PixController, Inc.
Wireless Digital PIR Sensor

Model: SEN-400

User's Manual

Version 1.00

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FOR REPAIR CONTACT

PixController, Inc.
1056 Corporate Lane
Export, PA 15632
Phone: 724-733-0970
Fax: 724-733-0860

Email: support@pixcontroller.com
Web : http://www.pixcontroller.com

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2. Wireless Digital PIR Sensor Overview

The wireless digital PIR sensor is an advanced motion detection system which will send a wireless digital "trigger" command to a PixController wireless RF camera system. These systems includes, but not limited to the UndercoverEye™ Product line, Raptor Camera Wireless Sensor Version, DigitalEye™ RF, DVREye™ RF, Remote VideoEye™, and Sony LANC RF Systems.

The PixController wireless digital PIR sensor incorporates advanced features such as long range low power digital RF (radio frequency) transmission between the sensor and receiving camera unit. This ensures RF transmission through thick foliage for outdoor applications and walls for indoor applications. The wireless sensor can be setup to transmit four unique digital address codes.

The wireless digital PIR sensor also incorporates a digital PIR sensor. Unlike analog PIR sensors, which are prone to false triggers for outdoor applications, our digital PIR sensor uses advanced signal processing software which can eliminates false triggers. There are 3 PIR sensitivity levels which can be set to adjust the detection range of the PIR sensor.

The electronics were designed to be extremely battery efficient. Using 3 standard AAA alkaline batteries the sensor can be used in the field up to one year with standard use.

The small packaging of the wireless sensor makes it ideal for covert applications. Only the front portion of the sensor needs to be exposed. The sensor housing is made from rugged PVC plastic which is completely weather proof. There is a ¼-20" mounting hole on the bottom of the sensor which can be used with standard bullet camera-type tri pod mounts.

Note: *Any PixController RF wireless sensor camera system can function with the PixController Wireless Digital PIR Sensor. Products sold before September 15, 2011 will need to have a crystal changed on the RF receiver electronics. These products can be shipped back to PixController, Inc. to have the crystal replaced. Please contact us for more information.*

Figure 1: Digital Wireless PIR Sensor Parts

3. Wireless Digital PIR Sensor Specs

- Size: 6.0" X 1.30"
- Battery: 3 AAA
- Battery Life: ~1 Year
- Current Draw: 107uA (Sleep Mode), 4mA (Transmit Mode)
- RF Frequency: 315MHz
- RF Range: ~100' depending on terrain and obstructions
- Integrated RF Antenna
- Digital PIR Sensor with advanced firmware to eliminate false triggers
- PIR Detection Range: 70' at 75 deg F on high sensitivity
- PIR Detection Area: 10 deg conical
- ¼"-20 Screw Mounting Hole
- 4 Adjustable Digital Sensor Address Settings via DIP Switch
- 3 Adjustable PIR Sensitivity Settings via DIP Switch
- Power on/off via DIP Switch
- LED indicator for testing PIR and battery
- Rugged PVC Waterproof Housing

4. Removing and Replacing the Battery

To remove or replace the battery in the wireless sensor unit simply pull off the rubber battery cover located at the rear of the sensor. A 3 AAA battery holder will slide out. Removing the battery will be necessary to power the unit on/off, change DIP switch programming settings, and replacing the batteries.

Figure 2 shows how the battery cover and battery is removed, and Figure 3 shows the DIP switches inside of the sensor tube.
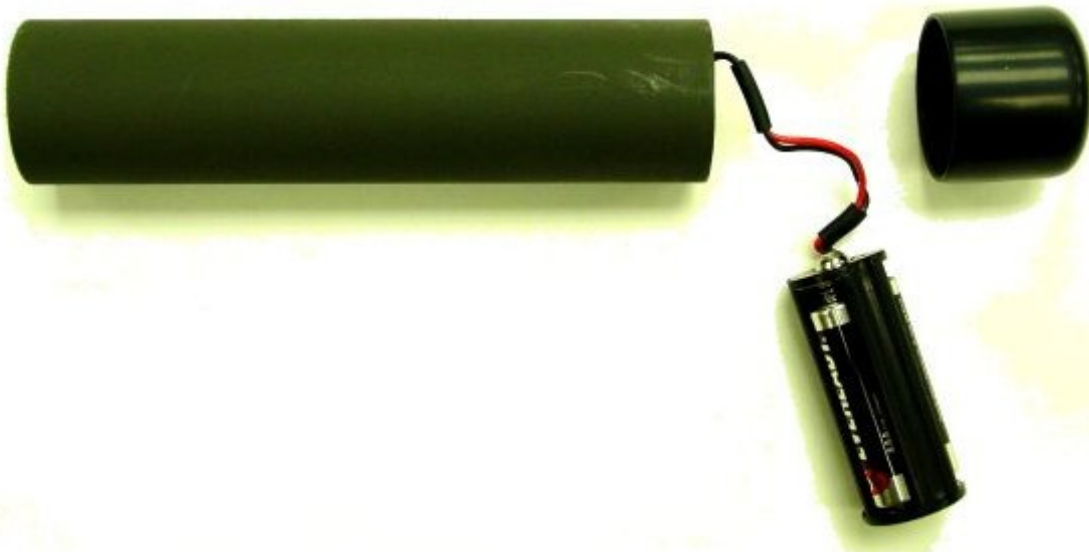

Figure 2: Replacing/Removing Battery

Figure 3: Digital PIR Sensor DIP Switch & LED

5. Powering on the Wireless Digital PIR Sensor

To power the wireless senor on you must first remove the battery cover and battery holder from the sensor tube as shown above. Using a small screw driver such as a jewelers screw driver press on switch 1 on the DIP switches as shown in Figure 4. The switches are rocker type switches and you will need to press switch 1 at the top of the switch.

When the sensor is powered on you will notice the LED turn on and blink 5 times. This will let you know that the wireless sensor is going into a 1-minute walk-test mode. If you place your hand in front of the senor the LED will blink giving you feedback that the PIR sensor is functioning. After 1 minute has expired the LED will blink 5 more times and exit walk-test mode. From this point on there will be no LED activity, but the sensor is armed and active.
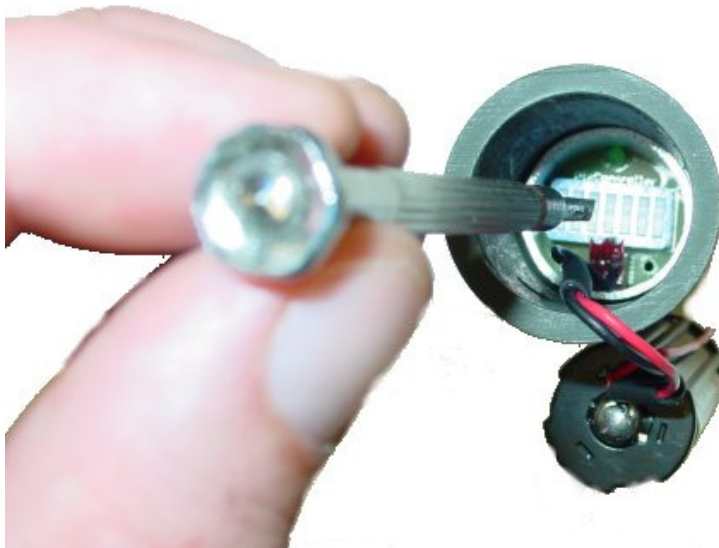

Figure 4: Adjusting DIP Switch Settings

6. Programming the Wireless Digital PIR Sensor DIP Switches

The wireless sensor can easily be programmed by adjusting the small switches on the "DIP Switch" (see Figure 5). The sensor is powered on/off by the DIP Switch, and you can also adjust the wireless sensor address and PIR detection sensitivity.
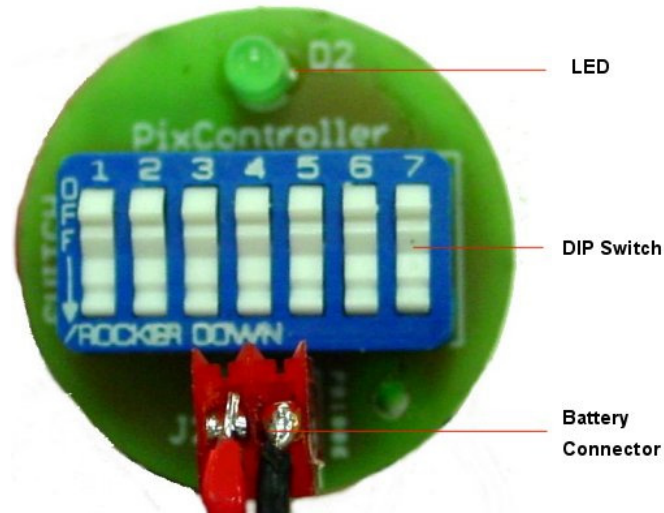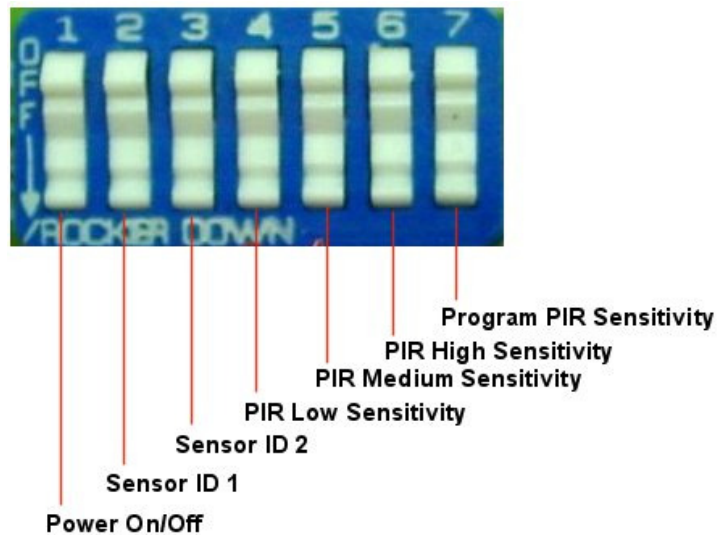

