Infinity Shield

User Guide

NOTE TO INSTALLER
Leave this manual with the customer after installation.

2024/01/17 – Rev. 20

Contents

INTRODUCTION AND SAFETY

Congratulations to becoming an Infinity Shield® safety sensor owner! It is our number one goal to ensure your safety and satisfaction. Please follow all instructions in this manual during installation and operation. The Infinity Shield® sensor is designed to operate with most residential garage door openers. However, before installing Infinity Shield®, it is the responsibility of the installer and/or the end user to confirm compatibility with the garage door opener that it interfaces to. A complete list of compatible garage door openers is provided in the SPECIFICATION AND DESCRIPTION chapter.

If you discover a problem during installation or operation, please read through the TROUBLESHOOTING chapter. If you still are not able to address the problem, please contact customer support.

NOTE

Do not return the product to the store from which it was purchased. Email **support@infinity-shield.com** or call customer support at **858-208-0040** for help.

The Infinity Shield® safety sensor is intentionally designed to be very easy to install and operate and all parts needed for installation are included in the box. No specific experience or specialized tools are required to install this product; it can be installed by either the end customer or a professional garage-door installer.

Detailed installation instructions are provided in the INSTALLATION chapter. To emphasize critical safety guidelines, a summary of warnings is included below. Failure to comply with the safety guidelines could result in injury, death, or property damage.

WARNING

- Confirm compatibility before starting installation
- Disconnect the power source from the garage door opener before removing the existing photo-eye sensor or installing Infinity Shield®
- Please use caution when handling the snap-in brackets to avoid cuts from sharp edges and pinching fingers between the door track and the brackets during installation

DESCRIPTION AND SPECIFICATION

Product Description

The majority of all residential over-head garage doors in operation in USA and Canada interface to a single-beam IR sensor positioned about 6” above the floor. This means that the remainder of the door opening is not protected against accidents caused by closing the garage door on items such as car trunk lids, bumpers, and even children and pets.

The Infinity Shield® sensor solves this safety problem by utilizing 25 IR beams and patented algorithms to obtain a very dense coverage of the door opening from approximately 5.5” to 73.5” above the garage floor. The diagram in figure 1 shows the coverage over the width of the garage-door opening. For a typical 8’ wide garage door, one foot in from the door edge, the undetectable zone is always less than 8.5” in height. This ensures that a trunk, hatch, or bumper are always detected if they are in the path of a closing garage door.

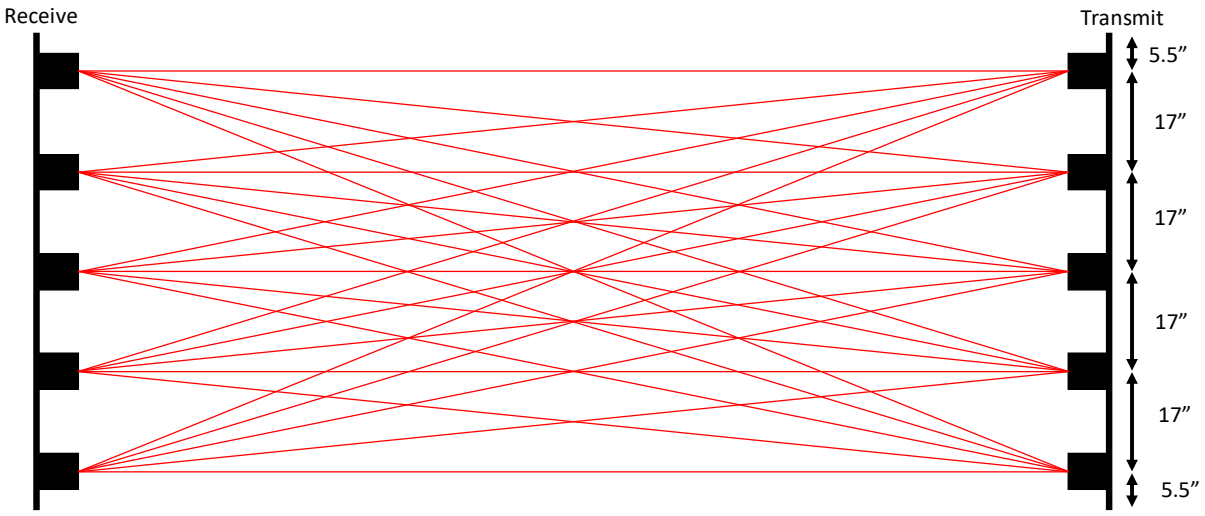

figure 1. Coverage

Additionally, it provides a beeping sound when a car enters the garage until the back of the car has passed the garage-door opening to assist the driver with driving the car sufficiently far into the garage to not obstruct the garage door.

