Z-Series Wireless Infrared People Counters

Model: Z-900

Introduction

The Traf-Sys/Walker Wireless Z-Series Wireless Infrared People Counters provide a simple and elegant, yet effective way to track foot traffic through a given area or entrance. The counter consists of two parts, a transmitter and receiver, and determines traffic based using infrared beam breaks; upon beam break, the LCD counter will increment and the person will be counted as having passed through your monitored area/entrance.

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Features and Benefits

- Infrared beam-interrupt 24-bit People Counter
- Battery operated (fully wireless), with optional line power
- Can operate in side-firing or front-firing mode (switch selectable)
- Integrated 6 digit LCD display indicating total counts
- Up to 14ft infrared transmission range
- Complies with part 15 of the FCC rules
- Up to 150ft (418MHz) or 800ft (900MHz) indoor radio transmission range
- Monitors infrared beam interruptions and duration of beam interruptions
- CRC-16 error checked radio packets
- User replaceable batteries (3.6 volt lithium)
- Flush mounting bracket (included

Mounting and Orientation

One key to your Z-Series People Counters operating properly and efficiently is their mounting orientation and height; normal mounting height is between 36 and 52 inches. Please see the illustrations below:

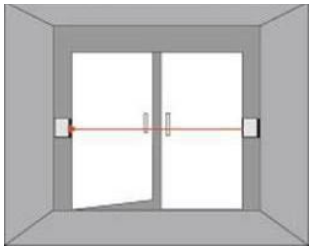


Figure 1

Figure 1 shows a typical side-firing (door mounted) installation.

Figure 2 shows a typical front-firing (wall mounted) installation.

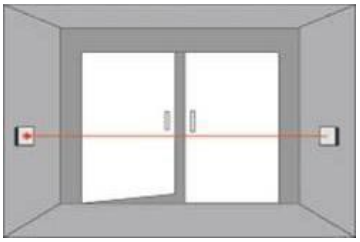


Figure 2

The orientation arrows depicted below will help you determine if your sensors are mounted and aligned correctly.

- **Side-firing (door mounted) mode**: The Side-fire Beam Path Orientation Arrows should all be pointing in the same direction towards the LCD screen. The Top/Bottom Orientation Arrow should be pointed towards the ceiling. Side-firing mode can only be used on the non-swing side of the door.
- **Front-firing (wall mounted) mode**: The Top/Bottom Orientation Arrow should be pointed towards the ceiling.

Figure 3:
Image simulates sensors mounted on an invisible wall, without brackets, and viewed from behind.

Mounting Bracket

You will want to mount each mounting bracket (shown below) with the Snap lock closest to the ceiling to allow for proper orientation and sensor operation.

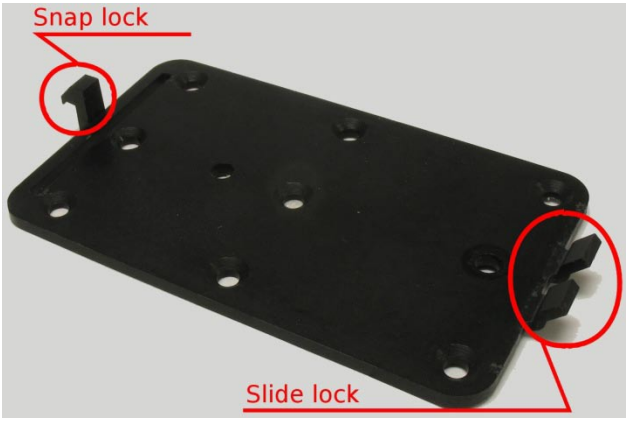


Figure 4

After mounting the brackets, your Z-Series sensors simply slide onto the Slide lock and then snap securely onto the Snap lock. The following pictorial guide will help illustrate the process:

Figure 5 Figure 6 Figure 7 Figure 8

Figure 5: Grasp the sensor firmly and line it up with the Slide lock.
Figure 6: Slide the sensor onto the dual prongs of the Slide lock.
Figure 7: Begin to push the sensor towards the Snap lock.
Figure 8: Snap the Snap lock into place and you may now release the sensor.

To release the sensor from the mounting bracket, depress the Snap lock with the included screwdriver and gently pull the top of the sensor away from the mounting bracket. See the diagram below for the location of the Snap lock release:

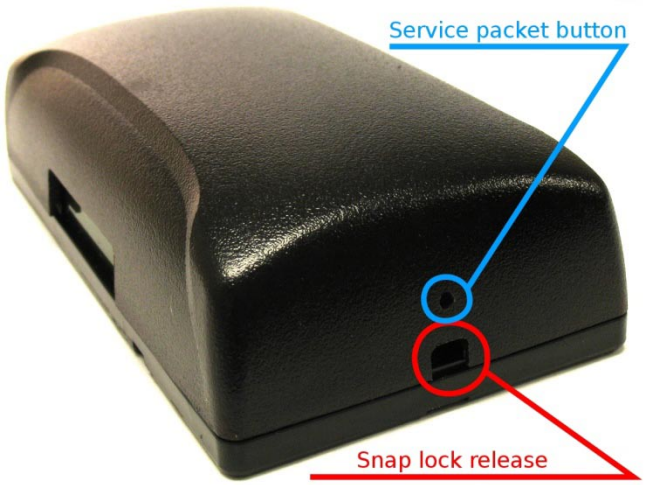


Figure 9

Determining Your Model

Unlike previous Wireless Infrared Beam models, the Z-Series sensors are configurable to be side-firing (door mounted) or front-firing (wall mounted) by a switch labeled “SF/FF” under the battery door. Within the Z-Series of sensors, the only difference is how they transmit data: 418MHz, 900MHz, non-radio or Wi-Fi (not covered in this manual).

