

DEVICES COVERED IN THIS DOCUMENT:

- 2-659-0332
- 2-659-0333
- 2-659-0034



- 1. End caps
- 2. Lenses
- 3. Center eye shield
- 4. LED

1. SPECIFICATIONS

Installation Height - Variable	9' 0" max. (recommended 6' 6" – 8' 0")
Mounting Angles Bodyguard-T only Bodyguard-T with Bodymount	5°, 10° (factory default setting: 5°) 0°, 5°, 10°
Power Supply	12 – 24 VAC / VDC ±10%
Monitoring Request Input	12 – 30 VDC required (polarity-sensitive) Min. pulse width 10 ms (active low)
Frequency	50 – 60 Hz
Output	Max. Voltage at contacts: 60 VDC / 125 VAC Max. Current at contacts: 1 A Max. switching power: 30 W (DC), 60 VA (AC)
Relay Hold Time	0.5 – 9 seconds
Operating Temperature	-22 – 140 °F
Immunity	Immune to electrical and radio frequency interference
Cable length	4'
Weight	1 lb 11 oz (765 g)
Dimensions	12" (300.35 mm) x 2" (49.5 mm) x 2" (48 mm) (W x H x D)
Material	Aluminum & ABS plastic
Housing Color	Black, anodized aluminum

2. SAFETY PRECAUTIONS



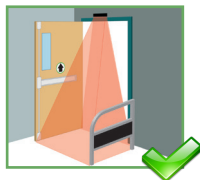
CAUTION

- The door control unit and the header cover profile must be correctly grounded.
- Only trained and qualified personnel are recommended for installation and set-up of the sensor.
- Following installation, always test for proper operation (according to ANSI 156.10) before leaving the premises.
- The warranty is invalid if unauthorized repairs are made or attempted by unauthorized personnel.

3. MECHANICAL INSTALLATION

TIPS

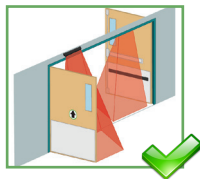
- The sensor should be mounted securely to avoid extreme vibrations.
- The sensor should be mounted above the door on the swing side.
- The sensor should be mounted flush with bottom of door header.
- Do not cover the sensor.
- Avoid moving objects and light sources in the detection field.



SINGLE-DOOR APPLICATIONS:

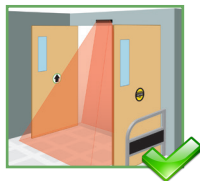
Sensor must be mounted at center of door opening.

If this is not possible, the unit may be installed off-center. Pattern location must be altered for proper detection field placement (see PATTERNS section). Avoid potentially problematic mounting locations (e.g. directly over a door arm).



DUAL-EGRESS APPLICATIONS:

One sensor should be mounted over each swing path, with at least 40" of separation between the two (measured from midpoint of each sensor).



SIMULTANEOUS PAIR APPLICATIONS:

Sensor must be mounted at center of door opening.

Per ANSI 156.10:

When the Bodyguard-T is prevented from providing a safety signal to the control during the closing cycle, an additional sensor, sensors, or photo beam shall be used on the swing side to stop the door, or continue to close the door, or slow the reopening. For new installations of power operated door systems all presence sensors used for safety shall be monitored whereas existing installations using presence sensors for safety may be monitored, and monitoring is not mandatory.

3. MECHANICAL INSTALLATION (cont.)

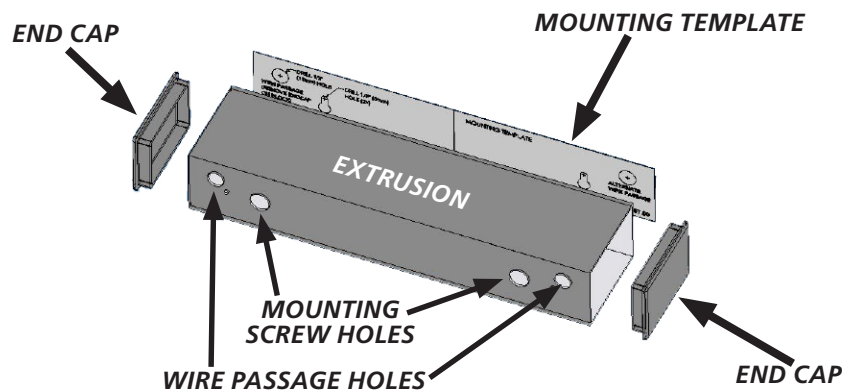
BODYMOUNT INSTALLATION

Bodymounts are required for Bodyguard-T installations with one or both of the following circumstances:

- reveal (i.e. distance from door face to Bodyguard mounting surface) is less than 3 inches
- SuperScan-T is also used

Disregard this sub-section and proceed to "Sensor Preparation" if a Bodymount is not required for this application.

1. Apply the Bodymount mounting template to the desired location.
2. Drill pilot holes for mounting and wire passage.
3. Partially drill the 2 mounting screws into the pilot holes.
4. Remove the left end cap of the Bodymount for wiring harness routing.
5. Slide extrusion over mounting screws and hand-tighten the screws to secure to the block.



SENSOR PREPARATION

1. Remove both end caps from the sensor by unscrewing each Phillips-head screw.
2. Slide out each lens at its respective end of the sensor.
3. Pull out the center eye shield from the top, while rotating out. Do this carefully to avoid damaging the light tube on the inner side of the shield.
4. Slide the PCB out of the extrusion and set aside.

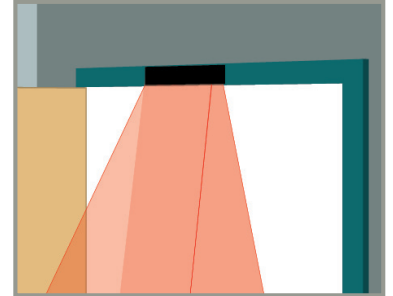


3. MECHANICAL INSTALLATION (cont.)

SENSOR INSTALLATION

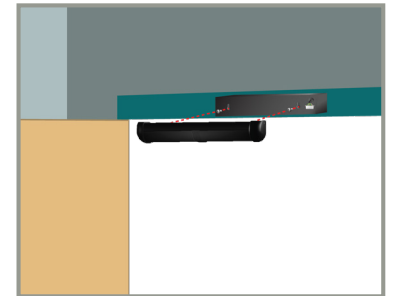
MOUNTING DIRECTLY TO DOOR FRAME/HEADER:

1. Align the sensor with the chosen location and attach the sensor using the two self-drilling screws (provided with kit). A pilot hole in the header may be necessary to ease screw installation.
2. If the sensor is mounted directly to the header and the cabling will pass directly through the header, drill a 1/2" wire passage hole next to the left-side end cap. Ensure that the hole location aligns with the end cap cut-out.

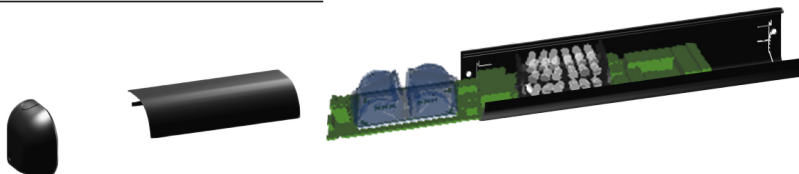


MOUNTING TO BODYMOUNT:

1. Route harness through wire passage hole while aligning the sensor with the Bodymount.
2. Attach the sensor to the Bodymount using the two self-drilling screws (provided with the kit).

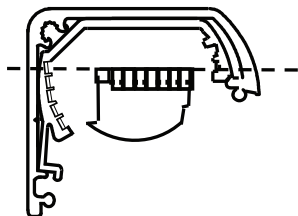


REPLACE THE CIRCUIT BOARD.



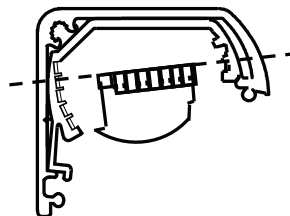
ANGLE ADJUSTMENTS:

Make any necessary angle adjustments after installation. Use the images below to aid in choosing angles. Angles must match for each clip on the same PCB.



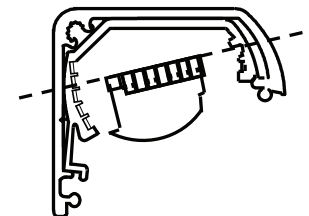
0°

Should only be used when the sensor is mounted to a Bodymount block or soffit above the door that extends out from the face of the safety side of the door. This would improve the detection field location across the threshold area of the doorway.



5° (FACTORY DEFAULT)

For most applications, it is recommended that the unit be powered and walk-tested at this angle. After walk-testing, the detection field may be altered by adjusting the angle (see directions below).

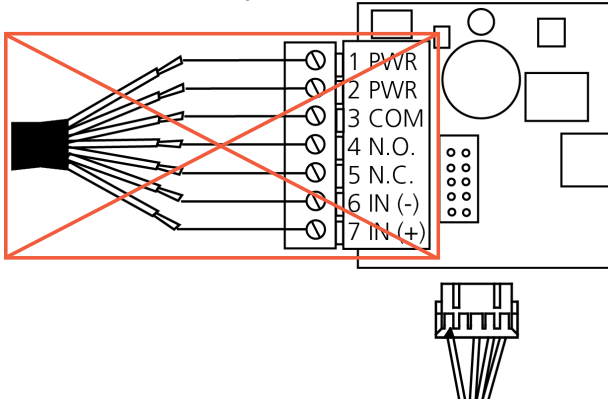


10°

4. WIRING

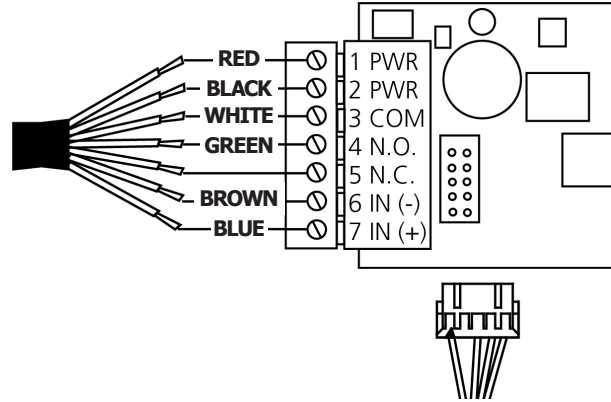
WIRING TO MONITORED DOOR CONTROLS

1. Plug the 10-pin connector to the Bodyguard-T using the provided cable.
 DO NOT USE the 7-pin terminal – this is not designed to be used with monitored systems.
 Also verify that the monitoring DIP switch is set to ON.
2. Hard-wire to the door control. *Reference the table below for connection points.*



WIRING TO NON-MONITORED DOOR CONTROLS

1. Plug the 10-pin connector to the Bodyguard-T using the provided cable (without terminating the monitoring wires) OR hard-wire using the 7-pin terminal.
 Also verify that the monitoring DIP switch is set to OFF.
2. Hard-wire to the door control. *Reference the table below for connection points.*



10-PIN CONNECTOR (hard-wire connections)

Position	Connection	Wire Color	Position	Connection	Wire Color
1	12 – 24 VAC/VDC ±10%	BLACK	6	Normally Closed	YELLOW
2	12 – 24 VAC/VDC ±10%	RED	7	Monitoring (+)	PURPLE/YELLOW
3	Common	WHITE	8	Monitoring (-)	PURPLE
4	Normally Open	GREEN	9	Data (+)	BLUE
5			10	Data (-)	BROWN

WIRING TO MODULES

If wiring the Bodyguard-T to a BEA module (e.g. LO21, MC15), refer to the respective schematic for the module. Monitoring may not be used if wiring to a BEA module; therefore, the DIP switch must be switched off.

Once wired, feed the free end of the cable through the wire passage hole (page 3, step 8), and into the header. Pull the cable completely through and route it to the location of the automatic door control.

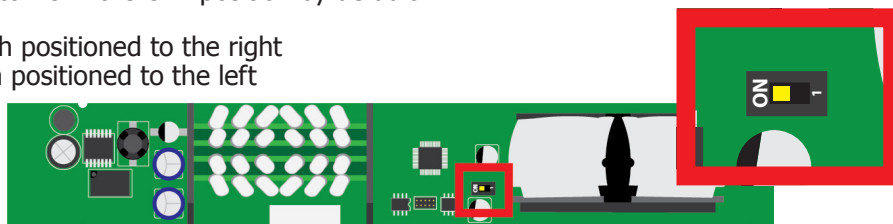
Refer to the respective User's Guide for the BEA product with which you are interfacing.

Ensure a dedicated power source of 12 or 24 VAC / VDC ±10% (1024VAC may be used for powering this product).

WIRING TO MODULES

The monitoring DIP switch is in the OFF position by default.

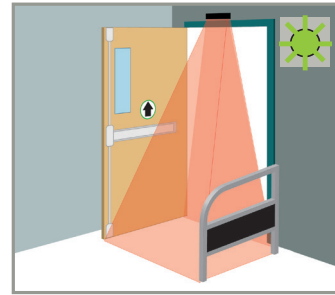
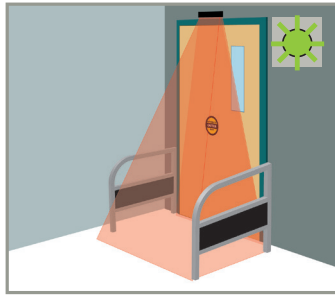
Monitoring OFF = switch positioned to the right
 Monitoring ON = switch positioned to the left



REPLACE LENSES, EYE SHIELD, AND END CAPS BEFORE PROCEEDING.

5. POWER-UP

1. With the door in the closed position, apply 12 – 24 VAC / VDC $\pm 10\%$ to the sensor. LED will flash green until set-up is successful in "door closed" position. *If the door control requires a Learn cycle upon powering, it is recommended to allow the doors to complete a Learn cycle before applying power to the sensor.*
2. Activate the door to the "fully open" position. LED will flash green again and the sensor will execute a "door open" set-up.



HELPFUL HINT #1 (when using a lockout module)

During step 2 above, if during the first "open" cycle, the sensor does not begin flashing once door is fully open, a data problem is highly likely – if the door opened and the LED remained red (in detection), it probably did not receive the correct data signal from the respective lockout module or a control's data circuit.

TRY THIS:

white wire on lockout OR negative data connection on control → brown wire on Bodyguard-T
red/white wire on lockout OR positive data connection on control → blue wire on Bodyguard-T

TRY THIS:

check motor voltage (red and black on lockout OR control's data circuit) has at least 10 VDC

HELPFUL HINT #2 (when using a lockout module)

After step 2 above, if the door achieves the "open" position and set-up is successful but the door begins to close and recycles, it is possible that the sensor is detecting the closing door.

TRY THIS:

Check DIP switch 6 – should be ON if using a lockout (Besam Swingmaster MP (with CUP control) may require OFF position)

TRY THIS:

red wire on lockout → positive leg on motor
black wire on lockout → negative leg on motor

6. PROGRAMMING THE SENSOR (REMOTE CONTROL)

ALL functions are programmable using the remote control. Use of the remote control should be within 10 – 15 feet of the sensor.

“Door Closed” and “Door Open” patterns are independently adjustable. It is necessary to adjust the pattern for a closed door, and then to adjust the pattern again when the door is open. The following functions may be independently adjusted for each door position:

- Sensitivity
- Pattern width
- Pattern depth

The following functions apply to both “Door Closed” and “Door Open” positions:

- Auto-Learn time
- Immunity (“medium” and “high” affect interpretation of objects in detection field relative to background; Learn time is unaffected)
- Frequency
- Output configuration
- Door control mode
- Hold time
- Interface type



SET-UP

NUMBER KEYS (0 – 9)
 assign value for given function

INTERFACE
 1: New Style
 2: **LO21 – Old Style** (LO21B/K/P/S/U, LO-LINX, MC15, DP-HUB)

DOOR CONTROL
 1: **Normal (LED in normal mode)**
 2: Door permanently open (red LED on)
 3: Door permanently closed (red LED off)

UNLOCK / INQUIRE / LOCK

To UNLOCK the sensor:
 Press UNLOCK key once. Red LED flashes slowly. If flashing fast, see Note below.

To LOCK the sensor:
 Press LOCK key twice **OR** press once, then enter a 4-digit lock code. If less than 4 digits, press lock again after the last digit. LED goes out when complete.

To INQUIRE the sensor:
 Unlock sensor, press desired function key, then press INQUIRY key – number of green flashes corresponds to the value.

NOTE: If sensor is locked, and code is unknown, power sensor off and then back on. Press UNLOCK key within 60 seconds. Re-lock with 0000 (default code). Sensor will unlock with one press of UNLOCK key when set to 0000.

MODES OF OPERATION

0: Normal
 1: MP Mode
 2: Record Mode

INFRARED FREQUENCY





	Mode	Frequency
1	normal	low
2	normal	high
3	quiet	low
4	quiet	high

See Quiet Mode note on next page.

Immunity 	Output Config 	Auto-Learn Time
Sensitivity 	Pattern Width 	Pattern Depth
	Hold Time 	<i>see next page for specific parameter settings</i>

6. PROGRAMMING THE SENSOR (REMOTE CONTROL cont.)

SPECIFIC PARAMETER SETTINGS

PARAMETER	SETTING
Sensitivity	0 (min) → 9 (max) default 7 = door open default 6 = door closed
Hold Time	0 (0.5 s) → 9 (9 s)
Output Configuration	1: Normally Open Relay 2: Normally Closed Relay
Auto-Learn Time	0: 30 seconds 4: 5 minutes 7: 15 minutes 1: 1 minute 5: 7 minutes 8: 10 seconds 2: 2 minutes 6: 10 minutes 9: Infinity (no learn) 3: 3 minutes
Pattern Width	1: Wide (closed door) 6: Narrow right 2: Middle (open door) 7: Asymm. left wide 3: Asymm. left narrow 8: Asymm. right wide 4: Asymm. right narrow 9: Center narrow 5: Narrow left See notes below for Pattern Width or Depth.
Pattern Depth	1: Deep – threshold ON 4: Deep – threshold OFF 2: Medium – threshold ON (open) 5: Medium – threshold OFF (closed) 3: Limited – threshold ON 6: Limited – threshold OFF See notes below for Pattern Width, Pattern Depth, and Threshold.
Immunity	1: Low (normal) 2: Medium – Rain (disregards more floor disturbances) 3: High – Snow (disregards greatest floor disturbances) For BOYDGUARD-TC functionality, set Immunity to High.
Setup	 launch a quick set-up  launch a closed-door set-up  restore factory defaults  launch an open-door set-up See Automatic Set-up note.

NOTES:

QUIET MODE: The QUIET mode uses a different pulsing pattern to avoid interference with other infrared systems. The NORMAL mode transmits more energy and detects in a slightly crisper fashion.

PATTERN WIDTH & DEPTH: When pattern width or depth is changed, a set-up of the new pattern size will automatically be triggered once a value key has been pressed.

THRESHOLD: The Threshold is always OFF when the door is closed.

AUTOMATIC SET-UP: When performing an automatic set-up (set-up key pressed twice), the sensor will begin to flash green during the door-closed position, and will continue to do so until the door is activated to the open position. The LED will then go out and the door will close. The LED will flash green again at the closed position until a set-up is complete. Upon the next activation, the sensor will launch another set-up for the open-door position, and will begin normal operation thereafter.

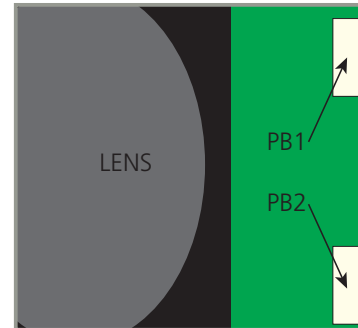
REDUCING CROSS-TALK IN DUAL-EGRESS APPLICATIONS

1. Ensure that the two sensors are installed with < 40" of separation between the two (measured from midpoint of each sensor).
2. Place doors in Hold Open position. Unlock the sensor and set open door Pattern Depth to 5 (medium pattern). IR threshold will be off while in this door position. Be sure to change the setting on BOTH sensors.
3. Change IR frequency on one sensor.
4. If in an application with high-gloss floors or multiple doors installed in vestibules, change to different frequency.

7. PROGRAMMING THE SENSOR (PUSH-BUTTON)

Only the following functions are programmable using push-buttons:

- Sensitivity
- Output configuration
- Auto-learn time
- Pattern width
- Pattern depth



1. Press PB1 for less than 2 seconds. LED will flash green for 10 seconds and the sensor will execute the appropriate set-up for the current door position. The green LED flashes at a slower rate if interruptions are detected in the field. Press PB1 to re-launch.
2. Press PB1 for more than 2 seconds to change the parameters.
3. To choose the parameter, press either PB1 or PB2, and the LED will flash red (indicating the parameter) and then flash a specific number of green blinks (indicating the current parameter setting). See chart below for reference.

NOTES:

- * Pressing PB1 will toggle between parameters.
- * Pressing PB2 will toggle between range of adjustments for that particular parameter.
- * The value returns to the lowest setting when PB2 is pressed again after reaching the highest adjustment.
- * Zero value = no LED flash
- * To exit, wait 20 seconds or press PB1 for more than 2 seconds.

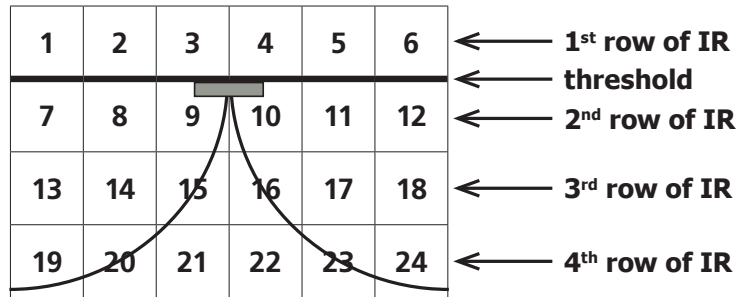
4. When finished with manual set-up, replace the right end cap.

Red LED Status	Parameter	Description	Green LED Status
1 flash	1	Sensitivity (door open)	0 – 9 flashes (default = 7)
2 flashes	2	Sensitivity (door closed)	0 – 9 flashes (default = 6)
3 flashes	3	Output configuration	1 – 2 flashes (default = 1)
4 flashes	4	Auto-Learn time	0 – 9 flashes (default = 0)
5 flashes	5	Pattern width (door open)	0 – 9 flashes (default = 2)
6 flashes	6	Pattern width (door closed)	0 – 9 flashes (default = 1)
7 flashes	7	Pattern depth (door open)	1 – 6 flashes (default = 1)
8 flashes	8	Pattern depth (door closed)	1 – 6 flashes (default = 1)

WIDTH & DEPTH PATTERNS
 (all pattern sizes are approximations)

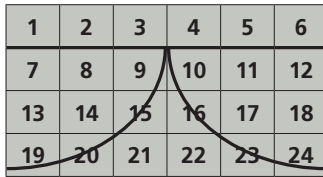
When the sensor is mounted at 7 feet high, each block in the charts shown represents 14" x 14".

Always walk-test the pattern to ensure compliance with all applicable standards.

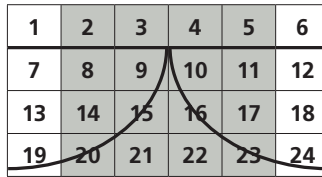


←→ WIDTH PATTERNS

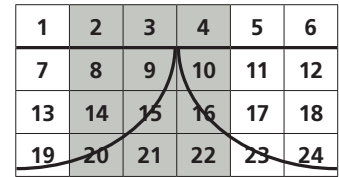
1: WIDE



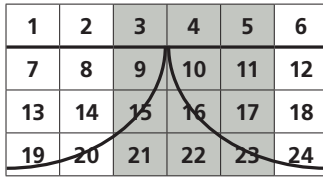
2: MIDDLE



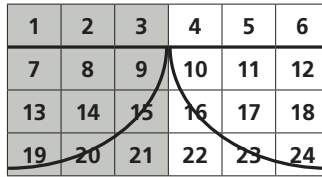
3: ASYM LEFT NARROW



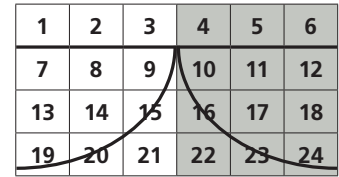
4: ASYM RIGHT NARROW



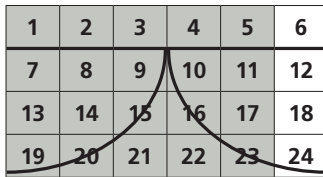
5: LEFT NARROW



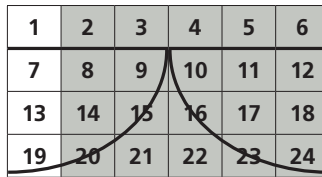
6: RIGHT NARROW



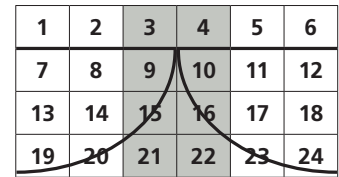
7: ASYM LEFT WIDE



8: ASYM RIGHT WIDE



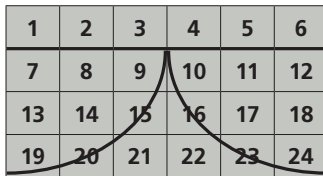
9: CENTER NARROW



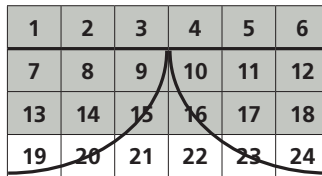
«□» DEPTH PATTERNS

Row 1 (spots 1 – 6) remain on even during the "closed-door" position.

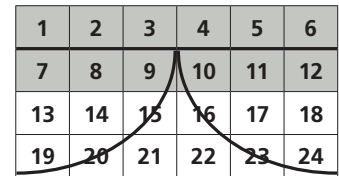
1: DEEP



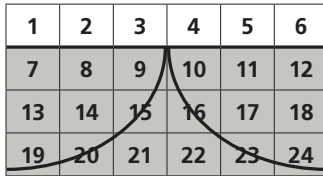
2: MIDDLE



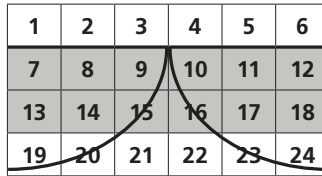
3: LIMITED



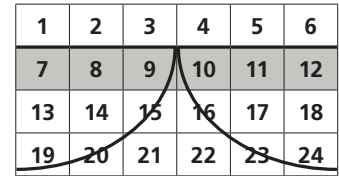
4: DEEP WITHOUT ROW 1



5: MIDDLE WITHOUT ROW 1



6: LIMITED WITHOUT ROW 1



INSTALLATION/SERVICE COMPLIANCE EXPECTATIONS

The sensor manufacturer cannot be held responsible for incorrect installations or incorrect adjustments of the sensor/device; therefore, the sensor manufacturer does not guarantee any use of the sensor/device outside of its intended purpose.

The sensor manufacturer 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/device system performance 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's 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, UL294, UL325, and International Building Code).

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

