



X10 Sensor w/ X10 DIP Opto Board - Assembly Instructions (Revision 3)

Revised 1/20/04

Using a X10 DIP Opto Board and various X10 PIC Chips, you can modify the X10 Motion Sensor into a homemade trail camera sensor with the following options:

- 9 selectable time delays w/ delay check.
- Double picture mode in all time delays.
- Automatic return to normal mode from test mode.
- LED signal in test mode when sensor is triggered.
- DIP switch sensitivity adjusts from 20 to 70 feet.
- Day / night / both selectable settings.
- Power supply control switch.
- Delay and test function push button switches.
- 2.5mm stereo camera jack.
- Idle current power drain measured at 60uA.
- Choice of X10 PIC chips to run different cameras.
 - [629 \(X10\) PIC Chip](#)
 - [629/P32 \(X10/P32\) PIC Chip](#)

* (The following modifications utilize the X10 sensor's on-board push button switches)

X10 Sensor (REMOVED COMPONENTS) (Figure1)

1. Desolder and discard **RESISTOR (R15)** from the X10 sensor.
2. Desolder and discard **RESISTOR (R3)** from the X10 sensor.
3. Desolder and discard the **GREEN LED** from the X10 sensor.
4. Desolder and discard the **RED LED** from the X10 sensor.
5. Desolder and discard the **LOWER IC #12C508A (IC below IR Element)** from the X10 sensor.
6. Desolder and discard the **BATTERY SPRINGS** from the X10 sensor.

X10 Sensor (ADDED COMPONENTS) (Figure2)

7. Solder (1) **COLORED WIRE (REFRESH / POWER PULSE)** to right hole of R15 on the X10 sensor.
8. Solder (1) **RED WIRE (X10 REGULATED V+)** to right battery spring hole on the X10 sensor.
9. Solder (1) **BLACK WIRE (X10 NEGATIVE V-)** to left battery spring hole on the X10 sensor.
10. Solder (1) **COLORED WIRE (SHUTTER PULSE)** to right hole of R3 on the X10 sensor.
11. Solder (1) **COLORED WIRE (SENSITIVITY)** to left hole of R15 on the X10 sensor.
12. Solder (1) **ULTRA BRIGHT RED LED** in location of **RED LED** (removed in step D) on X10 sensor.

*(Cathode lead (short leg) of LED goes in left hole) *(Anode lead (long leg) of LED goes in right hole with (+) sign)

13. Solder (1) **8 PIN IC SOCKET** in the location of the **LOWER IC** removed in step 5.
14. Insert the selected X10 **PIC CHIP** into the **8 PIN IC SOCKET** with pin 1 of X10 PIC Chip in pin1 of IC socket.

*(Pin #1 is bottom left when facing component side of board, and square notch is down)
(X10 PIC Chip pin 1 is denoted by a dot on top the chip.)

X10 DIP OPTO BOARD FINISH WIRING (Figure 3)

15. Colored wire (step 7) (**REFRESH / POWER PULSE**) is soldered to the X10 DIP Opto Board (**R**) spot.
16. Red wire (step 8) (**BATTERY POSITIVE**) is soldered to the X10 DIP Opto Board (**X10 +**) spots.
17. Black wire (step 9) (**BATTERY NEGATIVE**) is soldered to the X10 DIP Opto Board (**X10 -**) spot.
18. Colored wire (step 10) (**SHUTTER PULSE**) is soldered to X10 DIP Opto Board (**SH**) spot.
19. Colored wire (step 11) (**SENSITIVITY**) is soldered to X10 DIP Opto Board (**SE**) spot.
20. **BATTERY POSITIVE (V+)** wire is soldered to the X10 DIP Opto Board (**9V +**) spot.
21. **BATTERY NEGATIVE (V-)** wire is soldered to the X10 DIP Opto Board (**9V -**) spot.
22. **SPST Switch (DISARM CAM. SWITCH)** wires are soldered to the X10 DIP Opto Board (**SPST**) spots.