Part Description

A physical description of the Infinity Shield® system is shown in figure 2. Each part is labeled, and the descriptions of the labels are shown in table 1. These labels are referred to in the installation procedure in the INSTALLATION chapter. One way to distinguish the receive housing (R1) from the transmit housing (T1) is to look for the DIP switch (R2) on the side. Some versions of the Infinity Shield® contain a beeper toggle switch (R5) that is also useful for identification of the receiver housing (R1). Alternatively, for identification after installation, the colors of the user LEDs (R3 and T2) are red and green, respectively.

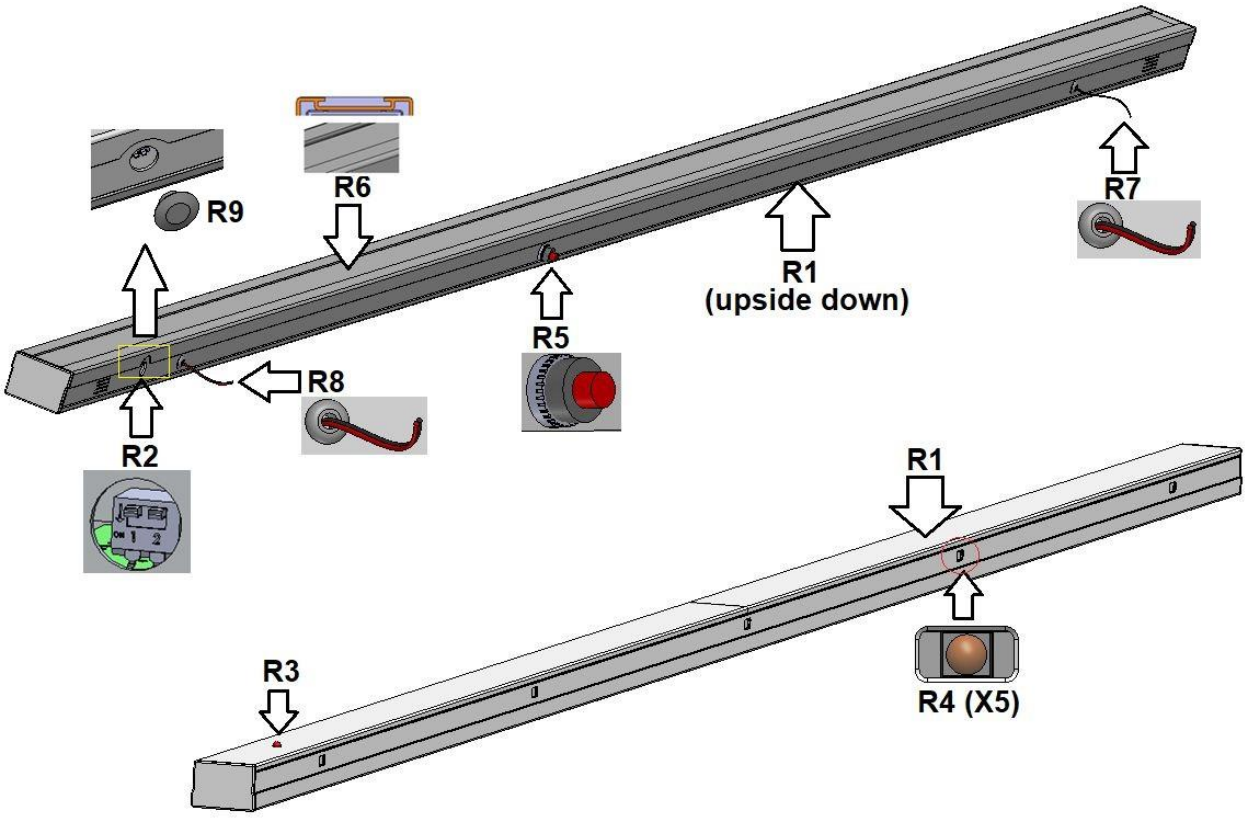

figure 2a. Receiver drawing

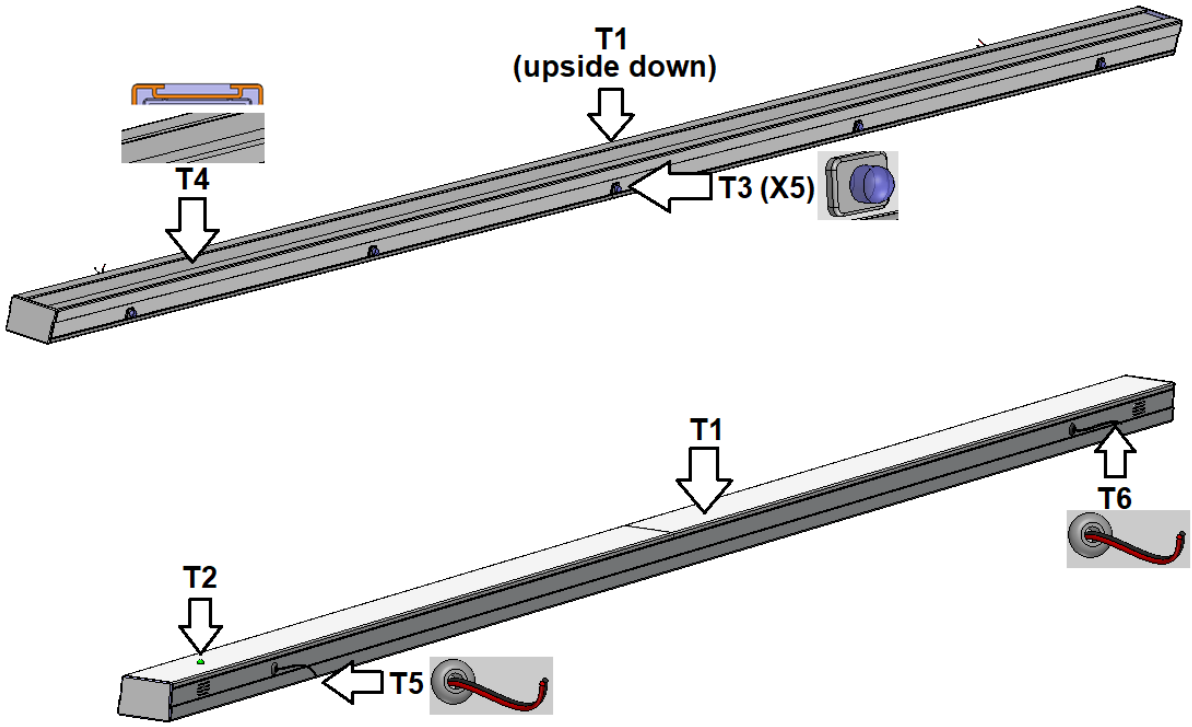

figure 2b. Transmitter drawing

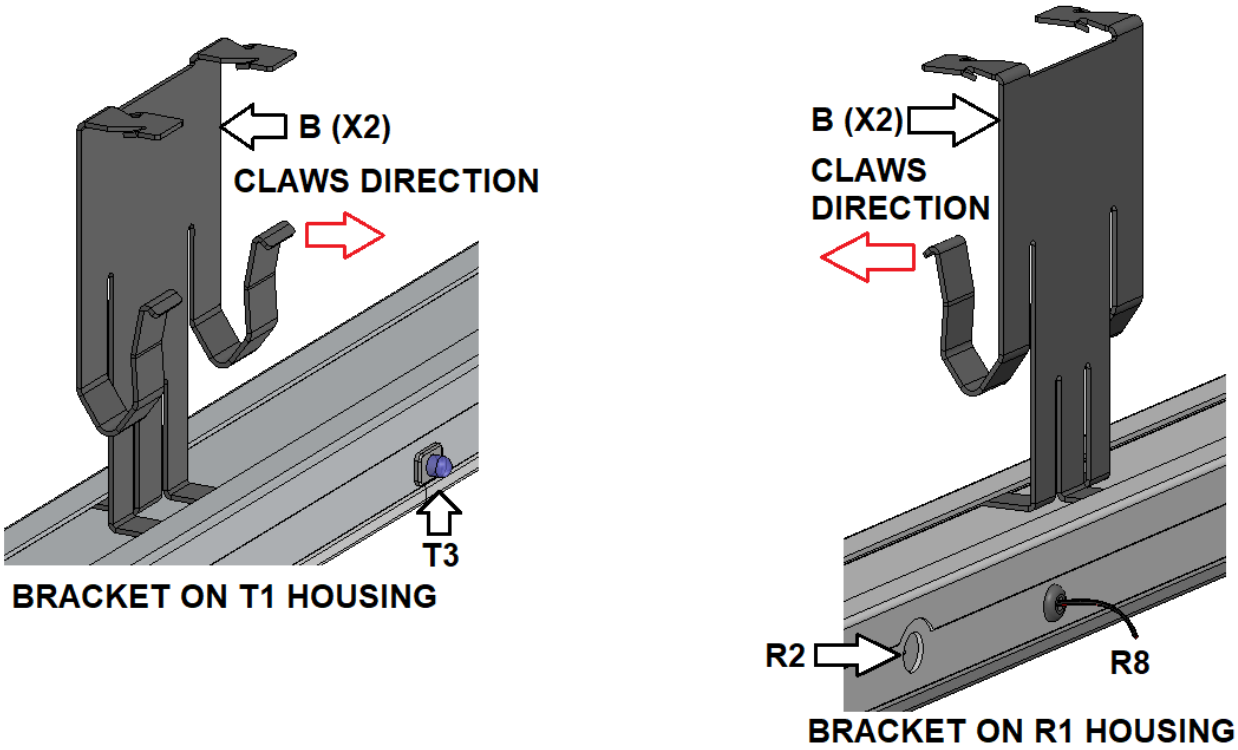

figure 2c. Snap-in bracket drawing

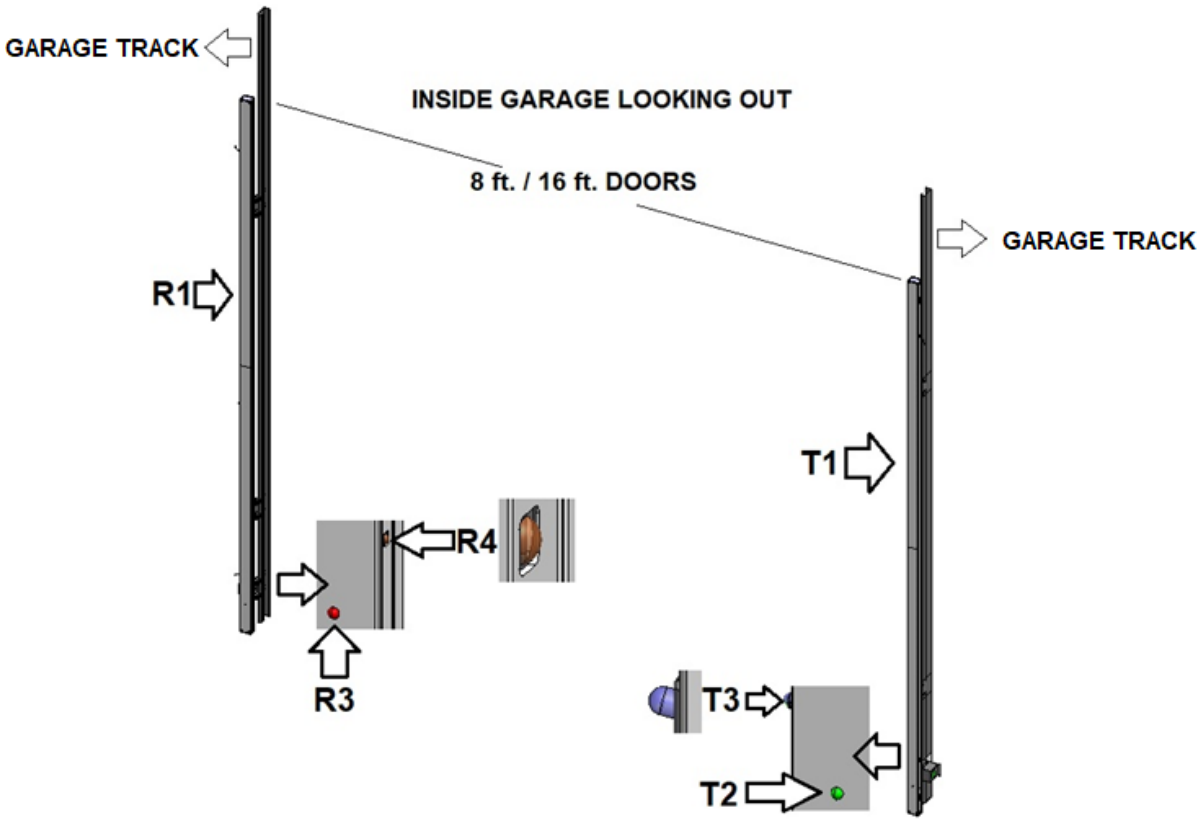

figure 2d. Installed drawing

Parts	Label
Receive Housing	R1
Receive DIP switches	R2
Receive user LED (red)	R3
Receive IR modules 1-5	R4
