



Thank you for purchasing Xylem switching unit(s) from Phantom products. Now you can explore new possibilities for your wiring projects with these amazing switches.

**Xylem switches are broken into three major categories:**

**Switching polarity:** This type of function occurs when the output wires trade polarities, typically for the purpose of energizing a motor in forward and reverse, such as a power window motor for example. The outputs trade polarities based on grounded inputs to the analog input wires, or signals given to the unit through the touch sensitive button.

**Toggle:** This type of function occurs when the output wires toggle from on to off. The output is turned on and off based on grounded inputs to the analog input wires, or signals given to the unit through the touch sensitive button.

**Multiplex:** This type of function occurs when multiple outputs are turned on or off from a single input. The output is turned on and off based on grounded inputs to the analog input wires, or signals given to the unit through the touch sensitive button. The first press of the touch sensitive button would activate output one, the second touch would activate output two and keep output one activated, a third touch would turn off both outputs.

## **Button Function**

**Switching Polarity:** These buttons have two contact pads. A press on either contact pad individually will activate the load (motor) connected to a switch box and move it in forward or reverse, or up and down in the case of a window. When the button is pressed, a light will illuminate to indicate that the command was received, and the function is being carried out. This light is called the function light. When a quick tap is given to the button, the load is for ten seconds or until the load stalls (reaches the end of its track for example). In this manner, auto window up and auto window down can be achieved.

1. Pressing and holding the button will run the device connected to the switch box for as long as a finger remains on the contact plate. The function light will illuminate. Once the finger is removed, the light goes out and the load quits operating.

2. A single quick tap will activate the load automatically for ten seconds, or until load stalls, such as a power window reaching the end of its track for example. A different light color will illuminate to show that the switch box is carrying out the auto function.

**Toggle:** A single quick tap on the contact plate will activate the switch box and turn it on. A light will illuminate to indicate that the switch box is supplying power to the load. Another single quick tap on the contact plate will switch the load off.

**Multiplex:** **We will use headlights as an example** A single quick tap on the contact plate will activate the switch box and turn output 1 on (parking lights) A light will illuminate to indicate that the switch box is supplying power to the load, this is the function light. Another single quick tap on the contact plate will switch the output 2 (running lights) lead on while leaving output 1 on. A third quick tap on the contact plate will turn off both outputs, and the function light.

## **Programming the switch illumination color**

**\* Important: before changing illumination color, it is suggested that the switch box installation be complete. Then turn on the illumination by supplying +12volts (power) to the yellow wire. Write down the background color. Because the buttons can be mounted in any direction, this will help you to know what button is used to change the background color when you program the switch illumination color.\***

**Switching polarity button:** Adjusting the colors for the buttons is as follows.

**Background color and function color:** The background color of the switch is the color that is present when the switch is illuminated (small yellow wire provided with +12 volts.) This is the color that will be seen when the headlights are on for example.

1. To change the back ground color, press and hold both contact pads simultaneously for several seconds until the contact pads are both illuminated different colors. These are the background and function colors.
2. Press and hold each one individually and you will see the colors change. Once the desired color is present, simply release the contact plate and the color will stay.
3. When satisfied, press and hold both contact plates again for a couple of seconds, one light will drop out. The remaining illuminated contact plate is displaying the **Automatic** color. Again, change this by holding finger on contact plate until the desired color is shown, then remove finger.
4. After finger is removed press both contact plates again until the single contact plate illumination turns off. The custom colors are now set.

**Single button (multiplex and toggle):** Adjusting colors for the button is as follows.

1. Turn on the illumination by supplying the small yellow wire with +12 volts.
2. Hold button until the color starts to change, release once desired color is visible.
3. Turn off illumination by removing +12 volts from small yellow wire to save color changes.

## Wiring

**Large red wire:** (Power) This wire connects to (positive) +12 volts supplied by the vehicles battery. This can be a switch +12 volts, or constant depending on its operation. This wire provides power to the units and the output wires.

**Large black wire:** (Ground) This wire connects to (negative) – 0 volts supplied by the vehicles battery, or a good clean chassis ground.

**Large violet wire:** This wire is considered output 1. Depending on the unit you purchased, the action of this wire is as follows.

**Switching polarity:** This wire is neutral when inactive. Once activated, this wire supplies (positive) +12 volts, (power) **OR** (negative) - 0 volts (ground). This is determined by which side of the touch sensitive button is pressed, or which analog input is supplied with a ground. When input 1 is supplied with a ground, then output 1 will output (positive) +12 volts, and output 2 will output (negative) – 0 volts ground. Adversely, if input 2 is supplied a ground, output 1 will output (negative) - 0 volts ground, and output 2 will output (positive) +12volts power.

**Toggle:** This wire is neutral when inactive. Once activated, this wire supplies (positive) +12 volts (power). This is determined by which state the wire is in when the touch sensitive button is pressed, or when the analog input 1 is grounded.

**Multiplex:** This wire is neutral when inactive. Once activated, this wire supplies (positive) +12 volts (power). This wire continues to stay active when output 2 is activated, then turns off when output 2 turns off. This is determined by how many times the touch sensitive button is pressed, or how many times analog input one is provided with a ground.

**Large blue wire:** This wire is considered output 2. Depending on the unit you purchased, the action of this wire is as follows.

