Wireless Video-Eye People Counter

Instruction Manual and User's Guide

K&J Electronics

Contents

Thank you for purchasing AMSECO VDP-200 Wireless Video-Eye People Counter ™. Please read this manual thoroughly before making connections and operating the unit. Following the instructions in this manual will enable you to obtain optimum performance from the system.

Please retain this manual for future reference.

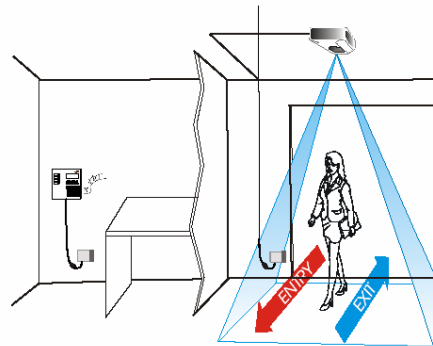# Descriptions / Features / Complete Kit Parts List

1. Descriptions

AMSECO VDP-200 Video-Eye People Counter ™ is the digital image tracking technology based people traffic counter and door announcer system integrating a Video Camera as a detecting sensor. The system **distinguishes and counts entry / exit traffic events simultaneously** by its unique Object's Motion Detection Algorithm, and provides the users very useful information on accumulated entry /exit traffic counts in offices, retail shops, department stores, or any other facility as well as announcing people's entry or exit events with pleasant chime sounds.

You can also use the VDP-200 as a monitoring camera by simply connecting its video output to any NTSC monitor.
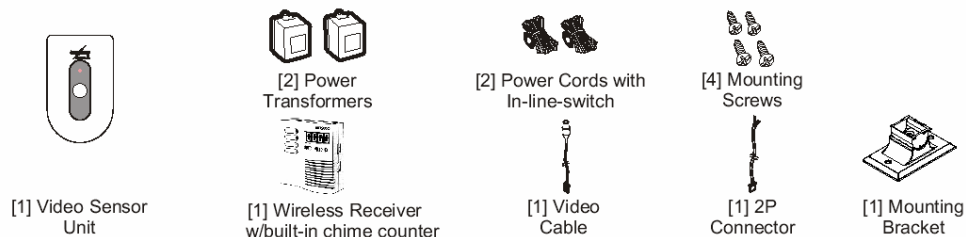
2. Features

- **Entry / Exit Distinguishable People Counter** discriminating the object's moving direction and counting entry /exit events separately
- **Six Digit Resettable Wireless Counter** capable of displaying up to 999,999 counts of the entry or exit events
- **Wireless Multifunction Receiver** capable of 200 ft wireless Transmission range
- **Alarm Mode** to use VDP-200 as a local alarm system generating built-in siren and providing relay output
- **Two Distinctive Chime Sounds** to announce Entry and Exit Event separately
- **Adjustable Chime Volume**
- **Easier Installations** not requiring additional reflector installations or adjustments
- **Ceiling Mount**
- **CMOS Color Video Camera integrated**
- **Digital Signal Processor (DSP) driven system**
- **NTSC Video Output** ready to be used as the monitoring camera
- **Counter Memory Back-up** from accidental Power failure

VDP-200 can expand its features by combining with AMSECO's optional wireless infrared sensors(EWPT-202), wireless push buttons (EWPP-202), Chimes (CM-4) and others. ASK yow local dealers/distributors for details.

3. Complete Kit Parts List

Upon opening of the package please ensure the following parts are enclosed properly before installation.

[1] Video Sensor Unit

[2] Power Transformers

[1] Wireless Receiver w/built-in chime counter

[2] Power Cords with In-line-switch

[1] Video Cable

[4] Mounting Screws

[1] 2P Connector

[1] Mounting Bracket

4. Precautions

It is important that you carefully read these installation instructions before starting the installation. While the installation procedures are very simple, there are guidelines to follow to ensure that the system will operate properly. The guidelines are as follows:
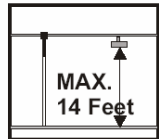
1) The Video Sensor Unit and the Wireless Counter Unit should be mounted onto a flat, firm surface.

2) USE only AMSECO 12V AC transformer provided together and wires as specified in this Instructions.

3) **For the maximum accuracy of the counter it is strongly recommended that you install the system in the environment satisfying the following conditions:**
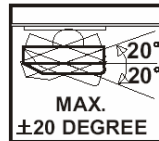
Recommended Installation Conditions   *Installation NOT Recommended*

Install the Video Sensor Unit in **the illumination intensity between 7 Lux to 3,000 Lux.**

MIN. 7 LUX   MAX. 3,000 LUX

Outdoor Installations. The product is designed for indoor use only.

INDOOR ONLY

The Video Sensor Unit is recommended to be installed **maximum 14 feet high above the floor**.

MAX. 14 Feet

DO NOT install the video sensor unit above the floor facing directly into the sun light or other bright lights. The shadow or reflections caused by strong lights may generate   false counting.
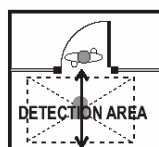
NO DIRECT LIGHT NO DARK SHADOW

Recommend to **install the Video Sensor Unit exactly in parallel with the floor** so that the camera gets a birds-eye view of the Detection Area. Adjust the angle of the Unit by the maximum of ± 20° only when necessary.

20° 20°
MAX. ±20 DEGREE

DO NOT adjust the angle of the Video Sensor Unit over 20 degrees from normal angle.

OVER 20°

Refer to the dimensions of Detection Area for each installation height (Fig. 1) and **clear the Detection Area from any movement of objects other than intended traffic.**
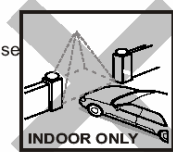
CLEAR THE DETECTION AREA

Refer to the dimensions of Detection Area for each installation height on page 5 (Fig. 1), and **place the Camera unit so that the passage is fully covered by the detection area.**
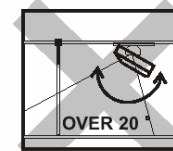
DETECTION AREA

DO NOT install the Unit too close to the door so that   the door intrudes the Detection Area, or the Detection Area crosses the door.

DETECTION AREA

DETECTION AREA

5. Installation Procedures

1) Plan the Installation: Decide the Position of Camera / Controller Unit First

VDP-100 senses the people's movement in a certain Detection Area and analyzes the traffic in the Area using motion tracking technology. It is important to locate the Video Sensor Unit 1) to fully utilize the Detection Area of VDP-100, and 2) to clear the area from any movements confusing the counter.

Detection Area of the VDP-100 is different depending on the installation heights from the floor, and therefore **we recommend you determine the detection area of the VDP-100 at your intended installation height, and find the best location of your VDP-100 before starting any other installation procedure**.

Please decide the best position of VDP-100 in the following steps before starting any installation :

Step 1) Refer to Fig.1 and find the dimensions of detection area at your intended installation height

Step 2) Stand facing the center of the door, and assume a square of detection area on the floor.

Step 3) Make sure people will cross at least 2/3 of the detection area when they enter.

Step 4) Make sure that the detection area is not crossing the door or the wall. Move the VDP-100 if necessary.

Step 5) Make sure the area is clear from any unnecessary movement.

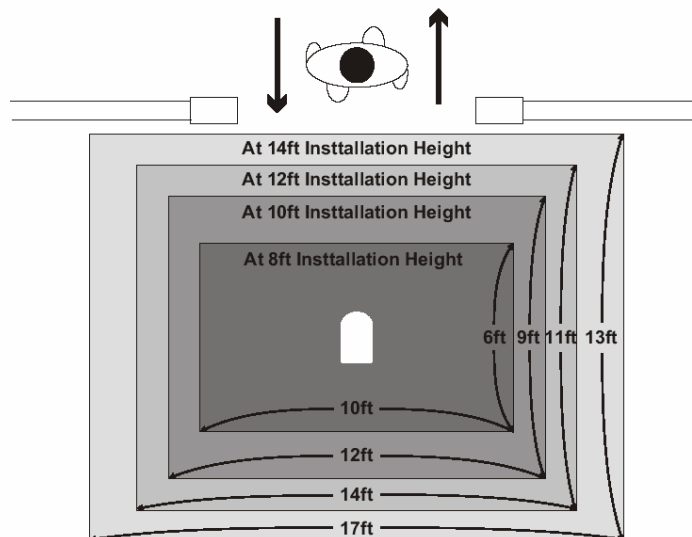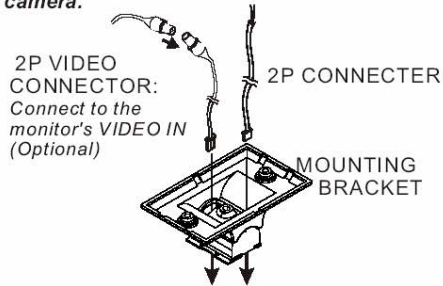Step 6) The ceiling right above the center of the detection area is where you install your VDP-100 Video Sensor Unit.

Fig. 1 Installation Heights and Detection Area
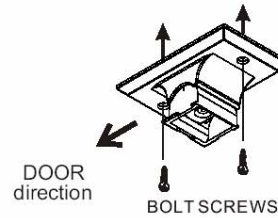
Installation Procedures

2) Installation of the Video Sensor Unit

Step 1) Refer to page 5 and decide the position to install the Video Sensor Unit.

Step 2) Pass the 2-pin Connector and Video Connector through the holes in the mounting bracket. Make a hole by removing the tab on the intended side of the bracket for wire-through if necessary. **You can connect the Video Connector with your monitor if you want to use the VDP-100 as a monitoring camera.**
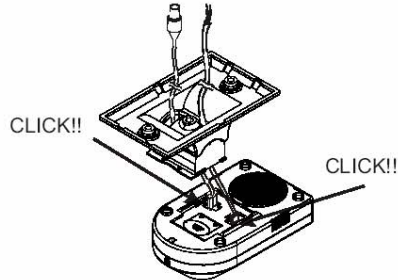
2P VIDEO
CONNECTOR:
*Connect to the
monitor's VIDEO IN
(Optional)*

2P CONNECTER

MOUNTING
BRACKET

Step 3) Using the two screws provided,secure the Mounting Bracket at the location that the Video Sensor Unit is to be installed. (Refer to the **Plan the Installation** on page 5 to decide an optimal position for the Video Sensor Unit.)
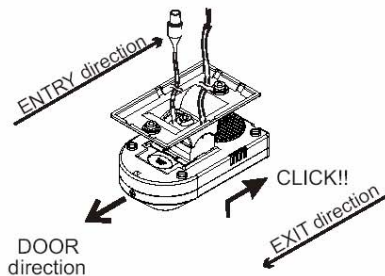
DOOR
direction

BOLT SCREWS

⚠ *BE CAREFUL FOR THE DIRECTION OF BRACKET INSTALLATION WHEN MOUNTING ON THE CEILING*

Step 4) Connect the 2-pin connector and video connector to the Video Sensor Unit by snapping them in until it is secure.

CLICK!!

CLICK!!

Step 5) Secure the Mounting Bracket and the Video Sensor Unit by sliding the unit into the guide rails of the bracket until it is secured. Make sure the round part of the Video Sensor Unit is facing the door.

ENTRY direction

CLICK!!

DOOR
direction

EXIT direction

Step 6) Pull the wires to the Counter Display Unit and move to the Counter Display Installations stage.
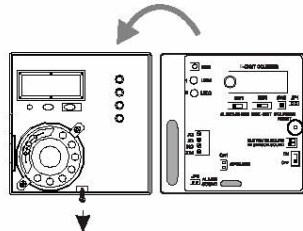
3) Installation of the Wireless Counter Unit

Step 1) Decide a place to install the Wireless Counter Unit within the reach of a Power Source.

⚠ *WARNING: PLEASE INSTALL THE WIRELESS COUNTER WITHIN THE TRANSMISSION RANGE OF THE VIDEO SENSOR UNIT. & CHECK THE TRANSMISSION RANGE AT THE INTENDED LOCATIONS BEFORE INSTALLTIONS AS THE RANGE MAY VARY DEPENDING ON THE ENVIRONMENT.*
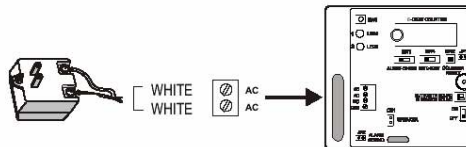
Installation Procedures

Step 2) Open the front panel of the Wireless Counter shifting the screw up at the bottom of the unit.

Step 3) Using the 24-ft. Power Cord with in-line-switch, connect the pre-stripped wires to the 12V AC 20VA transformer terminals.

Step 4) Refer to the *Wiring Diagram* on page 8, and connect the other end of the power cord to the terminals on the Wireless Counter.

WHITE
WHITE

⊘ AC
⊘ AC

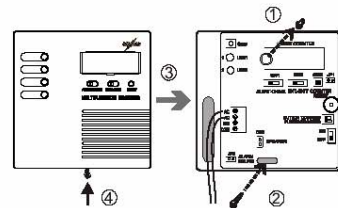⚡ **WARNING: DO NOT PLUG THE TRANSFORMER INTO AC OUTLET AT THIS TIME**

⚠ **WARNING: FOR ADDITIONAL EXTENSIONS OF POWER CORDS USE ONLY WIRES OF AWG # 22 OR ABOVE.**

⚠ **WARNING: DO NOT CVT, CVRL, OR EXTEND THE ANTENNA WIRE.**

Step 5) Remove the tab on the bottom of the Wireless Counter if necessary to arrange the wires, and Secure the Wireless Counter to the intended location using two screws provided.

Close the cover and secure it with the screw.

① ③ ② ④

4) Turning ON / Testing the System

Step 1) Plug-in both AC Transformers to AC outlets and turn the in-line switches ON. Make sure the red LEDs of the Video Sensor Unit and the Wireless Counter are ON upon turning on the system. Check the wiring and power sources if it is not.

Step 2) Walk across the detection area and check whether the counter and chime sounds are working. (Ding-dong on ENTRY / Ding on EXIT) Adjust the angle of view a bit if necessary. Check over the installation procedures and precautions in this Instruction Manual if the system does not work properly.

⚠ ***WARNING: VDP-200 SHOWS ITS BEST PERFORMANCE WHEN THE VIDEO SENSOR UNIT IS INSTALLED IN PARALLEL WITH THE FLOOR SO THAT THE CAMERA HAS A BIRDS-EYE VIEW ON THE AREA. DO NOT ADJUST THE ANGLE UNLESS IT IS NECESSARY.***
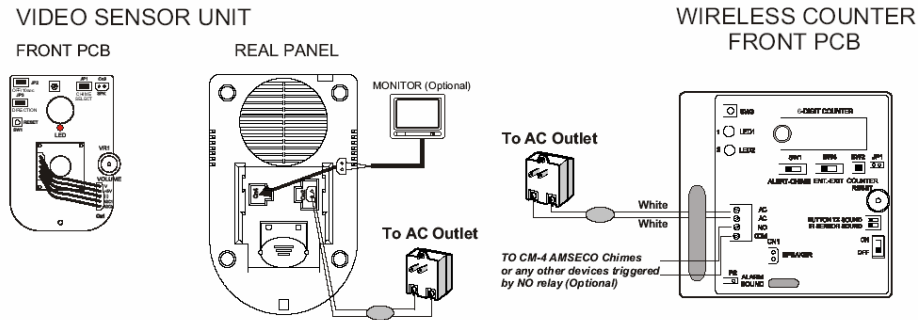

Step 3) Refer to page 9 of this manual, and adjust the chime volumes and other user options if necessary.

Step 4) Now your VDP-200 Wireless Video-Eye People™ Counter is ready.

5) Wiring Diagrams

Refer to the following wiring diagram and make sure your connections are correct before turning on the system.

VIDEO SENSOR UNIT   WIRELESS COUNTER
                                                                FRONT PCB

FRONT PCB   REAL PANEL

MONITOR (Optional)

To AC Outlet

To AC Outlet

White
White

TO CM-4 AMSECO Chimes
or any other devices triggered
by NO relay (Optional)

Video Sensor Unit

Cn1: Connector to CMOS Camera   **Cn3:** Chime Speaker Connector
    V: *Video Signal Input*
    (-):   *Ground*
    +5V: *DC 5V Power Output*
    AGC1: Automatic Gain Control 1
    AGC2: Automatic Gain Control 2

Cn2: Connector to Counter Display   **Cn4:** Connector to Monitor
    (-):   *Ground*   *V:* *Video Signal Output*
    +12V: *12V DC Input*   *(-):* *Ground*

Wireless Counter

AC: 12V AC Input
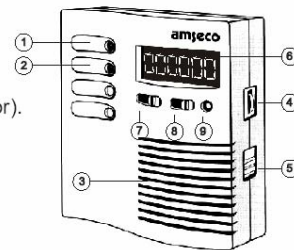**AC:**   12V AC Input
NO: Normally Open Relay Terminal
COM: Common Relay Terminal

6. Front Panel Controls and Names
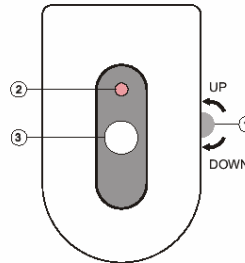
Wireless Receiver

1) **Channel-1:**   Visual indicator (red LED) lights-up when the Video
                Sensor is triggered.
2) **Channel-2:**   Visual indicator (red LED) lights-up when the wireless
                push button (optional) is activated.
3) **Built-in Speaker**: Provides sound output.
4) **Volume Control**: Adjusts the sound level.
5) **Power Switch**:   Slide power switch up to turn the Counter ON.
                 Slide power switch down to turn the Counter OFF.
6) **Digital Counter**: Displays the 6-digit counter(or alarm memory indicator).
7) **Alert/ChimeMode Selector**:
  Chime mode - for use of VDP-200 as a local alarm device
  Alert mode - for use of VDP-200 as a door announcer and counter
8) **Entry/Exit Indication Switch**:
  At ENTRY - Counter displays the number of ENTRY events.
  At EXIT - Counter displays the number of EXIT events.
9) **RESET BUTTON**:
  Chime mode - Resets both ENTRY and EXIT counters to zero.
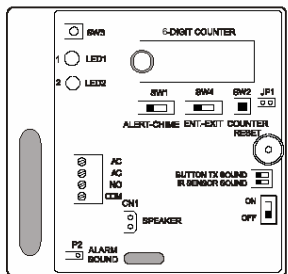 **Alert mode** - Resets the alarm memory indicator only.

The Counter Settings / The Video Sensor Settings

Video Sensor Unit

1) Volume Control: Adjusts the built-in chime volume.
   (Clockwise : volume down / Counterclockwise : volume up)

2) Status LED: Lights on when the system is ON
   Blinks upon ENTRY / EXIT events

3) Camera Lens

7. The Wireless Counter Settings

SW1 ALERT/CHIME MODE SELECTOR:
Chime Mode sets VDP-200 to be used as the door announcer and counter announcing the arrival of guests, or customers with the chime sound, and generating a visual count every time the unit is triggered.
Alert Mode sets VDP-200 as a local alarm system triggering the built-in siren for 50 seconds when the intrusion is detected. After setting the receiver to " Alert Mode " for the first time, the digital counter will display "AL 0 ", and the timer will allow you 30/60 seconds (selectable) to exit. When re-entering the system must be deactivated prior to the 30/60 timer expiring or the alarm will sound. To deactivate system Simply slide the switch to the " CHIME " position.

SW2 COUNTER RESET:
At CHIME MODE- Resets both Enter and Exit counters.
At ALERT MODE- Resets the alarm memory indicator.

SW3 CODE LEARNING SWITCH:
The Code Learning Switch is used for the addition or removal of the extra Video Sensors or optional AMSECO EWPT-202 wireless infrared sensors or EWPP-202 wireless push buttons.

Adding additional AMSECO Wireless Sensor
1) Enter the programming mode by pressing and holding down the " CODE LEARNING SWITCH " for approx. 5 seconds or until you hear a single beep. The receiver memory will display: [1][1] [0][0]
   (*The first digit displays the number of Video sensors or infrared transmitters programmed on channel one. The second digit displays the number of wireless push-buttons (optional) programmed on channel two.*)
2) Activate the transmitter you wish to program. The display will show: [2][1] [0][0]
3) Exit the programming mode by pressing and holding down the " CODE LEARNING SWITCH " for approx. 3 Seconds.
* The same procedure will be applied for the addition of AMSECO wireless push buttons.

Erasing all transmitter codes and reprogramming the receiver.
1) Enter the programming mode, Press and hold down the " CODE LEARNING SWITCH " for approx. 10 seconds until the 2-channel LED's light-up and the digital display resets to: [0][0] [0][0]
2) Activate the transmitter you wish to program. The display will show: [1][0][0][0]
3) Exit the programming mode by pressing and hold down the " CODE LEARNING SWITCH " for approx. 3 seconds.

<u>**SW4 ENT./EXIT:**</u> ENTRY and EXIT indication switch displaying the " ENTRY " and " EXIT " counter readout.

<u>**JP1**</u>: **ENTRY/EXIT DELAY TIMER (for ALERT MODE, refer to page 9):**
▭ **Jumper ON** : 30 seconds (factory setting)
▫▫ **Jumper OFF**: 60 seconds

<u>**JP2**</u>: **ALARM SOUNDER (for ALERT MODE, refer to page 9):**
▭ **Jumper ON** : generates a 50 seconds warble sound when alarm is triggered (factory setting).
▫▫ **Jumper OFF**: silence the alarm warble sounder.

<u>**CHIME OUTPUT(Built-in Relay)**</u>
The terminals to AMSECO CM-4 Chimes or other applications.
At Chime Model: The Relay provides a dry contact closure for 2-seconds every time it detects an entry.
At Alert Model: The Relay closes and stays close for the 50-seconds unless disarmed.

<u>**CHIME SOUND SELECTOR:**</u>
ALARM SENSOR SOUND (DIP SWITCH 1) is designed to change the chime sound types triggered by video sensor or EWPT-202 infrared Sensor (optional).
◼▫ **ON** - Entry :   HIGH FREQUENCY (Ding-Dong)
                Exit   :   HIGH FREQUENCY (Ding)
▫◼ **OFF** - Entry :   LOW FREQUENCY (Ding-Dong)
                Exit   :   HIGH FREQUENCY (Ding)

BUTTON TX SOUND (DIP SWITCH 2) is designed to change the chime sound types triggered by EWPT-202 wireless push-button sensor/transmitter (optional) only.
◼▫ **ON**   - Ding
▫◼ **OFF** - Ding-Dong

<u>**LED1 (CHANNEL1):**</u> LED turns ON when receiving a signal from Video sensor
<u>**LED2 (CHANNEL2):**</u> LED comes ON when receiving a signal from push-button sensor/transmitter.(optional)

<u>**TERMINAL BLOCK:**</u>
AC: 12V AC input   **NO**: Normally Open Relay Terminal (for optional use)
AC: 12V AC input   **COM**: Common Relay Terminal (for optional use)

8. The Video Sensor Settings

<u>**VR1: Volume Control**</u>
Adjusts the volume level of the chime sounds.

<u>**SW1 RESET:**</u> System reset switch

<u>**JP1:**</u> ENTRY Chime sound selection jumper

▬▬ JP2 ON = high tone sound (Factory Setting)
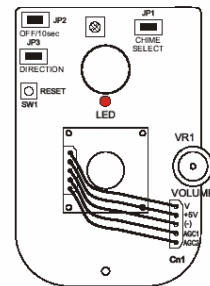
▫▫ JP2 OFF = low tone sound

Note: EXIT Chime sound stays unchanged regardless the
*   Jumper setting.*

<u>*JP2:*</u> CAMERA View block warning mode deactivation Jumper
When Camera View block mode is activated, the system generates alarm sounds of repeated chimes
if the Camera View is fully blocked over 10 seconds.
▬▬ JP2 ON   : Camera View block warning mode deactivated (Factory Setting)
▫▫ JP2 OFF : Camera View block warning mode activated

⚠ *Although the system is designed to event false triggering of Camera View block warning during nights or under dark environment, we recommend to turn the power switch off during the nights or dark environment when the Camera View block warning mode is activated.*

9. Troubleshooting

Condition: Cannot get the system power on.

Check the power cable connections both of power transformers and the terminals.
Check whether the in-line switch is ON.
Make sure your power source is 120V AC 60Hz.

Condition: Status LED is ON and blinking on traffic events, but the Counter doesn't count at all.

By reducing the distance between the Video Sensor and the Wireless Counter, make sure the Wireless Counter is located within the wireless transmission range from the Video Sensor.
Refer to Wireless Counter Setting on page 7, and reset the code learning procedure and re-register the Video Sensor.

Condition: Counter is not accurate.

Ensure you have installed the system in the environment as required in this instruction manual such as illumination condition, installation heights or the floor condition. ***Move the installation position or reduce the illumination of the room if the shadows of people generate false counting.***

Check whether the Video Sensor unit is facing in parallel with the floor.

Condition: Can't get the Chime Sounds.

Check the volume control.
Check the Speaker connector in the Video Sensor Unit.

Condition: I get the ENTRY chime sounds and counts when EXIT events occur, while getting EXIT chime sounds and counts on ENTRY events.

Check whether you have installed the Video Sensor Unit in the correct direction. Rounded end of the Unit must face the door (heading EXIT direction) for proper operations.

FCC Warning:

Under FCC rules, the device cannot be modified or altered.

Specifications

10. Specifications

System Specifications

Model Name	VDP-200 Wireless Video-Eye People Counter™	
Operating Voltage	Video Sensor Unit Wireless Counter	12V DC 12V AC / 15VA
Power Consumption	Stand by In Alarm	350mA(Video Sensor)/100mA(Wireless Counter) 550mA(Video Sensor)/550mA(Wireless Counter)
Size (h x w x d)	Video Sensor Unit Counter Display	5.1" x 3.1" x 1.8" (130 x 80 x 47mm) 4.7" x 4.7" x 1.3" (120 x 120 x 34mm)

Traffic Detection Method   by a Motion Detection Video Camera
Image Sensor   1/4 inch Color CMOS Sensor
Lens Angle   90 degree
Sensor Image Resolution   Horizontal 300 lines
Video Format   NTSC
Processor   BF531 Digital Signal Processor

Counter   6 digits (999,999) of Wireless Entry / Exit Dual Counter
Chime Sound   Two distinctive chime sounds announcing entry / exit event
Chime Type   Volume Adjustable Electronic Chime(0~85db)

Operating Temperature   14º F~122º F
Required Illumination   Recommend 7 LUX~3,000 LUX (Indoor Use)
Installation Heights   Recommend to install between 7~14 feet high from the floor
  (Video Sensor)
Detection Area   10 feet wide when installed at 8 feet high
  17 feet wide when installed at 14 feet high

Wires Specifications

Power Cord   Two 24 ft. AWG # 22 wires for 12V AC Output

Power Transformer Specifications

Power Transformer   Input   120V AC, 60Hz
  Output   12V AC