ON BOARD 2.5mm STEREO JACK

23. Wiring for this jack is: (**Shutter = Tip / Refresh = Center / Common = Bottom**) for [629 \(X10\) PIC Chip](#)
24. Wiring for this jack is: (**Shutter = Tip / Power = Center / Common = Bottom**) for [629/P32 \(X10/P32\) PIC Chip](#)

ALTERNATE CAMERA CONNECTION SOLDER PADS

25. Solder **SHUTTER** wire from camera to X10 DIP Opto Board (**s**) spot.
26. Solder **COMMON** wire from camera to X10 DIP Opto Board (**c**) spot.
27. Solder **REFRESH / POWER** wire from camera to X10 DIP Opto Board (**r**) spot.

ADDITIONAL NOTES:

1. Battery source power range is 6V to 12V.
2. Left On-Board Push Button = **TEST BUTTON**
3. Right On-Board Push Button = **DELAY BUTTON**

Figure #1: X10 Motion Sensor Board _Unmodified.

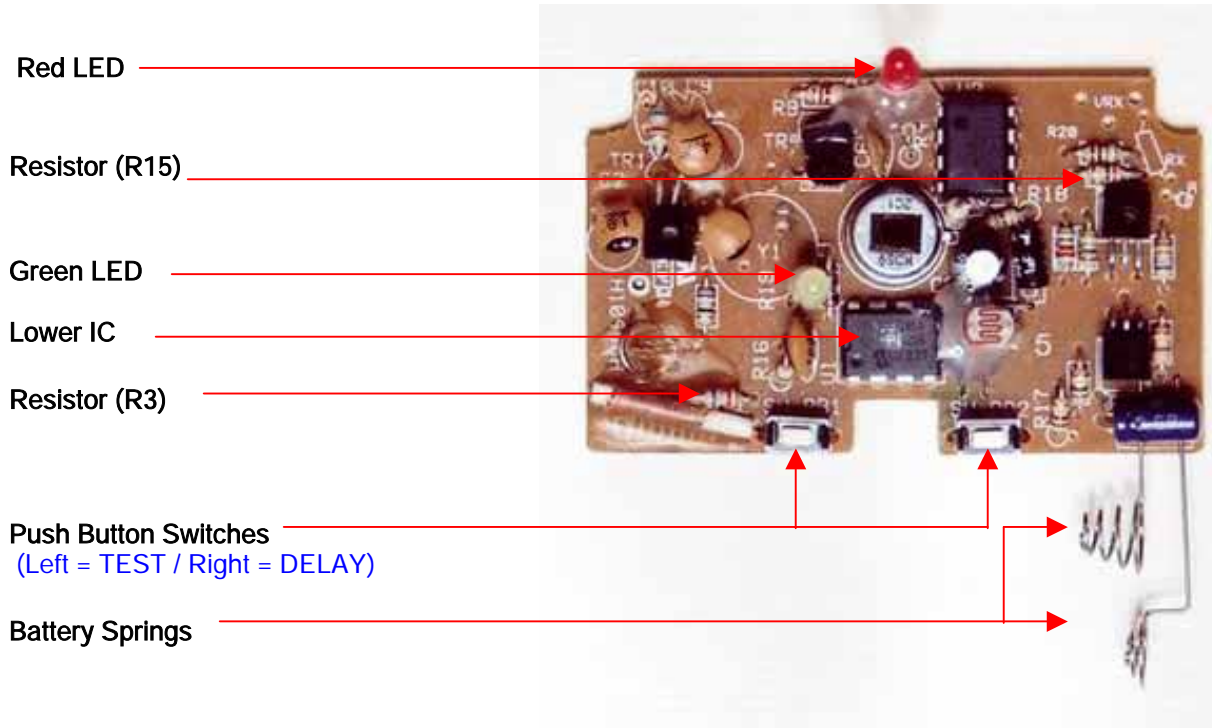


Figure #2: X10 Motion Sensor Board_ Wiring Solder Positions.

