We open up New Horizons

CRYSTAL
INFRARED PRESENCE CURTAIN

INSTRUCTION MANUAL FOR INDUSTRIAL APPLICATIONS

OBSOLETE

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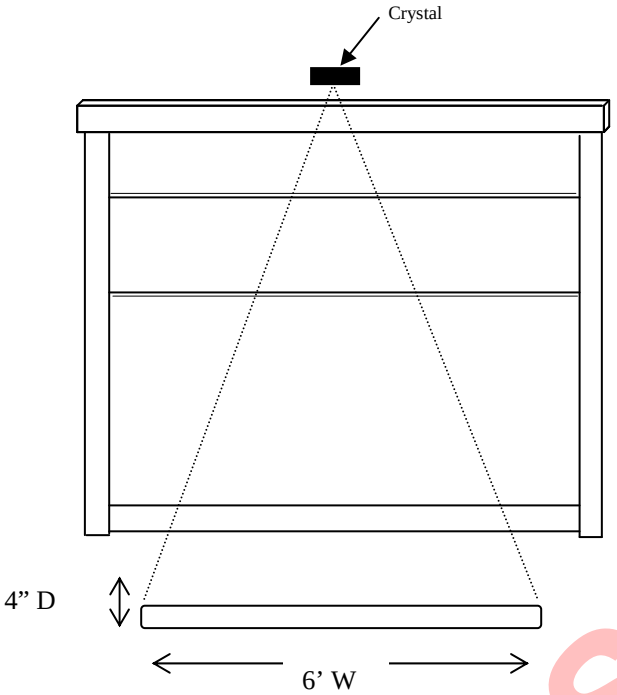
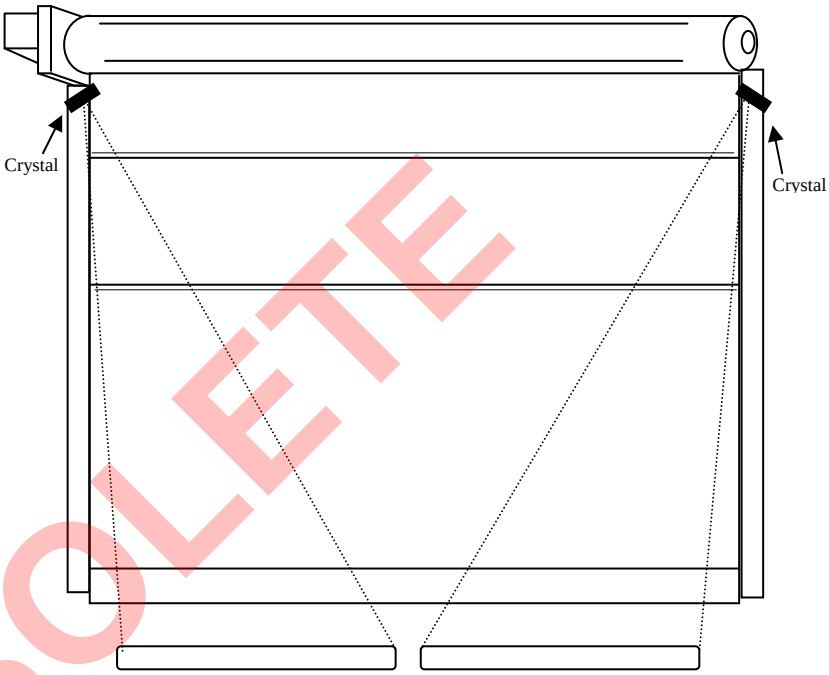
CRYSTAL INFRARED PRESENCE CURTAIN

The Crystal active infrared presence curtain is ideal for threshold safety as well as an activation device when cross traffic is a concern. It is universally compatible with any door control and easily installed on new doors as well as on existing doors for retrofit purposes. The Crystal's technology utilizes the process of multiplexing, which assures that it is constantly scanning the background looking for any changes. Finally if the change in background remains constant for a set time (adjustable 1 minute or 10 minutes) the sensor learns it and allows your door to return to normal operation.

For openings narrower than 8' and lower than 13'



For openings greater than 8' feet and higher than 13'
(See page 4 on how to pulse the frequency when 2 Crystals are mounted next to one another.)



