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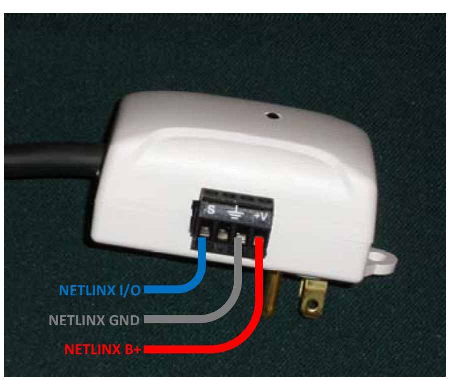
Current Power Sensor Instructions

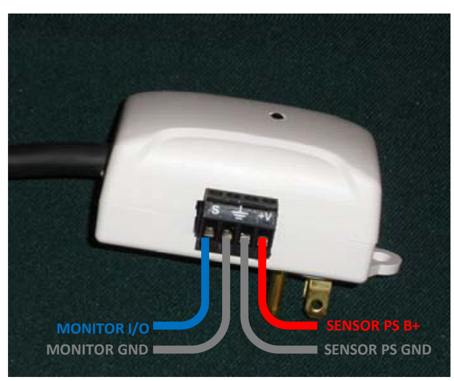
PN: ece-S-13-005, REv 5

Connection:

Plug the current sensor into a wall outlet and the device whose power state you want to monitor into the sensor's female power receptacle. Power the current sensor with 9-14vdc. If you are using a separate power supply for the current sensor than you are using for the monitoring system, make sure the monitoring system's ground is connected to the current sensor's ground as well as the current sensor's signal into an IO on the monitoring system.



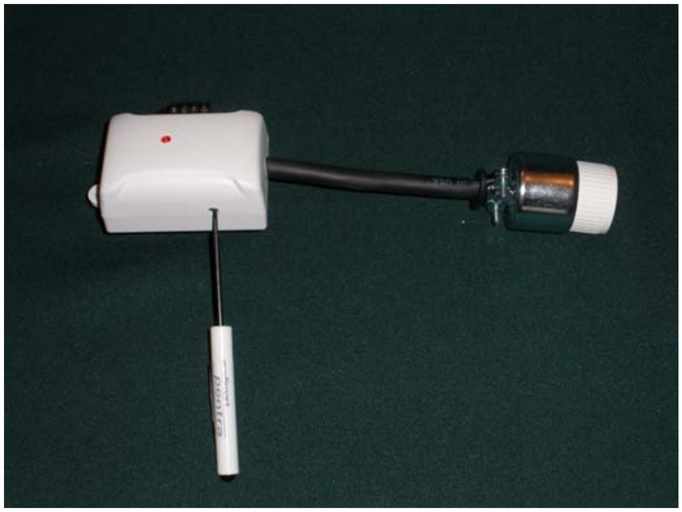
EXAMPLE USING NETLINX PWR SUPPLY



EXAMPLE USING SEPARATE PWR SUPPLIES

The signal output is an open collector design. So the signal is high when the monitored device is off (and the LED is off). When the monitored device is on, the signal is low and the LED is on.

Adjustment:



1. Please note that the adjustment potentiometer on the left side of the unit (opposite side from the Phoenix connector) has only 340° of motion. Do not try to turn it past its stops. Also, please read notes below before attempting the adjustment process.

2. With the device to be monitored turned off and the potentiometer fully counterclockwise, the LED should be illuminated. Please read Note 4 below for this operation. Slowly turn the pot clockwise until the LED just extinguishes. Note the position of the pot.

3. Turn the device to be monitored on. The LED should illuminate. Then slowly turn the pot in a clockwise direction until the LED is extinguished. Observe the position of the pot. If you cannot get the LED to extinguish and the potentiometer is at its maximum clockwise position, use that as the end point for the next step.

4. Turn the pot counterclockwise to a position half way between the two positions noted above, opting to be a little closer to the first setting.

5. Turn the device to be monitored off and observe if the LED extinguishes. If it does, test the device to be monitored by cycling it on and off to determine the repeatability of the setting. If the load is suspected to be under 100ma, during this evaluation observe the LED in each state for at least a minute to ensure there is no intermittent operation, i.e. brief dropouts of the status. If it is repeatable, you are finished.

6. If the LED didn't go off or on when it should:

    a. If the LED did not turn off with the device off, turn the pot ever so slightly in a counterclockwise direction and try again. Repeat as necessary. This action requires real precision if the current load is under 100ma.

    b. If the LED did not turn on when the device was turned back on, adjust the pot, ever so lightly, in the clockwise direction. Repeat as necessary. This action requires real precision if the current load is under 100ma.

    c. If the LED was blinking in either of the on/off states perform para 5.a. for a problem when the device is in the "off" status or 5.b. when the problem exists when the device is "on".

Notes:

1. The term “load” in the following notes is the difference in current readings of the device in its on and off states. The “off” state does not necessarily mean zero current. The “load” is calculated by subtracting the “off” current from the “on” current of the device.

2. Devices that have a load less than 50ma of AC will probably not be able to be evaluated with this current sensor. Loads that fall in the range of 50ma to 100ma may be difficult or impossible to set depending on how dirty the power is (amount of electrical noise). For these devices, you should wait until the current sensor has been powered for at least two and one-half minutes before attempting to make the adjustment. You should always leave these sensors powered so the device is always at a constant operating temperature and thus always ready to evaluate the current draw. Devices that draw over 100ma of load, generally, do not need these provisions.

   For those devices in the 50ma to 100ma range that cannot hold a steady status in either the on or off positions, you could consider using a de-bounce type of logic in the monitor device’s software. For whichever states have very brief dropouts, you could evaluate three times in some period (0.5 to 1.0 seconds) and only change the status in the monitor software when all three readings are the same.

3. The maximum current for this sensor is 12amps. The main constraints for this limit are the wiring, Edison plug connections and circuit card traces. The actual sensor in the device can handle +/- 50 amps.

4. When making adjustments that will make the LED go out, make a slight adjustment and wait a second for results. There is a designed hysteresis when going from on to off.

5. How long can the signal wire be from the monitor input? In general, any reasonable length should be able to be accommodated. But, the real answer depends on a number of variables. First is at what voltages does the monitor distinguish on and off and what is the relative value of its signal current draw (this is different than the current being monitored). For example, a typical AMX NetLinx I/O goes low at voltages below 2.1vdc (the triggered state). It goes high (no trigger) at 2.55vdc. The range from 2.1><2.55vdc is an ambiguous state as a result of designed hysteresis. The current draw for a NetLinx I/O is somewhere about 0.25ma. Even using a 24awg wire, you should be able to send that signal over a 2,000ft run. Without knowing the specific monitor, I would suggest a minimum of 20awg wire and less than 1,500 feet in length which should be safe for most applications. Just be aware an extreme distance could be an issue.