Figure 5: DIP Switch

Figure 5a: DIP Switch Functions

6.1 Powering On/Off the Wireless Sensor

Switch 1 will power on/off the wireless PIR sensor unit. Putting the switch in the down position will turn the senor off, and putting the sensor in the up position will turn the sensor on. When the sensor is turned on the LED will blink 5 times.

The default setting is all switches down (2 – 7), assuming switch 1 is "on" for sensor in operation mode. The sensor is shipped with the PIR sensitivity programmed in medium sensitivity mode.

6.2 Setting the Wireless Sensor Address

The wireless PIR sensor can be set to send out 4 different address codes (A through D). DIP switches 2 & 3 are used to set the sensor address. Setting the sensor address code is useful when using multiple sensors with multiple camera units. Camera units can be set to respond to certain sensor addresses.

Sensor Address	Switch 2	Switch 3
Address A	Down	Down
Address B	Down	Up
Address C	Up	Down
Address D	Up	Up

Note: When changing the sensor address you will need to power the sensor off and back on to take effect.

6.3 Setting Range-Test Mode

Range-Test mode puts the sensor into a mode where it will send out trigger commands on 2-second intervals. In this mode the PIR sensor is inactive. This mode is used to set the range between the wireless PIR sensor and the receiving unit.

To set Range-Test mode start with the wireless sensor in the power down state. Turn DIP switches 2 and 3 into the down "off" position. Next, power the sensor on by turning switch 1 into up "on" position. Wait for the LED to blink 5 times. Next, move switches 2 and 3 into the up "on" position. The wireless sensor is now in Range-Test mode.

To take the wireless sensor out of Range-Test mode power the sensor down by turning switch 1 into the "off" position then turning switch 2 and 3 into the "off" position.

6.4 Adjusting the Digital PIR Sensitivity

DIP switches 4 – 7 are used to adjust the PIR sensitivity. The DIP switch functions are as follows:

Switch 4 – Setting Low PIR Detection Sensitivity
Switch 5 – Setting Medium PIR Detection Sensitivity
Switch 6 – Setting High PIR Detection Sensitivity
Switch 7 – Programming PIR Detection Sensitivity

To adjust the PIR detection sensitivity be sure that the sensor is powered on. Next, select the desired sensitivity setting, low, medium, or high from switch settings 4 – 6. Turn that switch to the "on" position, then turn switch 7 to the "on" position for at least 1 second. Lastly, turn both

switches "off". The programming is now complete. Note, programming the sensitivity can be done at time the unit is powered on.

Sensitivity adjustments may be necessary when using the wireless PIR sensor in hot climates. Typically you want to use a lower PIR sensitivity setting under very hot conditions. Under cooler conditions the PIR sensitivity can be increased for longer detection ranges.

Note: It is always a good idea to place the wireless sensor under a covered area to keep the sensor cool. Avoid placing the sensor on small trees which can blow around in the wind and cause false triggers. Also, trim away any brush directly in front of the PIR lens which can cause false triggers if they are heated by the sun and start moving.

7. Digital Wireless PIR Sensor Mounting Options

There are several mounting options for the wireless sensor. There is a ¼-20" mounting hole on the bottom of the sensor which can be used with bullet camera tri pod mounts. The sensor can also be placed on the ground, but keep in mind that elevating the sensor will increase PIR detection range and range between the wireless sensor and recording electronics.

Figure 6: Using Bullet Camera Tri Pod Mounts

Figure 7: Concealing the Digital Wireless PIR Sensor