Sensor Harness into sensor at closest port.

Affix Door Loop to sensor with Pass-Through Endcap and three (3) screws [2].

NOTES:

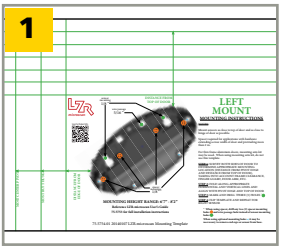
1: For left sensor, remove left Blank Endcap or for right sensor, remove right Blank endcap.

2: Pull extra Master Sensor Harness slack through Door Loop (away from sensor) before tightening endcap screws.

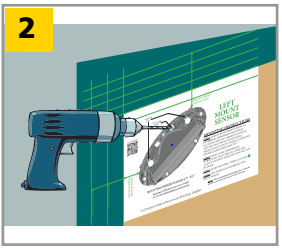
INSTALLATION

Sensors

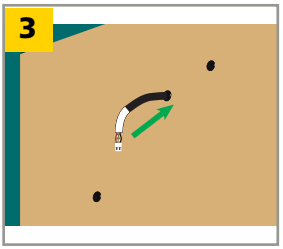
Refer to mounting template for full mounting instructions!



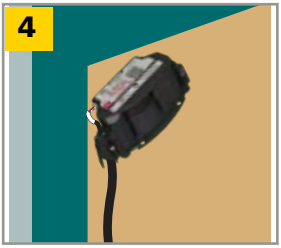
Use Mounting Template to position each sensor correctly. Check for obstructions/clearance.



Align Mounting Template, mark and drill holes [1]. Repeat on both sides of door.

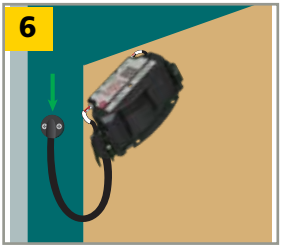


Run Slave Sensor Harness through door.



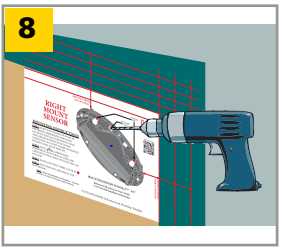
Mount sensors (using appropriate screws) by following instructions on Mounting Template.

Plug in Slave Sensor Harness at the upper most port on sensor.



Install Door Loop: drill 1/2" passage hole in header and jamb, route Master Sensor Harness, install cap.

Plug Master Sensor Harness into hub port labeled **Door A Sensors**



If necessary, repeat steps 1-7 for second door leaf using hub port **Door B Sensors**.

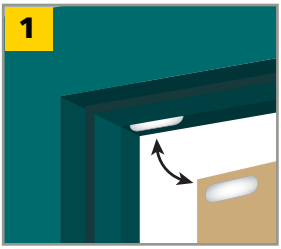
NOTES:

1. Spacer required for applications with door hardware extendeing across width of door and protruding more than 2 in.

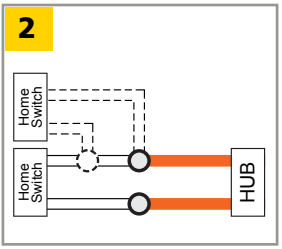
Do not apply sensor covers until system is fully operational.

Do not adjust tilt angle.

Home Switch[1]



Install Home Switch at desired location.



Wire nut white Home Switch wires to orange wires of System Harness plugged into hub[2].

NOTES:

1: Any dry contact home switch or auxiliary switch may be used and must be closed when door is closed.

2: For simultaneous pairs or dual egress doors, two (2) Home Switches must be wired in series with orange wires of System Harness plugged into hub.

Switch must "break" as soon as door begins to open.

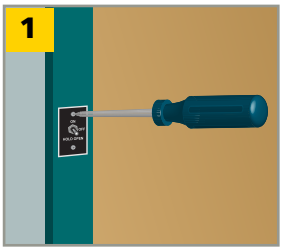
Periphials

All periphial devices, including safety, activation, security, and logic modules should be wired directly to hub and not to door control.

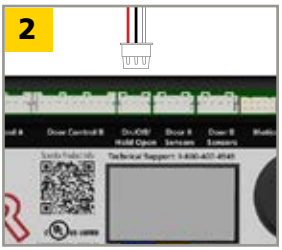
On / Off / Hold Open Switch

If using an existing on / off / hold open switch, plug On / Off / Hold Open Switch Jumper into hub port labled **On / Off / Hold Open** and wire nut red and black wires together, or if desired, splice existing switch into Jumper.

FUNCTION	JUMPER WIRES
on	red jumped to black
hold open	black jumped to white
off	none



Determine mounting location, apply mounting template, drill holes.



Route On / Off / Hold Open Switch harness and plug into hub port labeled **On / Off / Hold Open**.

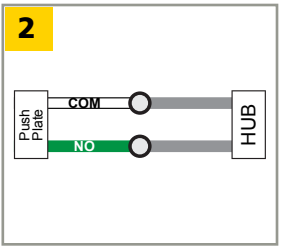
Eagle (Optional)

Install Eagle(s). For complete installation instructions refer to BEA User's Guide 75.0058.

Plug Eagle Harness(es) into hub port labled **Motion 1** and, if applicable, **Motion 2**.

Push Plates (Optional)

Install push plate(s). For complete installation instructions refer to the appropriate BEA User's Guide[1].



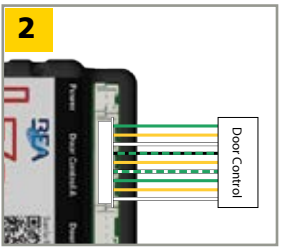
Wire nut push plate wires (COM and NO) to grey wires of System Harness plugged into hub.

NOTES:

Multiple push plates can be paralleled to grey wires of System Harness.

Door Control Harness

Plug Door Control Harness into hub port labeled **Door Control A.**



Wire Door Control Harness to door control.

NOTES:

If door system utilizes independent door controls, repeat steps 1-2 for the second control. Do not use door control sync cable.

For dual egress doors with independent stall, two (2) Door Control Harnesses must be used.

Wiring

DOOR TYPE	HUB PORT
single	always use DOOR CONTROL A hub port
simultaneous pair	from header (access cover) side, left door uses DOOR CONTROL A hub port and right door uses DOOR CONTROL B hub port
dual egress	from header (access cover) side, whichever door is pushed (right door) during Teach In process uses DOOR CONTROL B hub port

DOOR CONTROL HARNESS								
WIRE COLOR:	Green	White	Green/ Black	Yellow/ Black	White/ Black	Green/ Red	Yellow/ Red	White/ Red
SIGNAL:	ACT NO	ACT COM	SAFE NO	SAFE NC	SAFE COM	STALL NO	STALL NC	STALL COM
Besam 300 / ETIK	13	12	11		12		15	16
Besam MP/CUP	3	4	9		4	5		4
Besam SM900/CU2	1	3	2		3	7		3
Besam SW100	CU-ESD 2	CU-ESD 1	CU-ESD 4		CU-ESD 1		EXU-SA 3	EXU-SA 1
Besam SW200	CU-200 2	CU-200 1	CU-200 4		CU-200 1		EXU-SA 3	EXU-SA 1
Door O Matic	Yellow	Grey	Blue		Grey	Purple		Grey
Dorma 400/700	TRIG	GND	PRES		GND	SWING		GND
Gyrotech 300/400	Black	Red	White		Red	White		Red
Gyrotech MAG	6 Black	5 Red	4 White		5 Red	3 Violet		5 Red
Horton 4190	2	3	4		3	10		3
Hunter	ACT	RTN	SAF 1		RTN	SAF 2		RTN
Keane Monroe K	Green	White	Red		White	Yellow		White
Record 6000/8000	2	1	8		4		10	11
Stanley L	Orange	Yellow	Red		Yellow	Blue		Yellow
Stanley MP	2	8	7		8	7		8
Stanley 521	TB4-4	TB4-3	TB3-8		TB3-7	TB3-4		TB3-3
Tormax	Input C #2	Input C #1	Safety B #2		Safey B #1	Safety A #2		Safety A #1

If using independent stall, stall wires on both Door Control Harnesses must be used.

Wiring (cont.)

SYSTEM HARNESS								
WIRE COLOR:	Grey	Grey	Orange	Orange	Purple	Purple	Blue	Blue
SIGNAL:	Knowing Act Activation		Home Switch		Monitoring Door 1		Monitoring Door 2	
NOTES:	Push Plates		Provided		Only used with monitored door controls			

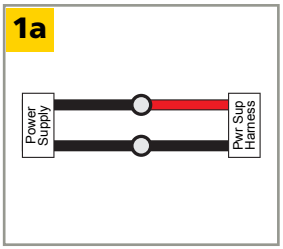
Monitoring* (if applicable)

Wire nut System Harness wires to monitoring wires of door control:

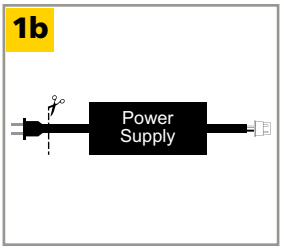
Door Type:	Single		Pair / Dual Egress (single/master control)		Pair / Dual Egress (independent controls)	
System Harness:	1 blue + 1 purple	1 blue + 1 purple	1 blue + 1 purple	1 blue + 1 purple	2 blues	2 purples
Door Control Monitoring:	1st leg	2nd leg	1st leg	2nd leg	1st Control	2nd Control

* SEE APPLICATION NOTES OR CONTACT BEA FOR TECHNICAL SUPPORT

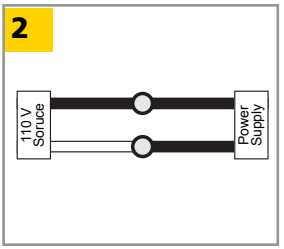
Power



If using installer provided power supply, wire nut output of power supply to Power Supply Harness.



If using BEA provided power supply, cut plug off of harness and strip wires[1].



Wire nut input of power supply to 110V power source.

Plug Power Supply or Power Supply Harness into hub port labeled **Power**.

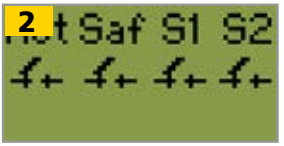
NOTES:

1: When using BEA provided power supply, if a NEMA 5-15R outlet is not available in door header, cut off NEMA 5-15P plug and wire nut to 110V AC observing polarity and grounding. By cutting off plug, system changes from UL Listed to UL recognized.

Any 15W Class II power supply may be used.

CAUTION: No safety will be present during the Teach In and Learn cycles.

Program hub according to desired settings. **Menu 1 (Basic) items MUST be programmed.**



Return to home screen.

Push and hold adjustment knob for three (3) seconds, until blue LED begins to flash.

Network icon will appear for approximately five (5) seconds.

"CLEAR AREA" will display and countdown will begin. Clear area around door on both sides.

For dual egress doors, Push Door icon will display. Push right door (Door B) open at least 10 degrees[1].

Automatic teach in will begin with door closed learn.

Door opening learn. Door will open automatically.

Door open learn.

Door closing learn.

After Teach In is complete a floppy disk will be displayed.

Hour glass will be displayed for approximately thirty (30) seconds while all learn data is saved.

Once Teach In is complete, LCD displays home screen, Blue LED is off, and orange LED is on[2].

NOTES:

1: For Dual Egress Reverse Doors, contact BEA Technical Support.

2: Verify Home Switch is "making" and "breaking" by observing orange LED on hub. Home Switch should be set as sensitive as possible and should break within a few degrees of door movement.

Be sure to walk test door after setup is complete.

Perform new learn anytime door operator, control, sensor, or hub is adjusted.

TEACH-IN STAGE	HUB LED	SENSOR LED
Prior to Learn	blue flashing	red/green flashing
Network Icon	blue flashing & orange solid	red solid
Clear Area	blue flashing & orange solid	red/green flashing
Door Closed Learn	blue flashing & orange solid	green flashing
Door Opening Learn	blue flashing	green flashing
Door Open Learn	blue flashing	green flashing
Door Closing Learn	blue flashing	green flashing
Floppy Disk	blue flashing & orange solid	green solid -> green flashing
Hour Glass	blue flashing & orange solid	green flashing -> red solid -> red/green flashing
Learn Complete	orange solid	green solid