Receive beeper toggle switch	R5
Receive housing groove	R6
Receive upper wires	R7
Receive lower wires	R8
Receiver DIP switch cover	R9
Transmit Housing	T1
Transmit user LED (green)	T2
Transmit IR LEDs 1-5	T3
Transmit housing groove	T4
Transmit lower wires	T5
Transmit upper wires	T6
Snap-in bracket	B

table 1. Reference labels

Compatibility

Infinity Shield is compatible with the garage-door opener manufacturers listed in table 2. For commercial installations, Infinity Shield is only compatible with monitored interfaces of the supported manufacturers.

Opener Manufacturer	Models	Switch	
		1	2
Genie, Overhead Door	All models utilizing safety sensor manufactured 1993–current	UP	UP
Liftmaster, Chamberlain	All models manufactured 1997–current	DOWN	DOWN
Sears, Craftsman	All models except 100 series manufactured 1997–current	DOWN	DOWN
Master Mechanic	All models manufactured 1997–current	DOWN	DOWN
Guardian	All models	UP	DOWN
Marantec	All models	UP	DOWN
Linear	All models	UP	DOWN

table 2. Compatibility

Specification

System	
Minimum garage door width	8 ft
Maximum garage door width	18 ft
Minimum garage door height	7 ft
Vertical detection coverage	5.5 to 73.5 inches above the floor
Maximum response time	450 ms
Number of IR beams	25
Certification	UL-325 certified component
Parking assistance	Beeper function indicating door path is blocked
Maximum ambient light intensity	100,000 lux
Mechanical	
Dimensions	79 x 1 5/8 x 1 1/8 inches
Weight	< 6 pounds
Mounting	Snap-in brackets on garage door tracks
Electrical	
Input voltage	6–24 VDC
Average power	< 350 mW @ 24 V input
Protection	Reverse polarity protection ESD protection
Environmental	
Operating temperature	–30°C to 60°C
Storage temperature	–40°C to 60°C

table 3. Specification

LED behavior

The behavior of the transmit and receive user LEDs is shown in table 4.

LED Lights		Beeper (if enabled)	Status
Transmit (GREEN)	Receive (RED)		
OFF	OFF	OFF	Transmitter and receiver not plugged in, incorrect polarity, garage door opener turned off, upper wires shorted, or garage door opener is in sleep state. Some openers turn off power to the safety sensor when the motion sensor detects no motion.
OFF	Slow RED blinking	Beeps	Transmitter unit not plugged in correctly
Fast GREEN blinking	OFF	OFF	Receiver unit not plugged in correctly
Fast GREEN blinking	Fast RED blinking	OFF	Installed correctly and no obstruction is sensed
Fast GREEN blinking	Slow RED blinking	Beeps	Installed correctly and obstruction is sensed

table 4. LED behavior

Video

Media describing how the product works and can be used are located at the Infinity Shield® website.

Website

infinity-shield.com

INSTALLATION

Pre-Installation

Please follow all instructions in this manual during installation and operation. The Infinity Shield® sensor is designed to operate with most residential garage door openers. However, before installing Infinity Shield®, it is the responsibility of the installer and/or the end user to confirm compatibility with the garage door opener that it interfaces to. A complete list of compatible garage door openers is provided in the SPECIFICATION AND DESCRIPTION chapter.

If you discover a problem during installation or operation, please read through the TROUBLESHOOTING chapter. If you still are not able to address the problem, please contact customer support.

The Infinity Shield® safety sensor is intentionally designed to be very easy to install and all parts needed for installation are included in the box. No specific experience or specialized tools are required to install this product; it can be installed by either the end customer or a professional garage-door installer.

Failure to comply with the safety guidelines could result in injury, death, or property damage.

WARNING

- Confirm compatibility before starting installation
- Disconnect the power source from the garage door opener before removing the existing photo-eye sensor or installing Infinity Shield®
- Please use caution when handling the snap-in brackets to avoid cuts from sharp edges and pinching fingers between the door track and the brackets during installation
- Do not operate the garage door until the Infinity Shield® installation is complete
- After completing installation, confirm that the door stops when an object is placed in its path. If the door does not stop, immediately disconnect the power from the garage door opener and call customer support.
- Please handle the transmit IR LEDs with care and avoid forceful impact and contact with sharp or abrasive objects

Installation Procedure

Installation Video

infinity-shield.com/installation

1. Confirm compatibility with the garage door opener.
2. Unpack the parts from the box and lay on the garage floor covered by cardboard or on a table.
3. Unplug the power from the garage door opener.
4. **Only for upgrades:** Disconnect or cut the two wires from each of the existing sensors and remove them from both sides of the garage door.
5. **For installation with multiple doors:** refer to figure 4 for correct positioning of the receive housings (R1) and transmit housings (T1). Note that the units may need to be installed upside down from the description below for certain door configurations. The upper wires R7 and T6 would then be used instead of the lower wires.
6. Remove the DIP switch cover (R9).
7. On the DIP switch (R2) of the receive housing (R1), set the switches to your model of the garage door opener, as specified in table 2. Use the tweezers that are included in the box. Using any other tool may damage the switches. Re-install the DIP switch cover (R9).

NOTE: If the DIP switch (R2) positions are changed, power to the unit must be turned off for at least 10 s and then turned on again, for the new configuration to take effect.

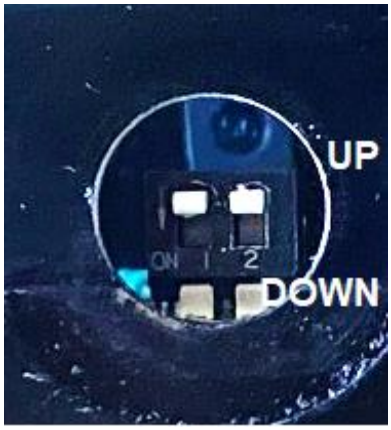

figure 3 DIP switch

8. For receive housing (R1):
   a) Hold the housing next to the garage door track that it is intended to be installed on. Check to see if the snap-in brackets (B) interfere with any brackets on the tracks. Mark the desired bracket position on the receive housing (R1) with a piece of tape.
   b) Orient the claws of the snap-in brackets (B) to point in the direction of the IR modules (R4).
   c) Snap in the brackets (B) into the receive housing groove (R6) by first inserting the center tab in the receive housing groove (R6) and then flexing the two outer tabs one at a time and inserting the tabs in the groove.
   d) Clamp on the brackets (B) to the garage door track.
   e) Connect the two lower wires (R8) to the two wires from the garage door opener with the included wire nuts or strip-less connectors. The red wire is positive and the black wire is negative. If the polarity of the wires from the garage door opener is unknown, it is possible to try one way first and the other way next if the first way is incorrect. If the polarity is correct, the user LED (R3) will blink red once power is restored to the garage door opener. Nothing will happen or get damaged if the polarity is incorrect.
9. For transmit housing:
   a) Hold the housing next to the garage door track (opposite side of the receiver hosing) that it is intended to be installed on. Check to see if the snap-in brackets (B) interfere with any brackets on the tracks. Mark the desired bracket position on the transmit housing (T1) with a piece of tape.
   b) Orient the claws of the snap-in brackets (B) to point in the direction of the IR LEDs (T3).
   c) Snap in the brackets (B) into the transmit housing groove (T4) by first inserting the center tab in the transmit housing groove (T4) and then flexing the two outer tabs one at a time and inserting the tabs in the groove.
   d) Clamp on the brackets (B) to the garage door track.
   e) Connect the two lower wires (T6) to the two wires from the garage door opener with the included wire nuts or strip-less connectors. The red wire is positive and the black wire is negative. If the polarity of the wires from the garage door opener is unknown, it is possible to try one way first and the other way next if the first way is incorrect. If the polarity is correct, the user LED (T2) will blink green once power is restored to the garage door opener. Nothing will happen or get damaged if the polarity is incorrect.

10. Connect power back into the garage door opener. If the system is installed correctly and none of the beams are blocked, the red receive user LED (R3) and green transmit user LED (T2) will blink rapidly.
11. The beeper can be turned on and off by pressing the receive beeper toggle switch (R5).
12. After completing installation
    a) Confirm that the door does stop when an object is placed in its path. If the door does not stop, immediately disconnect the power from the garage door opener and call customer support.
    b) Turn on the beeper, park the car with the rear hatch open with the highest point intersecting the garage-door opening, and confirm that the beeper detects the hatch.
13. The unused transmit and receive wires that are located at the top of the installed unit may optionally be cut after installation.

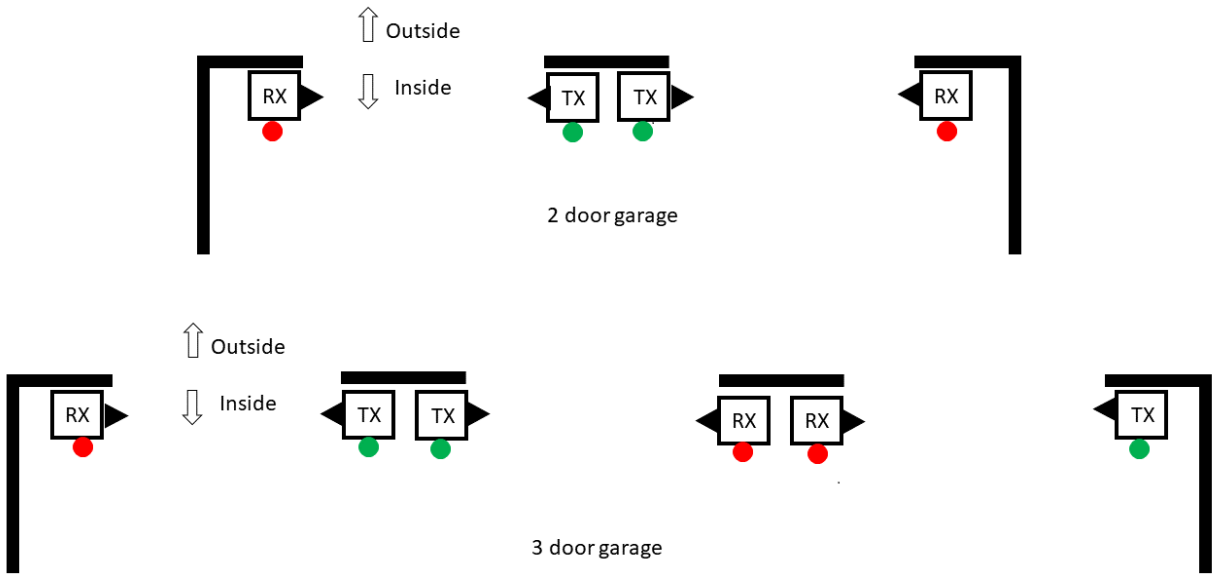

figure 4. Installation in garages with multiple doors (view from above)

Maintenance

- Inspect the transmitters and receivers for dirt and or dust and wipe clean with damp paper towel.

TROUBLESHOOTING

Locate the symptom in the table below and follow the troubleshooting steps to troubleshoot and fix any issues. Please refer to figure 2 in chapter DESCRIPTION AND SPECIFICATION for a parts description when troubleshooting.

NOTE

Do not return the product to the store from which it was purchased. Email **support@infinity-shield.com** or call customer support at **858-208-0040** for help.

User LEDs do not light up	1. Check that the two wires from the garage door opener on each side of the garage door are connected to the Infinity Shield sensor. 2. Swap the connectivity of the red and black wires to the garage door opener wires. 3. Check the unused wires (upper or lower) for shorts. If there is a short, separate the two wires and tape the bare conductors with electrical tape. 4. Check that the garage door opener is plugged in and powered on and that it has not entered auto-shutoff mode. Some garage door openers with motion sensors automatically shut off after a period of time of no detected motion.
Door is closed and does not open	1. Check the power source to the garage door opener. 2. Check that the two wires from the garage door opener on each side of the garage door are connected to the Infinity Shield sensor. 3. Proceed to the troubleshooting section of the garage door opener.

Door is open and does not start (or quickly stops) to move when the open/close button is pressed	1. Check the power source to the garage door opener. 2. Check that the two wires from the garage door opener on each side of the garage door are connected to the Infinity Shield sensor. 3. Check for item(s) blocking the IR beams, including garage-door handles and parts attached to the door. 4. Check that the DIP switch is set to the correct position corresponding to the garage door opener it interfaces to. Power to the unit must be turned off for at least 10 s and then turned on again, for a new configuration to take effect. 5. Inspect the alignment of the left and right Infinity Shield housing. Perfect alignment is not required, but both housings should be aligned vertically and face each other. 6. For garages with multiple doors, ensure that the guidelines for preventing cross talk in the INSTALLATION chapter are followed. 7. Inspect the transmitters and receivers for dirt/dust and wipe clean with damp paper towel. Inspect the transmitter and receiver for damage. Call customer support if damage is seen. 8. Power cycle the system by disconnecting the wires to the Infinity Shield transmit and receive housings for 10 s and then connecting the wires again. 9. Proceed to the troubleshooting section of the garage door opener.
Door is open and stops before fully closed when the open/close button is pressed	1. Check for item(s) blocking the IR beams, including garage-door handles and parts attached to the door when the door is in the position it stopped in. 2. Check that the DIP switch is set to the correct position corresponding to the garage door opener it interfaces to. Power to the unit must be turned off for at least 10 s and then turned on again, for a new configuration to take effect. 3. Inspect the alignment of the left and right Infinity Shield housing. Perfect alignment is not required, but both housings should be aligned vertically and face each other. 4. For garages with multiple doors, ensure that the guidelines for preventing cross talk in the INSTALLATION chapter are followed. 5. Inspect the transmitters and receivers for dirt/dust and wipe clean with damp paper towel. Inspect the transmitter and receiver for damage. Call customer support if damage is seen. 6. If the problem is intermittent and only occurs when there is strong sun shining on the receiver side and the transmitter side never receives strong sun throughout the day, then swap the sides of the transmitter and receiver. If there is strong sun on both the transmitting and receiving side at times during the day, contact customer support. 7. Proceed to the troubleshooting section of the garage door opener.

Door does not stop closing when there is a blockage	1. Unplug the power to the garage door opener and do not operate the garage door opener until the problem is fixed to avoid injury and/or property damage. Call customer support.
Beeper beeps sporadically when the door is open	1. Infrequent beeping can occur when there is strong sun incident directly on the receiver. There is nothing to worry about if this does not cause any inconvenience to the user. If the beeping is frequent or inconvenient, please proceed to the next step. 2. Inspect the alignment of the left and right Infinity Shield housing. Perfect alignment is not required, but both housings should be aligned vertically and face each other. 3. For garages with multiple doors, ensure that the guidelines for preventing cross talk in the INSTALLATION chapter are followed. 4. Inspect the transmitter and receiver for dirt/dust and wipe clean with damp paper towel. Inspect the transmitter and receiver for damage. Call customer support if damage is seen. 5. If the problem is intermittent and only occurs when there is strong sun shining on the receiver side and the transmitter side never receives strong sun throughout the day, then swap the sides of the transmitter and receiver. If there is strong sun on both the transmitting and receiving side at times during the day and the unit beeps more frequently than once per minute, then contact customer support.
Beeper beeps sporadically when the door is closed	1. Inspect the alignment of the left and right Infinity Shield housing. Perfect alignment is not required, but both housings should be aligned vertically and face each other. 2. For garages with multiple doors, ensure that the guidelines for preventing cross talk in the INSTALLATION chapter are followed. 3. Inspect the transmitters and receivers for dirt/dust and wipe with damp paper towel. Inspect the transmitter and receiver for damage. Call customer support if damage is seen.