LED

Refresh / Power Wire (R)
(Right Hole R15)
Sensitivity Wire (SE)
(Left Hole R15)

8 Pin IC Socket
(Pin #1 is Lower Left)
(X10 PIC Chip is installed
here. Pin 1 is denoted
by a dot on the chip)

Shutter Wire (SH)
(Right Hole R3)

X10 (-)
X10 (+)
(Battery Spring Holes)

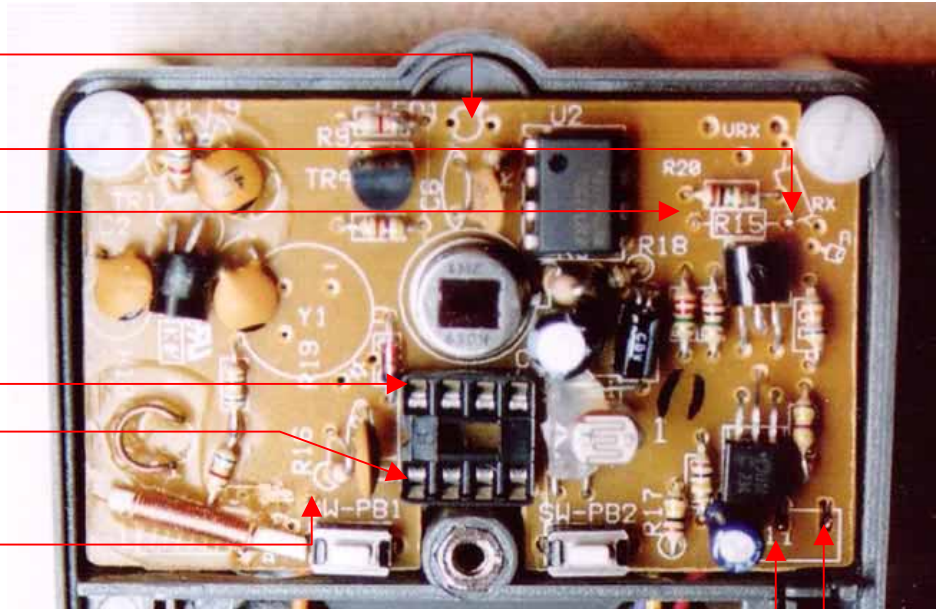


Figure #3: X10 DIP Opto Board_ Wiring Solder Positions

Sensitivity (SE)
Shutter (SH)
Refresh / Power (R)
X10 (+)
X10 (-)

4 Position DIP Switch
(Sensitivity Adjust)

Power Switch
2.5mm Stereo Jack

(Alternate Camera Wiring)
9V (+)
9V (-)
(Sensor Power Supply)
SPST Remote Switch
(Camera Disarm Switch)