The easiest way to determine your Z-Series model is to refer to the Traf-Sys/Walker Wireless model sticker placed on the unit before it was tested and shipped. If, over time, this sticker has become removed or too worn to read, the best way to determine your Z-Series model would be to contact Traf-Sys/Walker Wireless technical support (888-815-6568 option 3).

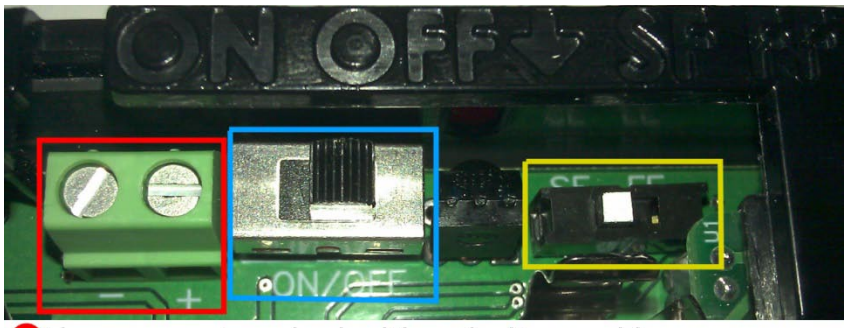
Configuration and Usage

The three models of the Z-Series sensors covered in this manual will operate almost exactly the same; any minor differences will be noted in the appropriate section below.

Each sensor will have an ON/OFF switch and SF/FF switch; these switches can be accessed by removing the battery door. The ON/OFF switch controls whether or not the unit has power and the SF/FF switch (denoted by a white marking on the switch) controls whether the beams are operating in side-firing (SF) or front-firing (FF) mode.

Also note that you will have two different sensors in your beam set:

- One sensor will have an LCD screen and service packet button. This sensor receives the infrared beam and will be referred to as the IR Receiver.
- The other sensor will not have an LCD or service packet button. This sensor projects the infrared beam (to the IR Receiver) and will henceforth be referred to as the IR transmitter.



Line power terminal with polarity markings
ON/OFF switch
Side-fire/Front-fire designation switch

Figure 10

To configure the sensors to communicate with a data controller (418MHz/900MHz only), refer to the section below entitled “Sending a service packet”. Alternatively, there is a way to add the sensors manually. To do this, take note of the 8 digit hexadecimal number located on the label below the battery door. You will likely see many sets of numbers on this label, we are only concerned with the “RSN:” number. This 8 digit number, preceded by 8 zeroes (16 digits total), is the sensor ID/serial that is referred to in your data controller’s instruction manual.

Z-900 (900MHz)

Ensure that there is a 900MHz antenna attached to your data controller and that your data controller communicates on the 900MHz frequency.

Sending a Service Packet

Sending a service packet from the Z-Series People Counters is a useful diagnostic tool; it will allow you to do the following things:

1. It will allow you to easily add the sensor to your MIU data controller using the Auto Add method described in your data controller’s manual.
2. It will automatically update the sensor’s status and make its total count visible. This is most useful for retrieving your total count (standalone mode) or interactive monitoring (when using a data controller).

To send a service packet, depress and release the service packet button using a small pointed object (i.e. – paperclip, bobby pin). Refer to Figure 9 for an illustration of the service packet button location.

Resetting Display to Zero

To reset the counter to zero depress service packet button until LCD display shows “0” the immediately release the service button.3

Troubleshooting

Below are solutions to common problems you may experience with the Z-Series Wireless Infrared People Counters.

My sensors are not counting.

The sensors are not generating counts when the infrared beam is being broken.

- Ensure that your sensors’ power switch is set to ON for both sensors.
- Ensure that your sensors’ firing designation switch is set properly to be front-firing or side-firing and ensure that the sensors are mounted to match that designation.
- Your batteries may need replaced; see Appendix A for battery replacement information.

I do not see any counts on my LCD screen.

The onboard screen displaying counts is blank.

- This is by design; sending a service packet or breaking the infrared beam will cause the count total to become visible. This feature was implemented to conserve battery life.

Appendix A: Battery Replacement

When it comes time to replace the batteries in your sensors, please follow this quick guide. You may purchase your batteries directly from Traf-Sys/Walker Wireless; these sensors require 3.6 volt lithium batteries.

1. Remove the battery door on both of your Z-Series sensors by applying pressure downwards in the direction the arrow is pointing (towards the battery door as show below in Figure 11).
2. Switch your sensors to the OFF position.
3. Using your fingernails or the included screwdriver, gently pry and remove the batteries.
4. Following the proper battery polarity designations (printed in white on the circuit board under the batteries) replace the batteries with new 3.6 volt lithium batteries.
5. Switch both sensors to the ON setting and remount them on their brackets.
6. Test your sensors by walking through the entrance or otherwise breaking the beam path.
7. If your sensors successfully generated counts, congratulations, you have successfully replaced the batteries in your sensors. If you were unable to generate counters, please refer to the Troubleshooting section of this

document then contact Traf-Sys/Walker Wireless technical support if you require further assistance.

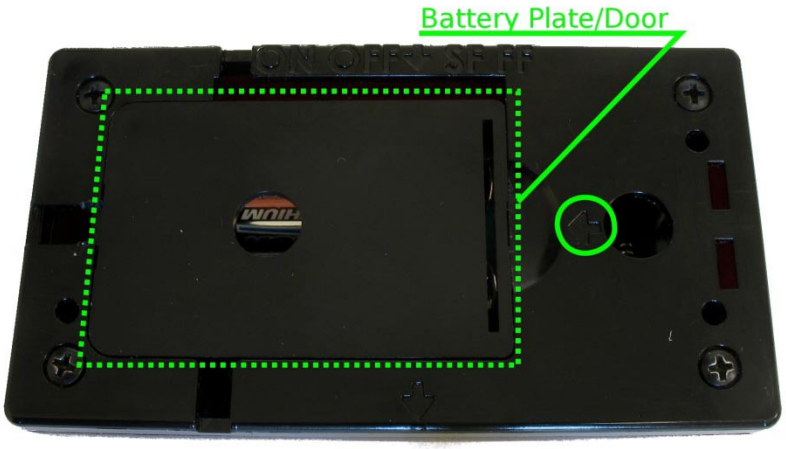


Figure 11

Appendix B: Optional Line Power

Your Z-Series People Counters can be used with an optional line power adapter to eliminate the need of battery usage and replacement. The line power adapter can be purchased with your Z-Series sensors or as an addition to your people counting solution at a later time, if you find yourself preferring line power over battery power.

Using the Traf-Sys/Walker Wireless AC Power Kit, you may wire the line power yourself, with the proper tools and equipment. The Z-Series sensors require input of 3-6 volts DC. When following the instructions below, **please do not plug the AC adapter into the wall until the instructions are complete**.

1. The Z-WiFi AC Power Kit comes equipped with 25ft. of zip cord. You will want to measure the distance between your closest AC outlet and closest sensor. Cut an appropriate length of zip cord.
2. Using wire strippers, strip approximately an eighth inch to a quarter inch of shield from the zip cord. The black wire will be negative (-) and the black wire with a white line on it will be positive (+).
3. Remove the battery door on the sensor and remove the batteries.
4. You will want to run the zip cord through one of the wire gutters located on the sides of the unit.
5. Connect the stripped wire from the zip cord into the line power terminal. The line power terminal is green colored, located next to the ON/OFF switch and attached directly to the circuit board (see Figure 10). Loosen the terminal screws and feed the wire into the terminals following proper polarity designation as printed on the circuit board. Tighten the screws on the terminal and ensure that no loose wires are visible or crossed also ensure that the wire is securely attached to the line power terminal (give it a gentle pull or two).

6. Ensure that the zip cord is not run over top of the batteries; this will cause a bulge when the battery door is replaced and prevent proper mounting. Run the wire through the wire gutter on the same side as the line power terminal or remove the batteries and lay the wire underneath the batteries.
7. Replace the batteries and replace the battery door.
8. Remount the sensor to the wall ensuring that the zip cord slides into the wire gutter and mounts flush to the bracket.
9. Your second sensor can be wired for line power with an additional AC Power Kit, or by using the extra length of included zip cord to “daisy chain” the units together. To do this, both positive wires (for the first beam unit and the second) will be connected in the first beam’s positive screw terminal, and likewise with the negative wires in the negative screw terminal (see Figure 12 below).

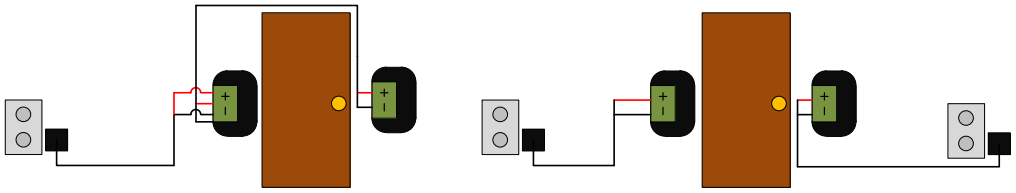


Figure 12

Z-Series Accessories

- AC Power Kit (optional)
- MIU-1000 or CompuCount data controller (recommended for Z-418 & Z-900)
- 3.6 volt lithium AA battery
- Visicount server software (requires data controller)
- Traf-Sys Data Hosting and Support Services (requires data controller)