OVERVIEW OF SETTINGS

MENU	LCD DISPLAY	PARAMETERS	DESCRIPTION
Menu 1 (BASIC)	DoorType	**Undefined** Single Pair DualEgr InDualEgr	Type of door system on which sensors are installed Single: Single Door Pair: Pair of Doors DualEgr: Dual Egress Doors InDualEgr: Independent Dual Egress Doors
	DetectZoneA	24 - **48**	Distance (in inches) from sensor LED to leading edge of Door A [round down]
	DetectZoneB	24 - **48**	Distance (in inches) from sensor LED to leading edge of Door B [round down]
	Guiderail	**0** - 60	Guiderail height from floor (in inches)
Menu 2 (ADVANCED)	Monitoring	**Off** Safe Stall Safe&Stall Act Act&Stall	Type of monitoring Off: No Monitoring Safe: Monitoring of Safety Signal Stall: Monitoring of Stall Signal Safe&Stall: Monitoring of Safety & Stall Signals Act: Monitoring of Activation Signal Act&Stall: Monitoring of Activation & Stall Signals
	KnowingAct	**Off** On	Turns Knowing Act Off or On
	Act:HoldTime	1 - **5** - 30	Time activation relay will be held after loss of detection (in seconds)
	PushNGo	**Off** On	Turns Push-And-Go Off or On
	NotCloseTime	**5** - 30	Time required for door to reach "Closed" from "Open" or "Manual" before switching to "NotClosed" (in seconds)
	AdvanceSafe	**Off** On	Type of safety provided while door(s) is/are currently open due to manual operation (or stack pressure Off: Allows door(s) to activate, via motion sensor or push plate On: Prevents door(s) from activating, via motion sensor or push plate
	Act:Dist	12 - **24** - 48	Door closed detection distance of Approach Sensor(s) (in inches)
	MonitorLogic	ActiveLow ActiveHigh	ActiveLow: 0V requests monitoring ActiveHigh: > 0V requests monitoring
	Safe:Dist	**Deep** Medium Limited	Door closed detection distance of Safety Sensor(s) Deep: 4 curtains Medium: 3 curtains Limited: 2 curtains
Menu 3 (DIAGNOSTICS)	DispDoor	Closed Opening Open Closing NotClosed Manual HoldOpen Off AdvanceSafe	Displays current position/state of door
	DispSens	A1 A2 PP MO S1 S2 HM	Displays active devices A1: Approach microscan 1 A2: Approach microscan 2 PP: Push Plate MO: Motion Sensor S1: Safety microscan 1 S2: Safety microscan 2 HM: Home Switch Closed
	DispPos	% %	Displays opening position (0% = full closed, 100% = full open relative to learn cycle)
	ID#... .....unique ID number Config.. .....configuration part number Software.. .....software part number ErrorLog. .....last 20 errors ZIP. ....all parameter settings in zipped format HubTemp.....operating temperature of hub PowerSupply..... .....supply voltage at power connector OperatingTime.....power duration since first startup ResetLog... .....delete all saved errors Admin.. .....enter code to access admin mode Network.....sensor info: software, configuration, mounting location		

NOTES:

Default parameters are in **BOLD.**

Menu 1 (Basic) items MUST be programmed!

HOW TO USE THE LCD

DISPLAY DURING NORMAL OPERATION

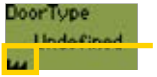
Negative display = active output

Opposite for reverse logic

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

During normal operation only.

FACTORY VALUE VS. SAVED VALUE



displayed value = factory value

displayed value = saved value

NAVIGATING IN MENUS

Push to enter the LCD-menu

Select your language before entering the first LCD-menu.

Available for the first 30 seconds after power-on of the hub.

Scroll menu items

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

Select **More** to go to the next level:
- basic
- advanced
- diagnostics

CHANGING A VALUE

SCROLL MENU UP-DOWN

PUSH TO SELECT PARAMETER

current value is displayed

SCROLL VALUES UP-DOWN

more values are displayed

PUSH TO SAVE NEW VALUE

new value is displayed

LEDS

HUB LED		
COLOR	**SIGNAL**	**DESCRIPTION**
Blue	Learn	Learn in progess or Learn required
White	Tracking	Door position & detection zone tracking
Orange	Home Switch	Home Switch closed (door closed)

SENSOR LED		
COLOR	**SIGNAL**	**DESCRIPTION**
Green	Operational	Sensor operational
Red	Detection	Sensor in detection
Orange	Error	Sensor in error...reference hub LCD

TROUBLESHOOTING

Hub LCD is not on	No input power	Verify power supply connection, do not power from door control
	Bad power	Verify power supply, power from BEA power supply
	Faulty hub	Replace hub
No "CLEAR AREA" during setup	Sensors not discovered	Verfiy sensor harness connection
No Floppy Disk after setup	Learn failed	Perform new learn
		Verify home switch is functioning properly
Door(s) will not open/close	Door control issue	Verify door control is operational with nothing wired to it
	No inputs/outputs connected	Verify all connections are secure (sensors and On/Off/ Hold Open swtich must be connected)
	Knowing Act turned on	Turn Knowing Act off or use knowing act devices
	Incorrect wiring	Verify wiring from hub to door control
Door(s) keep recycling (ghosting)	Approach side sensors going into detection	Adjust approach side sensors Activation Distance and/ or motion sensor
	Home switch not "making" at door closed	Adjust home switch and verify proper wiring
Cap LCD screen 	Learn required	Perform relearn
Orange flashing LED on Sensor - reference Hub for error	height/angle	sensor mounted too high or adjusted too close to door
	EDPS	door did not reach full open during learn
	BUS config	number of doors configured incorrectly
	boundary	sensor masked by foreign object
	lost message	loose or broken sensor harness
Door never reaches "Hold Open" or "Off" states	Not using On / Off / Hold Open Switch	Wire existing on / off / hold open switch to jumper or plug BEA On / Off / Hold Open Switch into hub
Hub Environment error	Voltage too high/low	Verify power supply voltage, power from BEA power supply
	Temperature too high/low	Envionment may be too cold/hot for hub operation

NOTES:

Troubleshooting tools can be viewed on Hub LCD within Menu 3 (DIAGNOSTICS).

Technology:	laser, time-of-flight measurement
Detection mode:	presence
Max. door width:	48"
Mounting Height:	6' 7" - 8' 2" (for greater heights contact Tech Support)
Remission factor:	> 2%
Angular resolution:	2.56 °
Testbody:	28" (H) x 12" (W) x 8" (D) according to UL325
Emission characteristics: IR laser:	wavelength 905 nm; max. output pulse power 35 W (CLASS 1)
Supply Voltage:	12-24 VAC +/-5% / 12-30 VDC +/- 10% (15 W Class II)
Power Consumption:	15 W maximum
Response time:	typ. 40 ms; max. 80 ms
Output:	4 electro-mechanic relays (galvanic isolated - polarity free)
Input:	2 optocouplers (galvanic isolated - polarity free)
Test Input *:	8-15 VDC
Temperature Range:	-13 °F to +121 °F (-25 °C to +55 °C)
Degree of Protection:	Hub - IP20/NEMA 1 Sensor - IP53/NEMA 3
Humidity:	0-95 % non-condensing
Vibrations:	< 2 G
Material:	PC/ASA
Norm Conformity:	EN 60825-1-Eye-safety class 1 IR laser (905 nm), UL325, UL6730
Mounting agnle (rotational):	35° fixed
Tilt angle:	0° to 5° (for angles less than 5° contact Tech Support)
Pollution on front screens:	max. 30 %; homogenous

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

* SEE APPLICATION NOTES OR CONTACT BEA FOR TECHNICAL SUPPORT

ANSI / AAADM Compliance

Upon completion of the installation or service work, at a minimum, perform a daily safety check in accordance with the minimum inspection guidelines provided by AAADM. Provide each equipment owner with an owner's manual that includes a daily safety checklist and contains, at a minimum, the information recommended by AAADM. Offer an information session with the equipment owner explaining how to perform daily inspections and point out the location of power/operation switches to disable the equipment if a compliance issue is noted. The equipment should be inspected annually in accordance with the minimum inspection guidelines. A safety check that includes, at a minimum, the items listed on the safety information label must be performed during each service call. If you are not an AAADM certified inspector, BEA strongly recommends you have an AAADM certified inspector perform an AAADM inspection and place a valid inspection sticker below the safety information label prior to putting the equipment into operation.

24/7 Technical Support:
1-800-407-4545

Customer Service:
1-800-523-2462

General Technical Questions:
Tech_Services@beainc.com

Technical Documentation:
www.beasensors.com