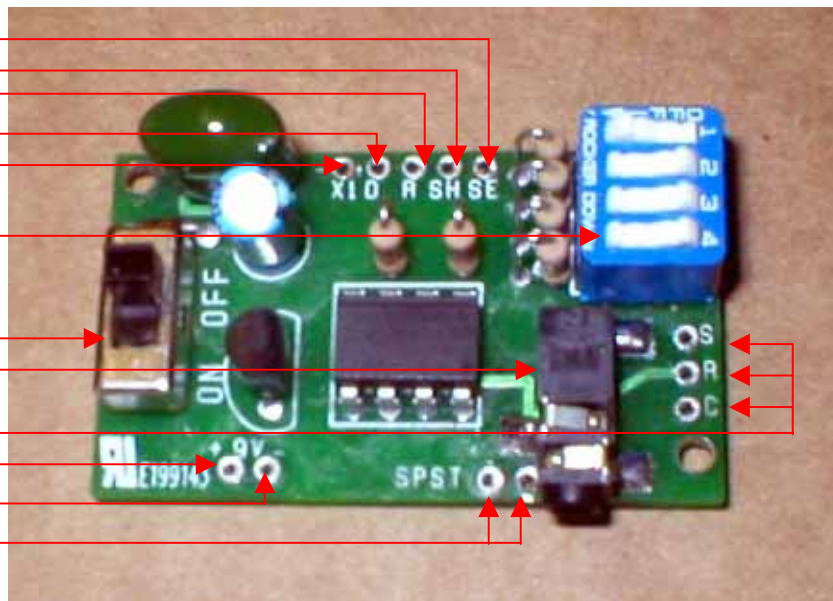
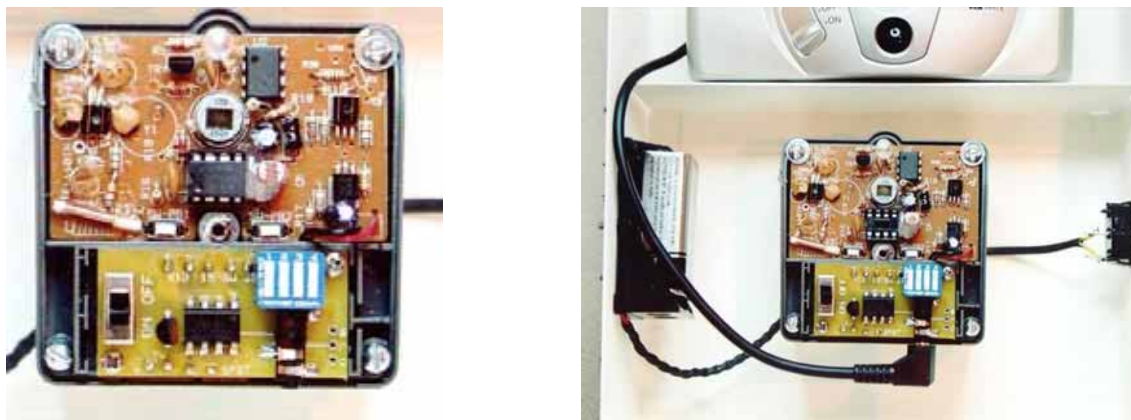


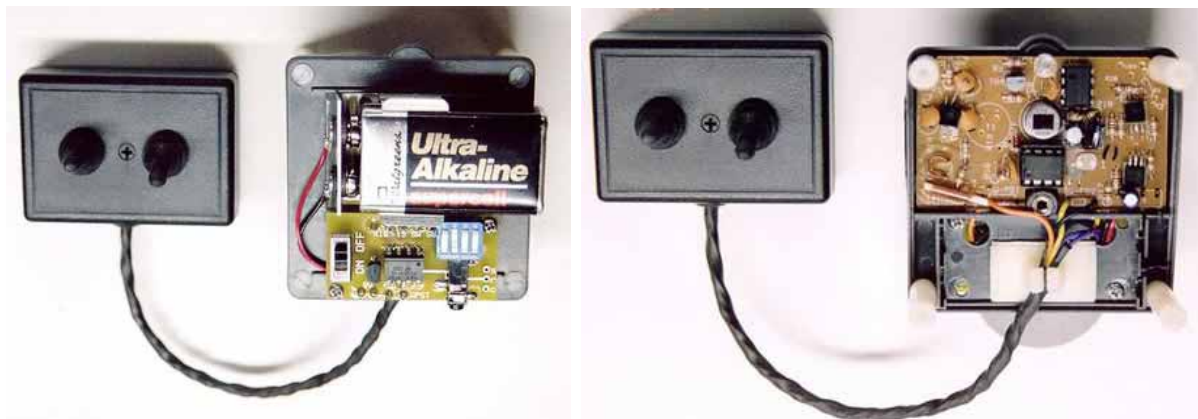
Figure #4: Additional Pictures and Notes:



X10 timer board and X10 opto boards - earlier versions



X10 sensor and X10 opto board mounted in the X10 enclosure.



X10 sensor reverse mounted - Push button switches relocated in remote switch box along with camera control switch. X10 opto board and 9V battery holder mounted to the back of the X10 enclosure.

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Additional Notes: