LZR-MICROSCAN T

Stand-Alone, Door-Mounted, Safety Sensor System for Automatic Swing Doors

(US version)

Visit website for available languages of this document.

1. Tilt adjustment
2. Sensor connection ports
3. Sensor LED
     green = operational
     red = in detection/monitoring
     orange = error (reference hub LCD)
4. End caps
5. Optical window

| Power | Door Control A | Door Control B | On/Off/ Hold Open | Door A Sensors | Door B Sensors | Motion 1 | Motion 2 | System |
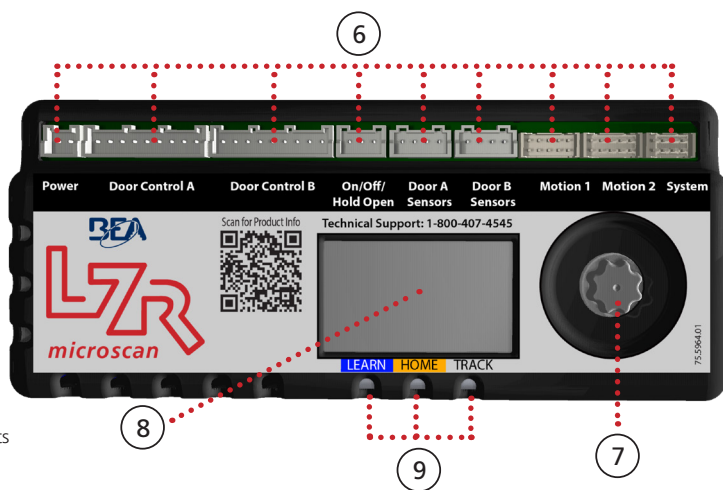
6. Plug-and-Play ports
7. Adjustment knob
8. LCD
9. Hub LEDs
     TEACH-IN: Teach-in in progress or required
     HOME: Door(s) closed
     TRACKING: Door position / Detection zone tracking

TECHNICAL SPECIFICATIONS

Technology:	laser, time-of-flight measurement
Detection mode:	presence
Detection width:	20 – 48" **(measured from leading edge to sensor LED)**
Mounting Height:	75 – 98" **(measured from finished floor to sensor LED)**
Remission factor:	> 2%
Angular resolution:	2.56°
Testbody:	28" (H) x 12" (W) x 8" (D)
Emission characteristics: IR laser:	wavelength 905 nm; max. output pulse power 35 W (CLASS 1)
Supply Voltage:	12 – 30 VDC (15 W Class II)
Power Consumption:	< 15 W
Response time:	typ. 40 ms (max. 80 ms)

Output:
    Rating:
	4 electro-mechanic relays (galvanic isolated - polarity free)
	    All outputs Class 2 supply, 12 – 24 VAC / 12 – 30 VDC, max. 15 W

Test:
    Rating:
	2 optocouplers (galvanic isolated – polarity-free)
	    12 – 30 VDC, max. 15 W

Temperature Range:	-13 – 121 °F (-25 – 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), UL60730 UL10B/C fire-rated 3 hours (file #R39071)
Mounting angle (rotational):	35° fixed
Tilt angle:	0 – 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 have been measured in specific conditions.

For version compatibiltiy serial number information, please see Application Note 76.0017 or contact BEA for technical support.

BEA, INC. INSTALLATION/SERVICE COMPLIANCE EXPECTATIONS

BEA, Inc., the sensor manufacturer, cannot be held responsible for incorrect installations or inappropriate adjustments of the sensor/device; therefore, BEA, Inc. does not guarantee any use of the sensor 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 system installation 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 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).

Verify that all appropriate industry signage and warning labels are in place.

AAADM   ANSI   DASMA   DHI   IDA

READ BEFORE BEGINNING INSTALLATION/PROGRAMMING/SET-UP

LZR-MICROSCAN T sensors are intended to be used with PEDESTRIAN, SWING-DOOR systems.

PRECAUTIONS

CAUTION

- ❑ Shut off all power going to header before attempting any wiring procedures.
- ❑ Maintain a clean and 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.

CLASS 1 LASER PRODUCT

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.

GENERAL INSTALLATION TIPS

- ◊ Avoid extreme vibrations.
- ◊ Avoid moving objects, light sources, and highly reflective objects in detection zone.
- ◊ Do not cover the sensor.
- ◊ Always test the proper operation of the installation before leaving the premises.
- ◊ The door control unit and the door header must be correctly grounded.
- ◊ Only trained and qualified personnel are recommended to install and set up the sensor.
- ◊ The warranty is void if unauthorized repairs are made or attempted by unauthorized personnel.

MAINTENANCE

- It is recommended to clean the optical parts at least once per year or more if required due to environmental conditions.
- Do not use abrasive cleaning components.

I. INSTALLATION

---------------------------------- **NOTES** ----------------------------------

* SURVEY THE DOOR:
    - Verify that the door control and operator is functional and operational before beginning.
    - Check BOTH sides of the door for the following: distance from pivot edge, distance from the top of the door, frame clearance, finger guard, door arm, etc. Check that the location is clear and free of any obsutrctions.

* SENSOR LOCATION IS IMPORTANT: It is best practice to mount the sensors as close to the top of the door. *Mounting height from finished floor to the sensor LED must be within the range of 75" to 98".*

* USE A SPACER, IF NECESSARY: Be sure to use a spacer when door hardware extends across the width of the door and is more than 2 inches thick.

* USE A MOUNTING ARM, IF NECESSARY: Be sure to use the Mounting Arm kit when mounting on a narrow-style aluminum door. *Refer to Mounting Template 75.5908 when using the Mounting Arm kit.*

* HOLE SIZE: Be sure to comply with hole sizes called out on the Mounting Template.

* **LZR-MICROSCAN T SENSORS AND MOUNTING ARM ACCESSORIES ARE HANDED. PLEASE OBSERVE WHEN MOUNTING.**

> **IMPORTANT:**
> - **All wiring harnesses used must a) be routed separate from any mains or non-class 2 voltage cables, or b) be rated for the mains voltage and suitable protection.**
> - **Routing means must be used in accordance with national and local codes.**

A) INSTALL MOUNTING ACCESSORIES (IF REQUIRED)

- If a mounting arm is needed for this application, align the Mounting Template (75.5908) in the desired location, and mark and drill the required holes.
    - » If a spacer is also required for this application, secure the spacer to the mounting arm, and then secure the sensor to the spacer.
    - » If no spacer is required for this application, simply secure the sensor directly to the mounting arm.
- If a spacer only is required for this application, mark and drill the SPACER MOUNTING HOLES on Mounting Template (75.5754), and then simply secure the sensor directly to the spacer using the SENSOR MOUNTING HOLES.

| *mounting arm*	*spacer*	*mounting arm with spacer*
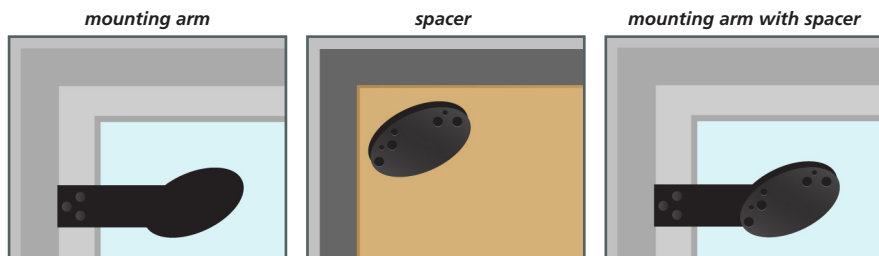
I. INSTALLATION (cont.)

B) PREPARE THE MOUNTING LOCATION

1) If mounting the sensor directly to the door, align the Mounting Template (75.5754) in the desired location.

2) Mark and drill holes identified on the Mounting Template. Also mark and drill the Door Loop hole and wire passage hole in the header and door jamb (½").

3) Repeat these steps on the other side of the door using the opposite side of the Mounting Template.

4) Determine which sensor is to be mounted on the Door Loop side of the door and remove the blank end cap from the side of the sensor which will receive the Door Loop.

5) Run the Secondary Sensor Harness (P/N 35.1327) through the pre-drilled wire passage hole.

C) MOUNT SENSORS

1) Mount the Secondary Sensor and plug in the Secondary Sensor Harness into the uppermost port on the Secondary Sensor.

2) Route the Primary Sensor Harness (P/N 35.1326) from the header, into the door jamb, and through the pre-drilled Door Loop hole.

3) Shorten the Door Loop as much as necessary to avoid the Loop obstructing the detection zone. Pass the Primary Sensor Harness through the Door Loop, and then secure the Door Loop using the Jamb Cap Kit. *Pull extra harness slack through the Door Loop (away from sensor) before tightening the end cap screws.*

4) Plug the Primary Sensor Harness into the Primary Sensor at the closest port and then mount the Primary Sensor to the door.

5) Plug the Secondary Sensor Harness into the uppermost port on the Primary Sensor.

6) Secure the Door Loop to the Primary Sensor using the end cap and screws provided.

IF NECESSARY, REPEAT THIS SECTION FOR A SECOND DOOR LEAF.
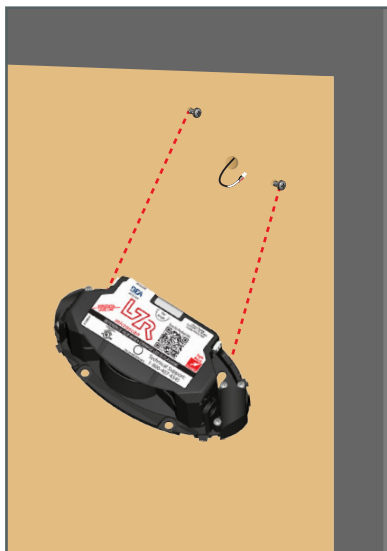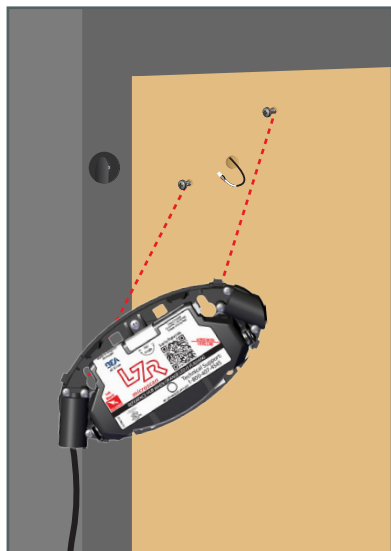
DO NOT APPLY COVERS UNTIL THE SYSTEM IS FULLY OPERATIONAL.

I. INSTALLATION (cont.)

D) INSTALL HUB

1) Install the hub in the door header. Ensure that it is centered and in a location which is easily accessible.
2) Plug the Primary Sensor Harness into the hub port labeled **Door A Sensors**. *See table below for more information on how to use hub ports depending on door type.*
3) If a second door leaf is being used for this system, plug that Primary Sensor Harness into **Door B Sensors**.
4) Plug the System Harness (P/N 20.5304) into the hub port labeled **System**.
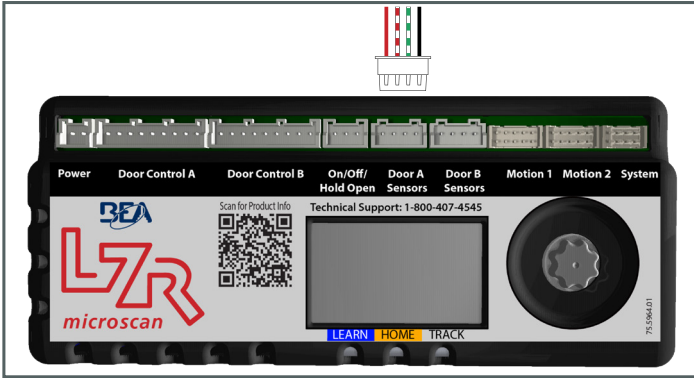
DOOR TYPE	DOOR CONTROLS	HUB PORT
single	1	always use DOOR CONTROL A hub port
simultaneous pair*	2	from header cover side, left door uses DOOR CONTROL A hub port and right door uses DOOR CONTROL B hub port
dual-egress*	2	from header cover side, whichever door is pushed (right door) during Teach-In process uses DOOR CONTROL B hub port
* When only one door control is used for pairs, refer to instructions for "single".		

E) INSTALL HOME SWITCH

Any dry-contact Home Switch or auxiliary switch may be used and must be closed when door is closed.

1) Install Home Switch in the desired location.

2) Wire-nut accordingly the white Home Switch wires to the orange and orange/black System Harness wires (plugged into hub).
For simultaneous pairs or dual-egress doors, two (2) Home Switches must be wired in series with orange and orange/black wires of System Harness plugged into hub.
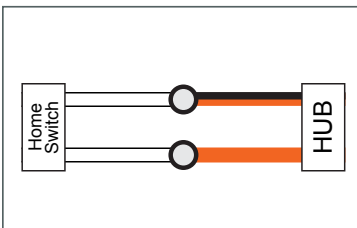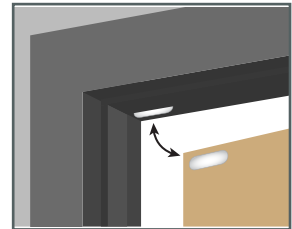
NORMAL WIRING
for single doors
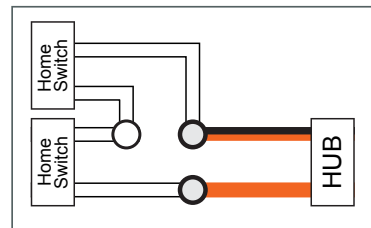
WIRING IN SERIES
for simultaneous pairs or dual-egress pairs

F) CONNECT HUB TO DOOR CONTROL

1) Plug the Door Control Harness (P/N 20.5222) into the hub port labeled **Door Control A**.

2) Wire the Door Control Harness to the door control. *See wiring diagram below for wire function descriptions. Also see the "General Door Control Wiring Matrix for Swing Doors" Application Note (76.0031) for more information regarding specific door controls.*

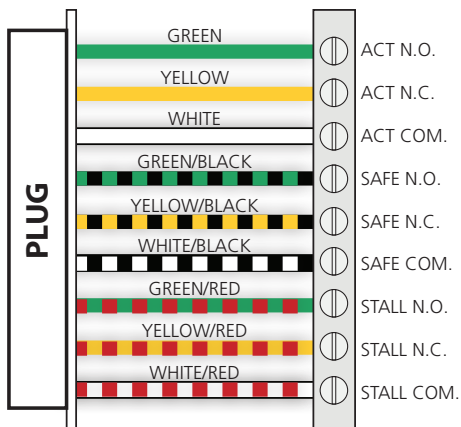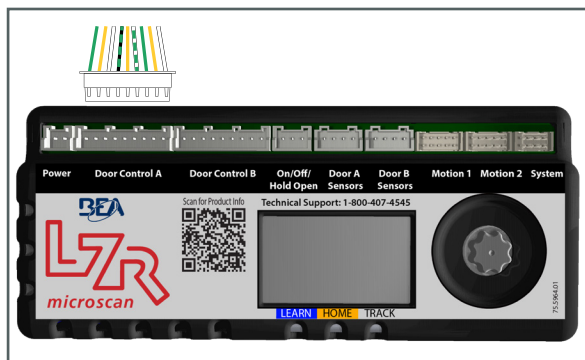3) Repeat these steps with a second Door Control Harness if installing on a simultaneous pair or a dual-egress pair which utilizes two door controls.

IF NECESSARY, REPEAT THIS SECTION FOR A SECOND DOOR CONTROL.

PLUG wire	Terminal
GREEN	ACT N.O.
YELLOW	ACT N.C.
WHITE	ACT COM.
GREEN/BLACK	SAFE N.O.
YELLOW/BLACK	SAFE N.C.
WHITE/BLACK	SAFE COM.
GREEN/RED	STALL N.O.
YELLOW/RED	STALL N.C.
WHITE/RED	STALL COM.

All white wires (white, white/black, white/red) are always used.

For each function (activation, safety, stall), either green or yellow are used - not both.

EXTERNAL MONITORING

LZR-MICROSCAN T hub/sensors are intended to be monitored by the door system (see Application Note #31, 76.0031). If the door control does not utilize monitoring, do not use monitoring wires.

When utilizing monitoring, the sensor LED will briefly flash RED during monitoring communication with 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.

G) CONNECT ADDITIONAL SYSTEM DEVICES

1) Install an ON / OFF / HOLD OPEN Switch, if desired.

2) Plug the switch harness into the hub port labeled **On / Off / Hold Open**.

   If an ON / OFF / HOLD OPEN Switch already exists, wire-nut the red and black wires together (or splice existing switch into jumper) after plugging the harness into the hub.

3) Install necessary activation devices (e.g. EAGLE, PUSH PLATE) and wire accordingly (see below, right).

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

ON / OFF / HOLD OPEN Switch installed

Plug EAGLE Harness (P/N 20.5096) into Motion 1.

Wire Push Plates to System Harness (gray wires).
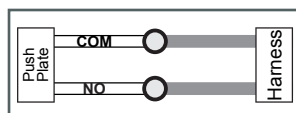
Wire Logic Modules to Door Control Harness (activation wires).

see previous page
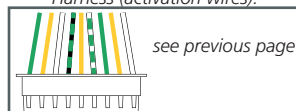
H) CONNECT TO POWER

1) Refer to *"General Door Control Wiring Matrix for Swing Doors"* Application Note (76.0031) for power supply to be used per the given door control.

2) Wire power supply:
   - If using a BEA power supply, remove the plug from the Power Supply Harness (P/N 20.5095) and strip the wires. Then, wire-nut the power supply input to a 110 V power source.
   - If utilizing door control power, simply connect the Power Supply Harness to the door control.

3) Plug Power Supply Harness into hub port labeled **Power**.

LZR-MICROSCAN T hub/sensors must be powered by a UL Class 2 power supply limited to 15 W.

If a NEMA 5-15R outlet is not available in door header, cut off NEMA 5-15P plug and wire-nut to 110 VAC observing polarity and grounding.

NOTES

How to read the LCD:

- Act = Activation
  Saf = Safety
  S1 = Stall (door 1)
  S2 = Stall (door 2)

- When a parameter is highlighted, that is the active output.
  The opposite indicates reverse logic.

- Factory Value

How to navigate through the LCD menu:

SELECT

- Push the gray adjustment knob to enter the LCD menu.
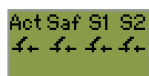- Select your language before entering the first LCD menu. This is available for the first 30 seconds after power-on of the hub.

SCROLL

- Scroll through the menu items using the adjustment knob and push to make selections.

If the door control utilizes monitoring, monitoring must be turned off in the door control as well as the LZR-MICROSCAN hub prior to the Teach-In.

1) Program the hub according to desired settings.
   MENU1 (BASIC menu) items MUST be programmed (see page 11).

2) The network icon will appear for approximately five seconds and then it will return to the Teach-in screen. The hub LED will display flashing blue and solid orange, and the sensor LED will display flashing red/green.

   CAUTION: No safety present during Teach-in cycle.

3) Verify that the Home Switch is making/breaking within a few degrees of door movement by observing the orange hub LED. The Home Switch sensitivity should be set as high as possible.

4) Push and hold the adjustment knob for three seconds until the blue LED begins flashing. Follow instructions on the screen, observing the countdown.

5) For dual-egress doors, push the right door (Door B) open at least 10 degrees when prompted.

6) Teach-In will begin automatically:

	TEACH-IN STAGE	LCD	HUB LED	SENSOR LED
a)	Door Closed Teach-in			
b)	Door Opening Teach-in (door will open automatically)			
c)	Door Open Teach-in			
d)	Door Closing Teach-in (door will close automatically)			
e)	Teach-in data saving			
f)	Restarting (hour glass icon displays for approximately 30 seconds)			
g)	Returns to home screen (teach-in complete)			

Be sure to walk-test door after set-up is complete and perform new Teach-in anytime door operator, control, sensor, or hub is adjusted.

Once the Teach-In process is complete, monitoring must be turned on, if applicable.

LED INDICATIONS AFTER LEARN

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

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

* see TROUBLESHOOTING section for descriptions of orange LED error indications

OVERVIEW OF SETTINGS

Default parameters are in BOLD. Menu 1 (Basic) items MUST be programmed.

MENU	ConfigLCD 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
	DetectZoneA¹	20 – **48**	Distance (in inches) from sensor LED to leading edge of Door A [round down]
	DetectZoneB¹	20 – **48**	Distance (in inches) from sensor LED to leading edge of Door B [round down]
	Guiderail	**0** – 60	Guiderail height from floor (in inches)
	Monitoring²	**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
Menu 2 (ADVANCED)	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 – **10** – 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:Dist³	12 – **24** – 48	Door closed detection distance of Approach Sensor(s) (in inches)
	MonitorLogic²	**ActiveLow** / ActiveHigh	ActiveLow: 0V requests monitoring; ActiveHigh: > 0V requests monitoring
	Safe:Dist³	**Deep** / Medium / Limited	Door closed detection distance of Safety Sensor(s): Deep: 4 curtains; Medium: 3 curtains; Limited: 2 curtains
	Traffic	**Normal** / High / Extreme	When doors do not come closed for a certain period of time due to traffic flow Normal: ≤ 5 min; High: ≤ 30 min; Extreme: > 30 min

NOTES:

1. Detection zone "A" and "B" are the sensor pattern width and are determined by measuring the distance from the sensor LED to the leading edge of the door.
2. The sensor LED will briefly flash RED during monitoring communication with 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.
3. The Approach Side Detection Zone (Act:Dist) and Swing Side Safety Zone (Safe:Dist) are independently adjustable.

OVERVIEW OF SETTINGS (cont.)

Menu 3 (DIAGNOSTICS)

MENU	ConfiLCD DISPLAY	PARAMETERS			DESCRIPTION
	DispDoor[4]	Closed / Opening / Open	Closing / NotClosed / Manual	HoldOpen / Off / AdvanceSafe	Displays current position/state of door
	DispSens[5]	A1 / A2 / PP	MO / S1	S2 / HM	Displays active devices A1: Approach MICROSCAN T 1 MO: Motion Sensor S2: Safety MICROSCAN T 2 A2: Approach MICROSCAN T 2 S1: Safety MICROSCAN T 1 HM: Home Switch Closed PP: Push Plate
	DispPos[6]	%	%		Displays opening position (0% = full closed, 100% = full open relative to teach-in 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 start-up
		ResetLog[7] .... delete all saved errors
		Admin .... enter code (1234) to access admin mode
		    Act-Uncover (3 – 12, default 4)
		    Saf-Uncover (3 – 12, default 4)
		    AutoLRNTime (**30**, 60, 90, 120, infinite)
		    RelayLogic (**DeEnergized,** Energized)
		    Boundary (**on,** off)
		    FactoryRst (no, yes)
		Network .... sensor info: software, configuration, mounting location			

NOTES:
4. Display Door (DispDoor): Displays current position / state of doors.
5. Display Sensor (DispSens): Displays which device(s) are active.
6. Display Position (DispPos): Displays opening position (0% = full closed, 100% = full open relative to teach-in open cycle.
7. If experiencing issues, reset error log and review at a later time for possible new error(s) to help solve the issue.

TROUBLESHOOTING

General

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

Hub LCD is not on	No input power	Verify power supply connection.
	Bad power	Verify power supply. Power from BEA power supply.
	Faulty hub	Replace hub.
No "CLEAR AREA" during setup	Sensors not discovered	Verify sensor harness connection.
No Floppy Disk after setup	Teach-in failed	Perform new Teach-in.
		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 switch 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.
	Incorrect monitoring settings or wiring	Verify monitoring settings and wiring.
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	Teach-in required	Perform re-Teach-in.
Orange flashing LED on Sensor - reference Hub for error	height/angle	Sensor mounted too high or adjusted too close to door.
		Verify handedness (right- or left-handed) for correct orientation.
	EDPS	Door did not open or reach full-open during Teach-in.
	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.
Visible Monitoring indication LED does not flash.	Monitoring installation/set-up error.	Verify door control is capable of monitoring and the sensor monitoring wires are properly connected to the door control.
		Verify monitoring is active in the sensor settings (high/low for each door control).
	Sensor and/or wiring malfunction.	Verify wiring. If still unresolved, replace the sensor.
Visible Monitoring Indication LED flashes continuously	Monitoring installation / set-up error	Verify door control is capable of monitoring and sensor monitoring wires are properly connected to control.
	Wiring malfunction	Verify that there are no breaks anywhere in the wire harness.
	Door control does not utilize monitoring	Turn monitoring off in the hub (Menu 2 – ADVANCED).

Set-up Errors

The following LCD screenshots list potential set-up errors that could occur during a "teach-in" process.

If the sensor causes the error, you'll see an <u>orange</u> blinking LED on <u>that</u> sensor(s) with a number of blinks which correspond with the error type. This error will by displayed on the LZR-MICROSCAN T hub LCD screen as shown (see "Orange Sensor LED Errors").

most common
 	
`Nb: 4` ⚠
`Height/Angle`
	Sensor mounted too low/high	Mounting height (from floor to sensor LED):
		    min: 6'3" (75")
		    max: 8'2" (98")
		(review mounting template)

	Sensor mounted incorrectly in relation to RH and LH mount	Position arrow on sensor to point towards jamb.
	Sensor mounting angle out of tolerance	Correct the mounting angle: 35 (±5)° *(review mounting template)*
	Sensor tilt angle too close to the door	Tighten tilt angle screw
	Sensor is seeing door hardware (crash bars, panic bars etc.) protrusion	Install LZR spacers if required. Perform a new "teach-in".
2nd most common `Nb: 2` ⚠ `EDPS`	Door(s) did not move/open	Door(s) must open fully. Check the auto-switch.
	Door(s) are not moving fast enough or door(s) did not move at least 80° or more than 110° during teach-in process	Check and adjust door for proper operation and perform a new teach-in. Increase door speed to 9 seconds or less of opening time.
	Home switch is not breaking soon enough	Adjust the home switch to break with very little door movement.
	Possible bad sensor gyro	Replace sensor.
`Nb: 2` ⚠ `Fields`	Trouble with lost pulses during teach-in process while door is in motion	Door must move thru a full open/close cycle with home switch making. Perform a new teach-in.
`Nb: 2` ⚠ `BUS CONFIG`	Attempting a dual-egress teach-in on a simultaneous pair or vice versa	Set hub for proper door type. Initiate a new Teach-in.
`Nb: 4` ⚠ `StartUp`	Attempting a "teach-in" and the hub LCD immediately displays "StartUp". *(hub is not getting information from the sensor)*	Possible temperature too cold or bad cable or faulty sensor.

Runtime Errors

The following lists potential errors following a successful "teach-in".

These can be viewed in the Error Log screen. The hub will store up to 20 errors (numbered 0 – 19).

Nb: 4 ⚠ **Boundary**	Sensor is seeing door hardware (crash bars, panic bars etc.)	Install LZR spacers if required and perform a new teach-in.
	Sensor is tilted too close to door	Tighten tilt angle screw.
	Transfer loop is hanging under sensor(s)	Trim and adjust the transfer loop, and then perform a new teach-in.
Environ (environmental)	Voltage and/or temperature too high/low	Install BEA power supply (PN 30.5558).
EDPS	Door moved manually during closed door tracking	Automatic Recovery.
	Possible sensor gyro issue.	Replace the sensor.
Lost Message	No communication between the hub and sensor	Cable disconnected/pinched. Plug in or replace cable.
	Door slammed by pedestrian or cart, causing sensor to shut down	Set switch to OFF and allow door to see home. Set switch to ON for Auto-Recovery.
Fork	Processor unable to move to next process	Automatic Recovery.
PWR:LSR	Sensor power is out of tolerance	Install BEA power supply (PN 30.5558).
PWR:APD	Laser Photo Diode voltage is out of tolerance	Replace the sensor.
Motor	Sensor motor RPM too low	Replace the sensor.
	Door slammed by pedestrian or cart, causing sensor to shut down	Set switch to off and allow door to see home. Set switch to ON for Auto-Recovery.
Drum	Mirror drum not spinning true	Replace the sensor.
5V	Rail voltage too high/low	Sensor is pulling too much voltage or the hub is bad.
D2DC	"Distance to Digital Converter"	Replace the sensor.
NTC	"Network Time Communication"	Replace the sensor and/or hub if cycling the power doesn't resolve the issue.
CPU	Internal microprocessor fault	Cycle the power. Replace the hub if power cycling faults.
Startup	Hub is not getting info from sensors	Sensor is not plugged in.
	Sensor and/or hub is too cold	Warm sensor/hub and perform "teach-in".

Orange LED (Sensor) Errors

The following lists potential set-up errors displayed on the LCD and caused by the sensor during a "teach-in" process.

# of Flashes	Error Description	Occurence (Set-up / Runtime)	Possible Solution
1	The sensor signals an internal fault	BOTH	Cycle the power. If the orange LED flashes again, replace the sensor.
2	The sensor signals an external fault; power supply or temperature; environment	BOTH	Install BEA power supply. Verify temperature.
3	The sensor encounters an internal hardware error	BOTH	Cycle the power. If the orange LED flashes again, replace the sensor.
4	**Height/Angle Error**: No floor recognized *(most common)* 1. Incorrect mounting height/angle 2. Transfer loop is hanging under the sensor 3. Sensor is seeing door hardware 4. Sensor handing incorrect	SET-UP	1. Check mounting height and angle; review template. 2. Trim transfer loop. 3. Tighten tilt adjustment screw. Install LZR spacers if necessary. 4. Verify sensors are handed correctly for the mounting location (i.e. Left Mount / Right Mount).
5	**Fields Error**: Trouble with lost pulses during the "teach-in" process while door is in motion	SET-UP	Door must move through a full open-and-close cycle with the home switch making and without losing pulses. Verify home switch closes at "door closed" position.
6	**EDPS "teach-in" error**: *(2nd most common)* 1. Door(s) did not open/move 2. Door(s) did not open at least 80° 3. Door(s) not moving fast enough 4. Home switch(s) not breaking soon enough or at all 5. Possible bad sensor gyro	BOTH	1. Ensure that the switch is set to ON and is wired correctly. 2. Adjust door(s) to open at least 80°. 3. Increase door opening speed to 9 sec. or less. 4. Adjust the home switch as needed. 5. Replace the sensor.
7	**Boundary error** 1. Sensor is seeing door hardware 2. Sensor is tilted too close to the door 3. Transfer loop is hanging under the sensor	RUNTIME	1. Install spacers and perform new "teach-in". 2. Tighten sensor tilt angle screw. 3. Trim transfer loop and perform new "teach-in".
8	The sensor reset due to unknown error	BOTH	Replace the sensor.
9	The sensor is locked due to several consecutive resets	BOTH	Cycle the power.

Can't find your answer? Visit www.beainc.com or scan QR code for Frequently Asked Questions!

Side legend (top to bottom):
MONITORING DOOR 2 / DOOR 1 / STALL (COM.) / STALL (N.C.) / STALL (N.O.) / SAFETY (COM.) / SAFETY (N.C.) / SAFETY (N.O.) / ACT (COM) / ACT (SEC) / ACT (PRIMARY) / POWER