

Parts Description

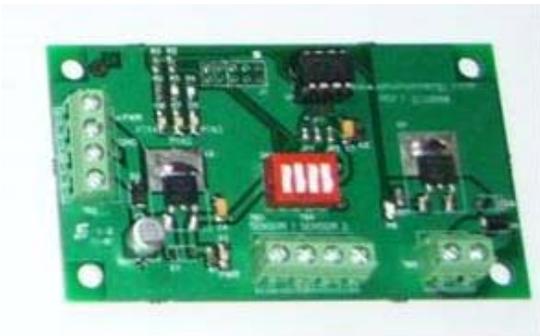
Controller Board – 12 VDC – Receives signals from sensor and signals the solenoid valve to operate a tank fill cycle. Check dip switch settings as shown above.

Plug-in Transformer – 12VDC check top of housing for polarity or touch the wires to the power terminals to determine proper polarity.

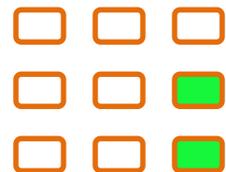
PIR Sensor – 2 wires for power from the controller board and 2 wires to signal the controller board.

Solenoid Valve – Valve is normally closed and requires power for water to flow. An audible click can be heard when the valve is turning on or off.

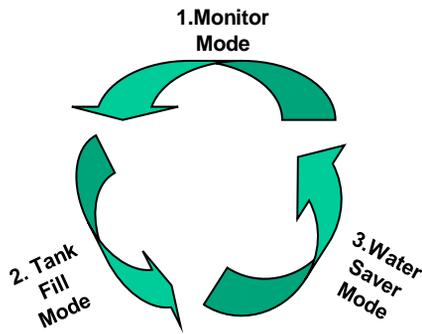
LED Reference for Circuit Board



1. **Monitor Mode**
No LED on
2. **Fill Mode**
Green LED on
3. **Water Saver Mode**
Green LED Flashing



Urinal Controller Sequence



Power Up – The unit will automatically go through one cycle of all of modes – Monitoring Mode, Tank Fill Mode and Water Saver Pause Mode.

Tank Fill Mode – The unit is signaled to fill the urinal tank. Fill time 6 minutes.

Water Saver Pause Mode – After the Tank Fill Mode the unit will automatically switch to the Water Saver Pause Mode. All sensor detections are ignored during this mode. Pause time 4 minutes

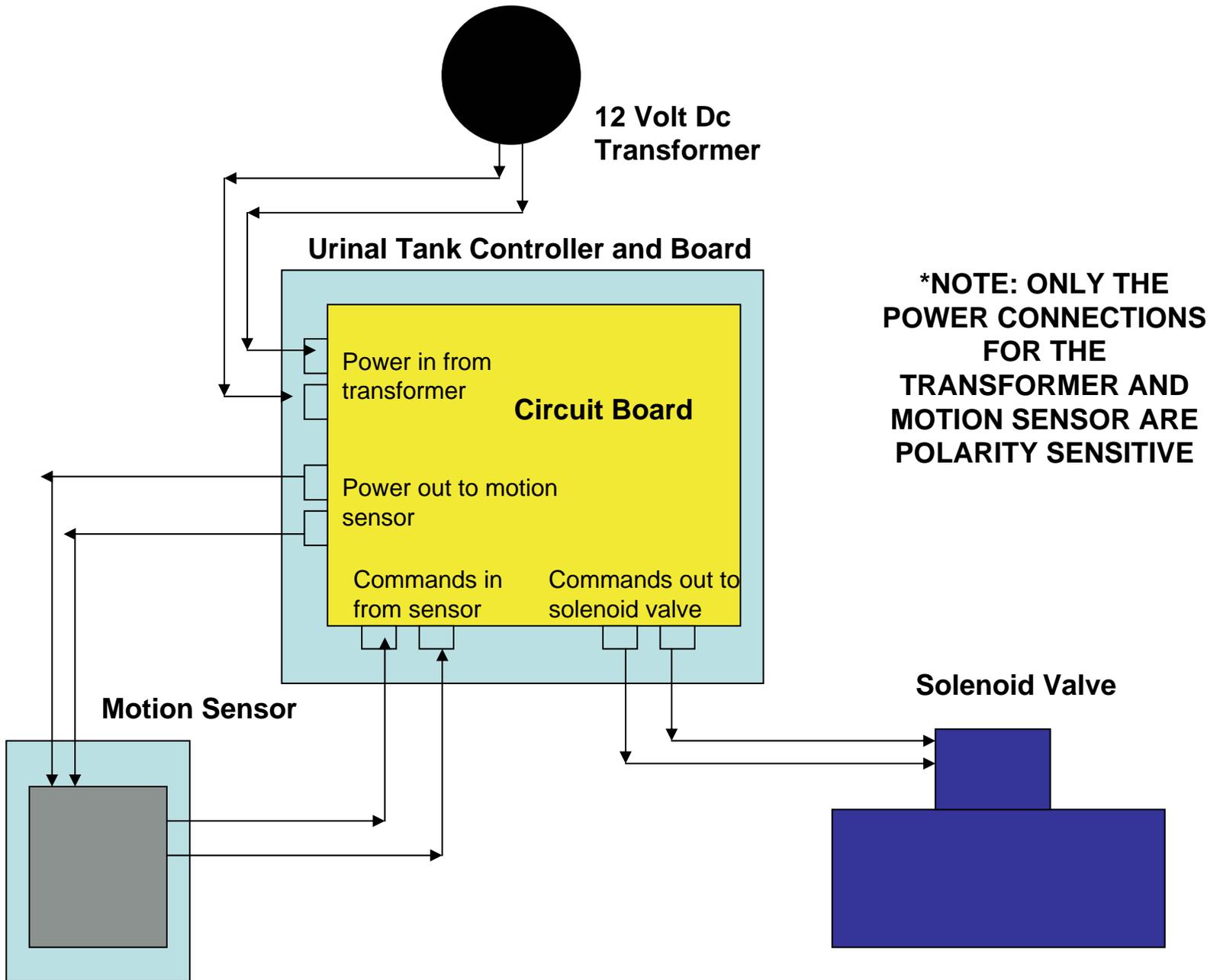
Monitor Mode – After the Water Saver Pause Mode the unit will start Monitor Mode sequence. This involves the motion sensor detecting the presence of a user at the urinal and signal for Tank Fill to start.

Sanitary Fill Mode – In a low traffic area the Sanitary Flush Mode will engage. Fill once every 12 hours.

Urinal Tank Controller Trouble Shooting Guide

Problem	Action	Result
For any issues first step should be to observe the urinal tank for at least 30 seconds.	Go to controller and power transformer and shut off power by removing transformer	Go back to the urinal tank. Solenoid valve should not be operating.
Valve running on for more than 6 minutes	Shut off power at transformer	If water still running the valve is most likely plugged with debris. Remove the top housing of valve and clear debris. Valve will turn off when power is turned off
Valve still running on	If valve still running then check the terminal that signals the valve with a volt meter. It should have a reading of 12 VDC when the tank is filling. If no voltage reading is detected then check dip switch settings for proper position. Reset if necessary and then reboot the unit.	If the dip switch settings are correct and there is no power detected at the valve terminals then replace the controller board. If the dip switches are in proper position and the controller board is operating properly then change out the valve coil.
Valve not running	Check controller board to see if light are on. If no lights then turn off power wait for 10 seconds and then turn power back on. If the controller board is operating properly then change out the valve coil.	Controller board should light up when power is re booted. If still no power then replace the controller board. Valve will start to run and go through modes.
No lights on controller board	If no lights turn off power wait for 10 seconds and then turn power back on.	If still no power then replace the controller board.
No lights on sensor	Check the connections and wire condition. Check the power terminal with a voltmeter. Should be a reading of 12 VDC	Replace sensor if power is being sent from controller board but not being received by sensor.

URINAL TANK CONTROLLER WIRING DIAGRAM



THE WATER SAVER URINAL TANK CONTROLLER

OPERATING MANUAL

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INTRODUCTION AND DESCRIPTION

The greatest water waster in washrooms in Canada is a manually controlled urinal tank. These 3-5 gallon per flush tanks are used to flush water through banks of urinal fixtures. Urinal tanks typically cycle 10 - 20 times per hour, 24 hours per day, 365 days per year, even if the urinals are not being used.

The **Water Saver Urinal Tank Controller** will substantially reduce urinal tank water consumption through smart monitoring of the activity around the urinal stalls. A proprietary software program combined with state of the art motion sensors has been designed to determine whether the urinal is in use and must be flushed. Instead of flushing constantly, the **Water Saver Urinal Tank Controller** waits for users in order to flush. This means there is a tremendous amount of water that is saved, especially in washrooms that are in low use. The sensitivity of the sensors can be programmed to ensure that a flush cycle can not be activated in error by traffic walking past the sensor. This provides for the most effective flushing method for efficient water use for the urinal fixtures.

The **Water Saver Urinal Tank Controller** package is composed of a urinal tank controller box with programmable board, a motion sensor with mounting bracket, a 12 volt DC solenoid valve, and a 12 volt DC transformer for power. To ensure that the products work effectively, Enviro Energy International Inc. (EEI) undergoes an extensive testing process of all parts.

The urinal controller has been used as a major water savings product in large-scale projects. EEI installed 300 urinal controllers at the University of British Columbia in what was the largest institutional and commercial water retrofit in the history of Canada. The end result was an overall water reduction of 40% for urinal tanks.



FEATURES AND BENEFITS

FEATURES

Enviro Energy International Inc. has designed a state-of-the-art product that maximizes the water savings potential in washrooms. Accompanying the product are several built-in features including:

- Easy to use programmability - the urinal tank controller is programmed by a set of dip switches. These dipswitches determine tank fill and water saver pause times according to the frequency of washroom use. A label located in the controller box illustrates the various dip switch settings.
- LED light display - Four LED lights display the power and mode settings of the urinal controller.
- The urinal controller comes in a tough, metal box with a hinged door for easy access.
- Occupancy sensor activation – programmable sensitivity is designed to avoid ghost flush cycles
- Sanitary flush cycles – a sanitary cycle can be programmed at intervals to ensure that waste trap odours are minimized during infrequent flush cycles. The factory setting is once every 6 hours.
- Controls up to 2 sensors- to maximize savings by controlling individual flushing according to individual urinal stalls

BENEFITS

- Once it is installed, the **Water Saver Urinal Tank Controller** requires no additional upkeep or maintenance.
- It has a long, durable life. **Water Saver Urinal Tank Controllers** can last at least 15 years under constant operation.
- Low power use - 4 watt solenoid valve – costs only a few dollars per year to operate
- The Water Saver Urinal Tank Controller is aesthetically pleasing. In most cases, only the motion sensor is visible to the eye.
- It can be installed in multiple ways. The motion sensor can attach to the urinal control box via a bracket, or the sensor can attach by itself to a wall or ceiling.

HOW IT WORKS

The **Water Saver Urinal Tank Controller** system works through a combination of electrical currents and motion sensing to stop the flow of water to urinals when they are not in use.

Its simple:

- A motion sensor indicates when the urinals are in use, sending signals to the controller board to open the solenoid valve that is blocking the flow of water.
- The urinal tank then fills up during the Tank Fill Period, ensuring a full urinal flush, and continues to do so for a predetermined amount of time.

- After the Tank Fill Period, the controller then commands the valve to close for the Water Saver Pause Period.
- After the Water Saver Pause Period, the controller begins the Monitor Period, whereby the motion sensor is waiting for another user. The cycle starts over and the solenoid valve remains closed.
- The urinals are also ensured a sanitary flush every 6 hours to wash away any negative smells.

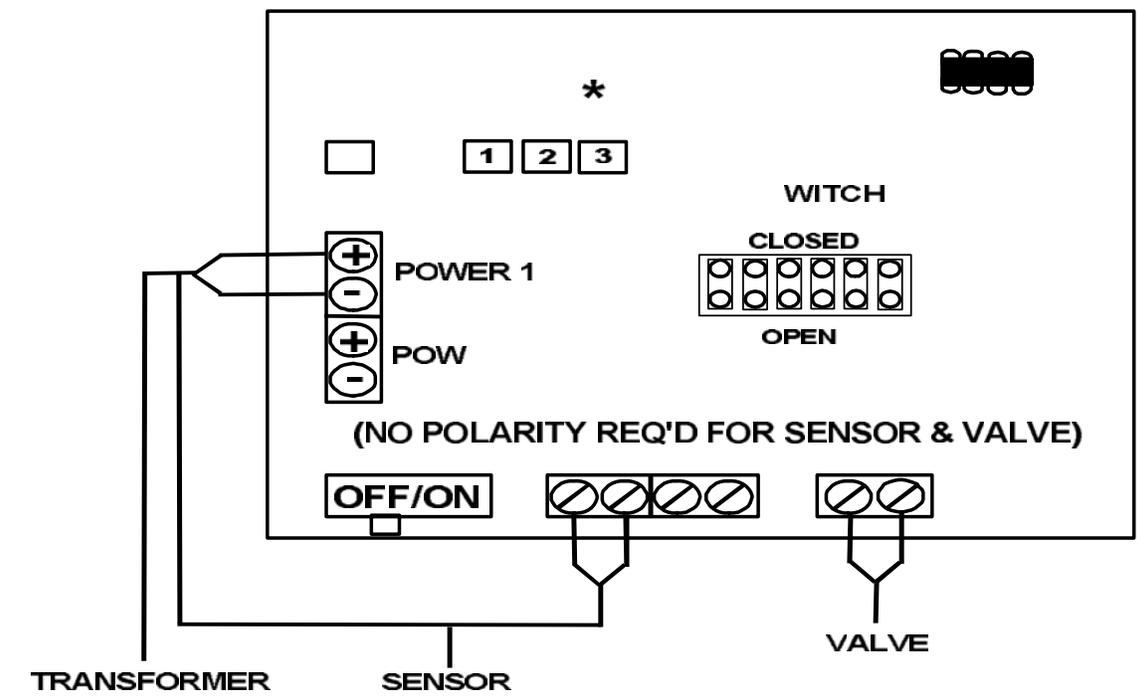
The **Water Saver Urinal Tank Controller** system is connected by a series of electrical wires. There are three wires:

1. Transformer Wire: two wires connecting the transformer (power source) to the urinal controller board to power up the system.
2. Sensor Wire: connecting the controller board to the motion sensor to relay any commands. The sensor wire has four connections: two running from the controller board to power up the sensor, and two running from the sensor to the controller board to relay commands
3. Valve Wire: two wires connecting the controller board to the solenoid valve to indicate when the valve should open or close.

A schematic wiring diagram of the controller board is located inside each urinal controller box.

Note: Only the power connections are polarity sensitive. These are the transformer wire connections and the two connections that power up the motion sensor.

: WIRING DIAGRAM OF CONTROLLER BOARD



HOW TO INSTALL

PARTS:

- 1 URINAL TANK BOARD WITH PROTECTIVE CASING
- 1 12 VDC TRANSFORMER
- 1 MOTION SENSOR WITH WALL OR CEILING BRACKET
- 1 SOLENOID VALVE WITH WIRING TERMINAL

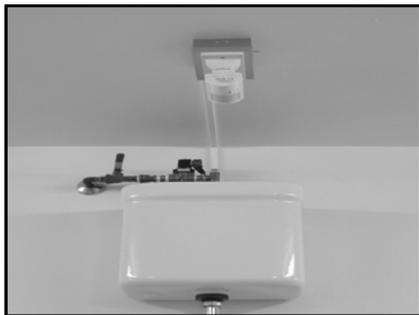
INSTALLATION INSTRUCTIONS

1. Determine the location of a 110 vac power outlet in or close to the washroom.
2. Determine the most appropriate location for the sensor to be mounted to provide total monitoring of all urinals.
3. Sensor may be mounted on the same wall as the urinal tank, or an adjacent or opposite wall, or even the ceiling.
4. The sensor can be mounted on the case and mounted separately if need be. All sensor wires will then of course need to be extended to the Urinal Tank Controller case location.
5. Next install the solenoid valve downstream of the existing urinal tank shutoff valve. Make sure the arrow on the solenoid valve is pointing in the direction of the water flow.
6. Insert the terminal with the solenoid valve wires onto the solenoid valve. Next feed the solenoid valve wires to the Urinal Tank Controller.
7. Insert the power wires from the transformer to the Urinal Tank Controller.
8. Make sure all of the wires from the transformer, sensor, and solenoid valve are inserted in the right connections in the controller board. Refer to the wiring diagram for the right connections. **Only the power connections from the transformer and the sensor are polarity sensitive.**
9. After the unit is mounted and powered up, turn on the Urinal Tank Controller by means of the switch located on the circuit board. This means that it is going into its startup mode which includes a fill cycle to the urinal tank.
10. The unit is now operational. The Urinal Tank Controller immediately enters FILL mode, so the urinal will start filling when activated.
11. A label of the wiring diagram, dip switch settings and LED light modes is located in the urinal tank box. Please contact Joe Pate at 647-226-8080 if you have any further questions.

SPECIAL SETUP

There are a number of ways to install the Water Saver Urinal Tank Controller:

1. Attaching the sensor to the urinal controller box:
2. Attaching the sensor to the wall and feeding the wires to the urinal controller box in another location:
3. Attaching the sensor to the ceiling:
4. Installing vandal proof grills:



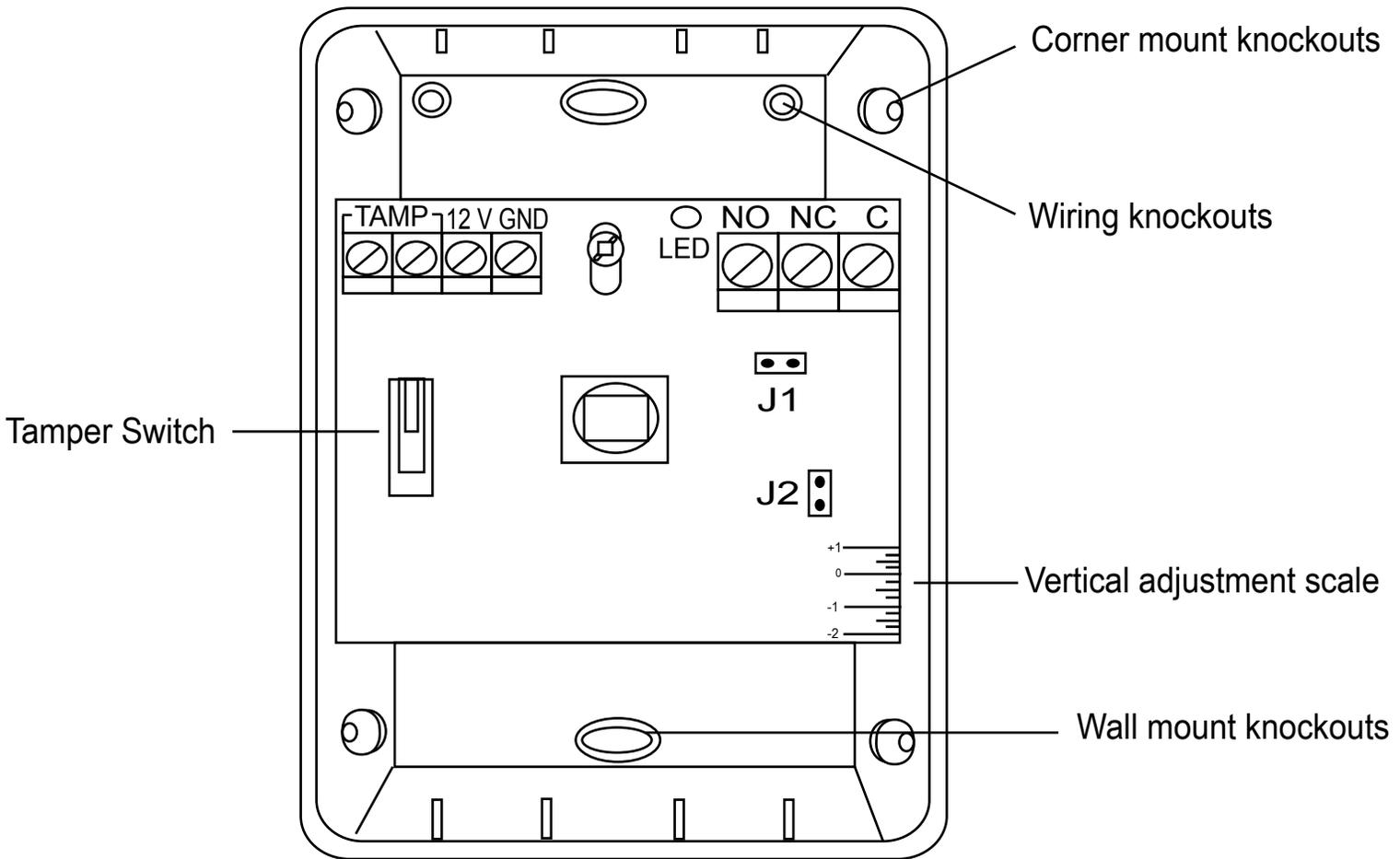
TROUBLESHOOTING

If the Water Saver Urinal Tank Controller does not appear to be operating, there is a number of troubleshooting steps that can be implemented. There is a set of operating instructions located in the controller box.

Some troubleshooting examples:

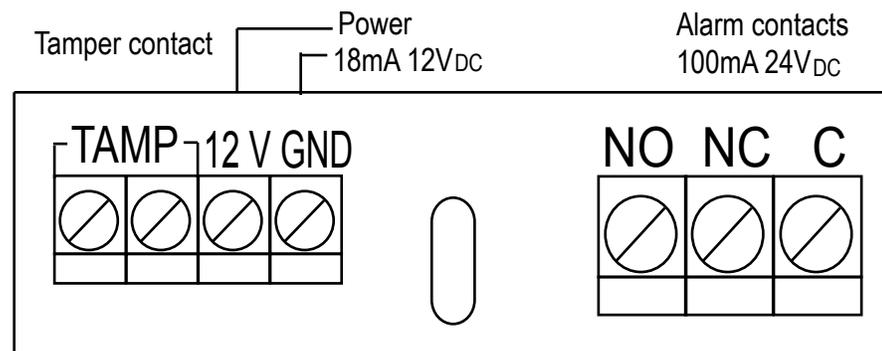
- If the motion sensor light or power LED for the urinal controller board do not light up: the power may be disconnected. Locate the transformer to see if it is unplugged. If it is plugged in, check the power connections to the urinal controller board to see if they are loose.
- If the solenoid valve remains open or closed: there may be a connection failure from the controller to the valve. The wiring connections may need to be examined. Check the instructions located in the controller box to make sure the wires are in their right place. If the connections are correct and the valve remains open, there may be some debris preventing the solenoid valve from closing. Increase the water flow to the valve by suddenly turning up the shut off valve downstream. This is usually enough to dislodge the debris.
- If there continues to be a problem, contact your sales representative and a technician will come by immediately to remedy the situation.

SENSOR WIRING



Wiring

NOTE: This unit is UL Listed and should be connected to a listed control unit or power supply providing at least 4 hours of standby power.



Contacts shown with power applied and no alarm