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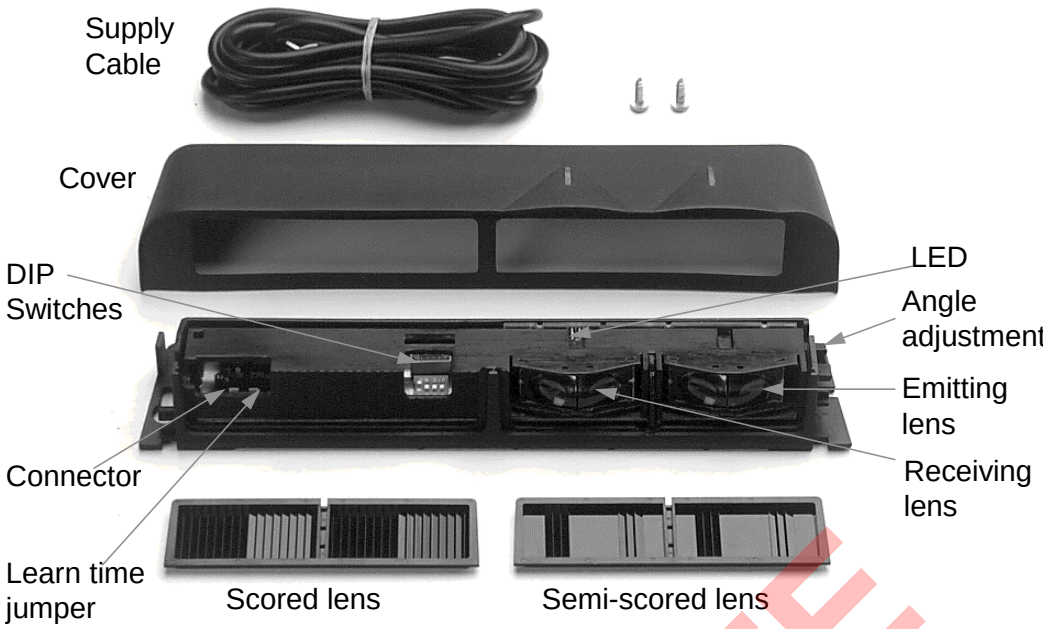
TECHNICAL SPECIFICATIONS

Installation Height:	7' to 13' for Industrial Doors
Detection Zone:	Wide pattern: 6' Narrow pattern: 3' Depth: 4"
Mounting Angle:	From 3° to 21°
Power Supply:	12 to 30 V DC ± 10% 12 to 24 V AC ± 10%
Energy Consumption:	< 1 W (VA)
Output - Contact Ratings: Max. voltage Max. current Max. switching power	Dry Contacts 60 V DC / 125 V AC 1 A (resistive) 30 W (DC) / 60 VA (AC)
Frequency:	50 to 60 Hz
Response Time:	< 50ms
Relay hold time:	1.5 seconds (fixed)
Auto Learn Time	1 or 10 minutes
Temperature range:	-30° to +131° F
Dimensions:	10" L x 2" H x 1.5" D
Weight:	7 oz.
Material:	Black ABS and Polycarbonate
Length of Cable:	6' of 4 conductor cable with JST Connector *30' cable assembly available upon request for $10*



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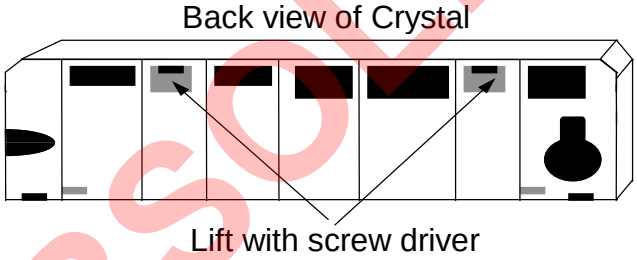
INSTALLING THE SENSOR

B.E.A. sensors, as with all automatic door equipment, should be set up and inspected in accordance with applicable ANSI standards.

1. Remove the cover from the sensor by holding the sensor firmly and gently prying the cover off as shown below.



2. Stick the mounting template onto the location where the sensor is to be mounted. The sensor should be mounted at the bottom of the header in the center of the opening. Follow the directions provided on the template. When drilling is complete, install both screws part way only. *DO NOT MOUNT SENSOR YET.*

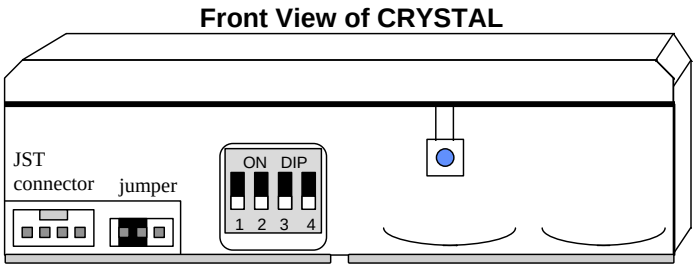
PLEASE NOTE: The Crystal has been designed to be water-resistant – not waterproof.

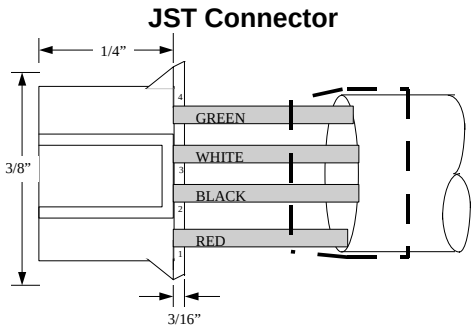
3. Install the cable (included in box). NOTE: If mounting directly to the header, pull the cable through the hole on the face of the header. Leave about 2 to 3 inches hanging out. Connect the JST connector to the Crystal. The plug connector is keyed and therefore can only be connected one way.

4. Place the screw on the right side into the slot on the back of the sensor. Once in place, slide the sensor up so that the screw on the left side slides into the narrow part of the hole on the sensor. Once the screws are tightened, ensure that the sensor is tight by trying to move it up and down. The sensor should be snug against the mounting surface. If it is not, ensure that there are no pinched wires between the mounting surface and the back of the sensor.

5. Connect the wires to power and the door control according to the following color code:

COLOR	CONNECTION
Red	24 VAC
Black	24 VAC
White	COM
Green	NO/NC (dependent on dip switch 2)

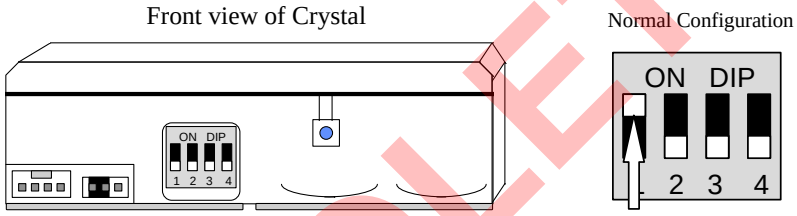




6. Where the Crystal is wired to on the door control depends on the specific application. For example:
   NOTE: If the Crystal is installed below the IS-87/IS-87XL or any other competitive unit for threshold protection, it should be connected to the ACTIVATE and COMMON terminals of the door control. (see page 7)

CONFIGURATION - DIP SWITCH SETTINGS

The dip switches are pictured as seen from the front, when the sensor is installed.



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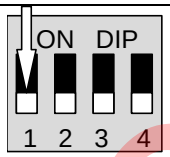
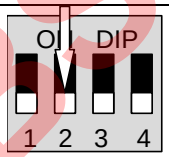
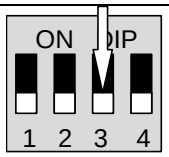
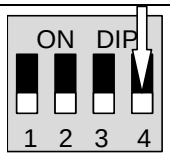
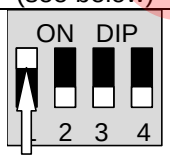
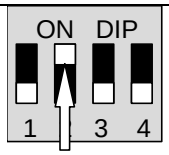
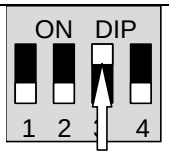
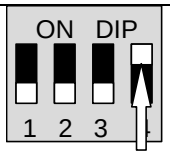
Position	Dip switch # 1	Dip switch # 2	Dip switch # 3	Dip switch # 4
	SET-UP	***RELAY OUTPUT***	***FREQUENCY***	***SENSITIVITY***
OFF	 **Not used** Used for Set-up* (see below)	 Normally Open (NO)	 Frequency 1 (normal operation)	 Normal Sensitivity
ON	 Normal operation Used for Set-up* (see below)	 Normally Closed (NC)	 Frequency 2 (to avoid interference between 2 Crystals)	 Reduced Sensitivity (to avoid unwanted ghosting)

DIP SWITCH #1
Dip switch #1 should be in the ON position for Crystal Presence detection. Dip switch #1 is also used to initiate a set-up of the Crystal. In order to initiate a set-up, dip switch #1 must be switched from ON to OFF and then to ON again. Once dip switch #1 has been flipped the set-up will begin and last approximately 7 seconds. During this time, avoid any traffic in the detection pattern of the Crystal.

DIP SWITCH #2

Dip switch #2 allows the installer to choose the relay output of the Crystal.

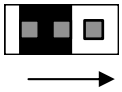
DIP SWITCH #3
Dip switch #3 is used when 2 Crystals are installed next to each other. By changing dip switch #3, the installer can change the pulse frequency of the infrared pattern to avoid cross talking between units.

DIP SWITCH #4
For maximum performance of the Crystal, dip switch #4 should be in the OFF position. If dip switch #4 is placed in the ON position, the sensitivity of the Crystal will be reduced. This should be done if a ghosting problem is experienced. Also, when dip switch #4 is ON, the Crystal is less likely to detect a heavy rain.

CONFIGURATION – AUTO-LEARN TIME

The Auto Learn Time is the time in which the Crystal will automatically learn any permanent changes in its field of detection. This time delay begins counting down once a change in the detection zone occurs. If the object is removed from the zone before the time delay has expired, the Crystal will not save it as part of its memory. During the auto learn time the Crystal will stay locked on and once the Crystal has learned the object it will resume its normal function.

The Auto Learn Time is adjusted by changing a jumper located near the plug connector. The Auto Learn Time can be set either to 1 minute or 10 minutes depending on the position of the jumper.

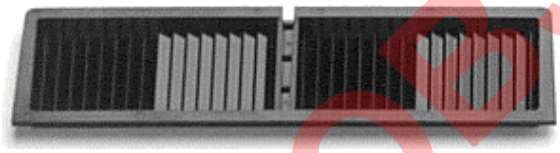
1 minute = 

10 minutes = 

PATTERN SELECTION

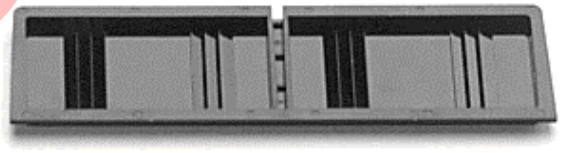
The width of the detection zone is determined by the choice of the front lens. By changing the front lens, the pattern width can be made narrow (3') or wide (6'). In order to get the narrow pattern; the scored lens must be placed below the emitter and receiver in the housing. If the wider pattern is desired, the semi-scored lens must be placed below the emitter and receiver in the housing. See the photos below for more detail.

Narrow Pattern (3 foot width)

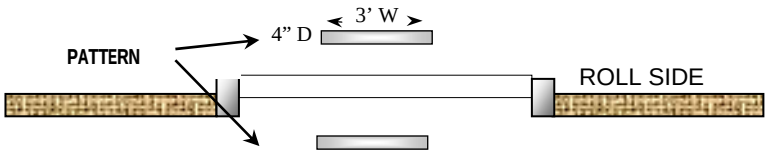


Scored Lens

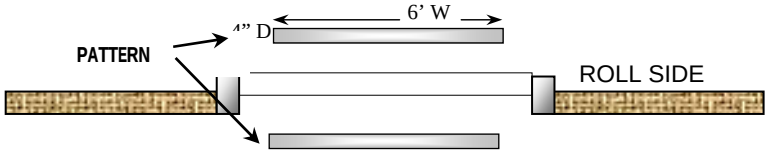
Wide Pattern (6 foot width)



Semi-scored Lens



Please note: Diagrams are showing a Crystal on an 8' door opening. *(Not to scale)*



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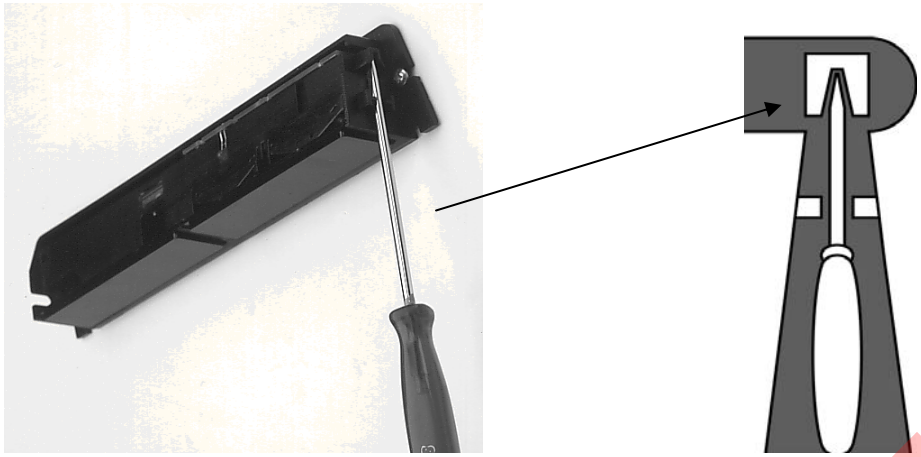
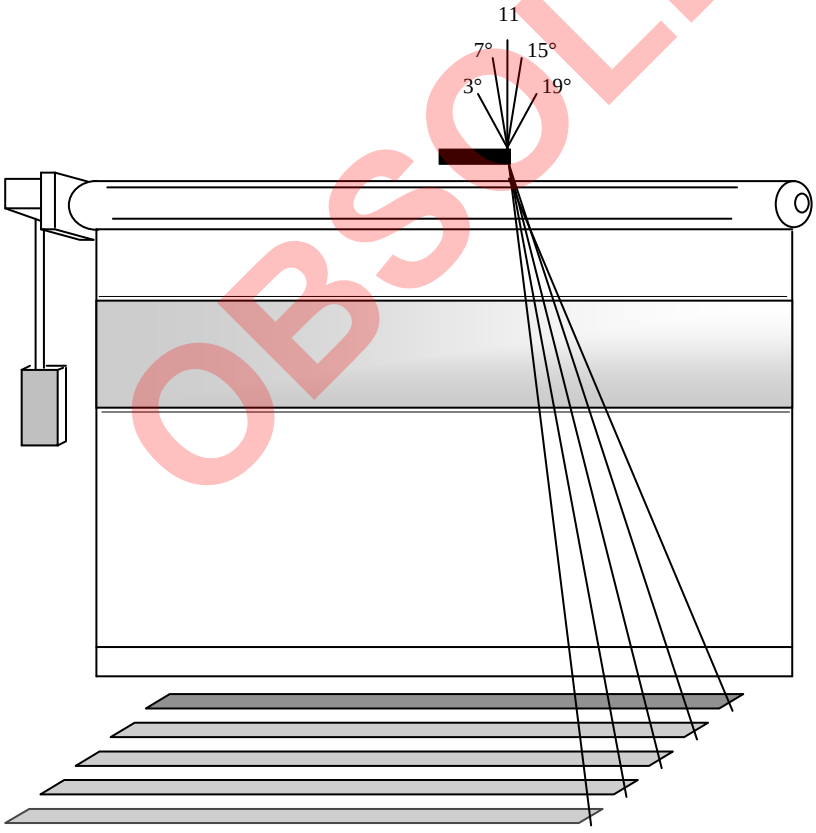
ANGLE ADJUSTMENT

The position of the pattern in front of the door is determined by the angular position of the optical block. To change the angle of the optic block, insert a screwdriver into the recess on the extreme right-hand side of the sensor. Turn it slightly to select the required tilt angle.



PLEASE NOTE The distance of detection from the door will increase as the mounting height of the Crystal is increased. It will also decrease as the mounting height of the Crystal is decreased.



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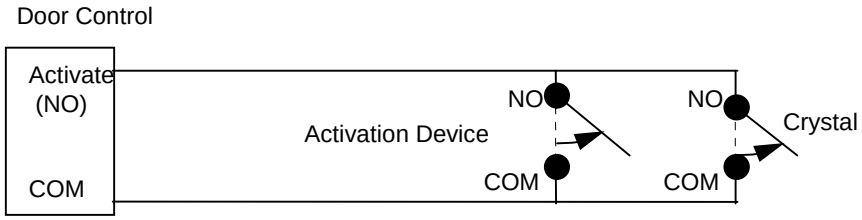
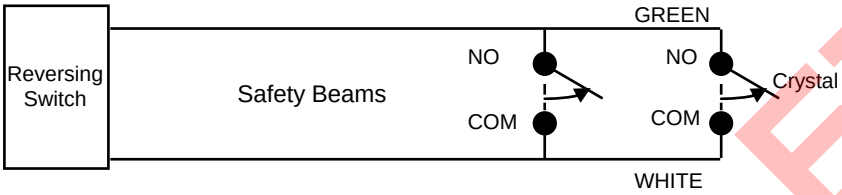
WIRING SCHEMATIC

THRESHOLD PROTECTION used with a motion detector:
The Crystal must be wired in (NO & COM) in parallel with the motion detector.



REVERSING DEVICE used with a motion detector:
The Crystal must be wired in (NO & COM) in parallel with the photo eyes.



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TROUBLESHOOTING

SYMPTOM	CORRECTIVE ACTION
The LED does not light up	1. Check power cable 2. Check power connector 3. Check power supply
The door opens and closes continuously	1. Increase depth of field (door with handle) 2. Switch dip switch # 4 to ON position (reduced sensitivity) 3. Switch dip switch #1 to OFF position and then back to ON position

If after troubleshooting a problem, a satisfactory solution cannot be achieved, please call B.E.A., Inc. for further assistance during Eastern Standard Time at **1-800-523-2462** from **7am - 5pm or 1-800-407-4545** from **5pm - midnight & weekends**.

DO NOT leave any problem unresolved. 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.