**Switching polarity:** This wire is neutral when inactive. Once activated, this wire supplies (positive) +12 volts, (power) or (negative) - 0 volts (ground). This is determined

by which side of the touch sensitive button is pressed, or which analog input is supplied with a ground. When input 2 is supplied with a ground, then output 2 will output +12 volts, and output 1 will output -0 volts ground. Adversely, if input 1 is supplied a ground, output 2 will output -0 volts ground, and output 1 will output +12volts power.

**Toggle:** This wire is neutral when inactive. Once activated, this wire supplies +12 volts (power). This is determined by which state the wire is in when the touch sensitive button is pressed, or when the analog input 2 is grounded.

**Multiplex:** This wire is neutral when inactive. Once activated, this wire supplies +12 volts (power). This wire is turned on upon the second press of the touch sensitive button, or the second time the analog input is grounded. It is turned off with output 1 upon the third touch of the button. Or the third time the analog input is grounded.

**Small yellow wire:** This wire is the illumination wire. When supplied with (positive) +12 volts (power) from a headlight switch or any switch, it illuminates the touch sensitive button with the back ground color. This wire can be connected to a rheostat to adjust the brightness level of the LED's in the touch sensitive buttons. Most headlight switches have a dimmable wire going to the instrument lights. Connection to this wire will allow for dimming of the button lights.

**Small green wire:** This wire is considered analog input 1. When grounded, it allows the switch unit to perform the same function as the appropriate press of the touch sensitive input button. That is to say, when it is grounded, output 1 is activated.

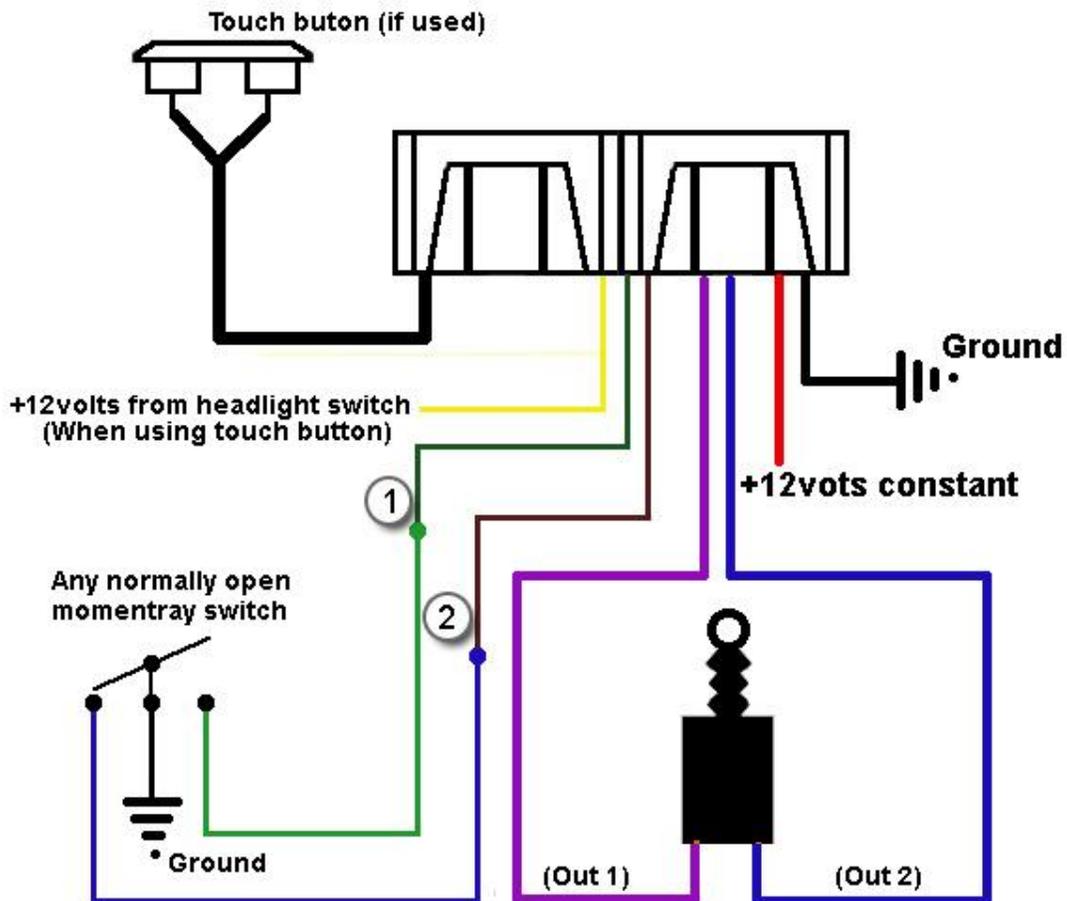
**Small brown wire:** This wire is considered analog input 2. When grounded, it allows the switch unit to perform the same function as the appropriate press of the touch sensitive input button. That is to say, when it is grounded, output 2 is activated.

**Flat "ribbon" cable:** Depending on the type of switch box and button used, this will either be a flat FCC Ribbon cable that is split into two sections on one end, and single on the other, or one single ended cable. Make sure metal touches metal when connecting.

The double ends will most likely be used exclusively with the switching polarity box. Simply slide each part of the double end of the cable into each connection point on the bottom of the polarity switching touch sensitive button. Slide the other end into the connection point on the switch box.

The single end will most likely be used exclusively with the multiplexing and toggle box. Simply slide one end of the cable into the connection point on the button, and the other into the connection point on the box.

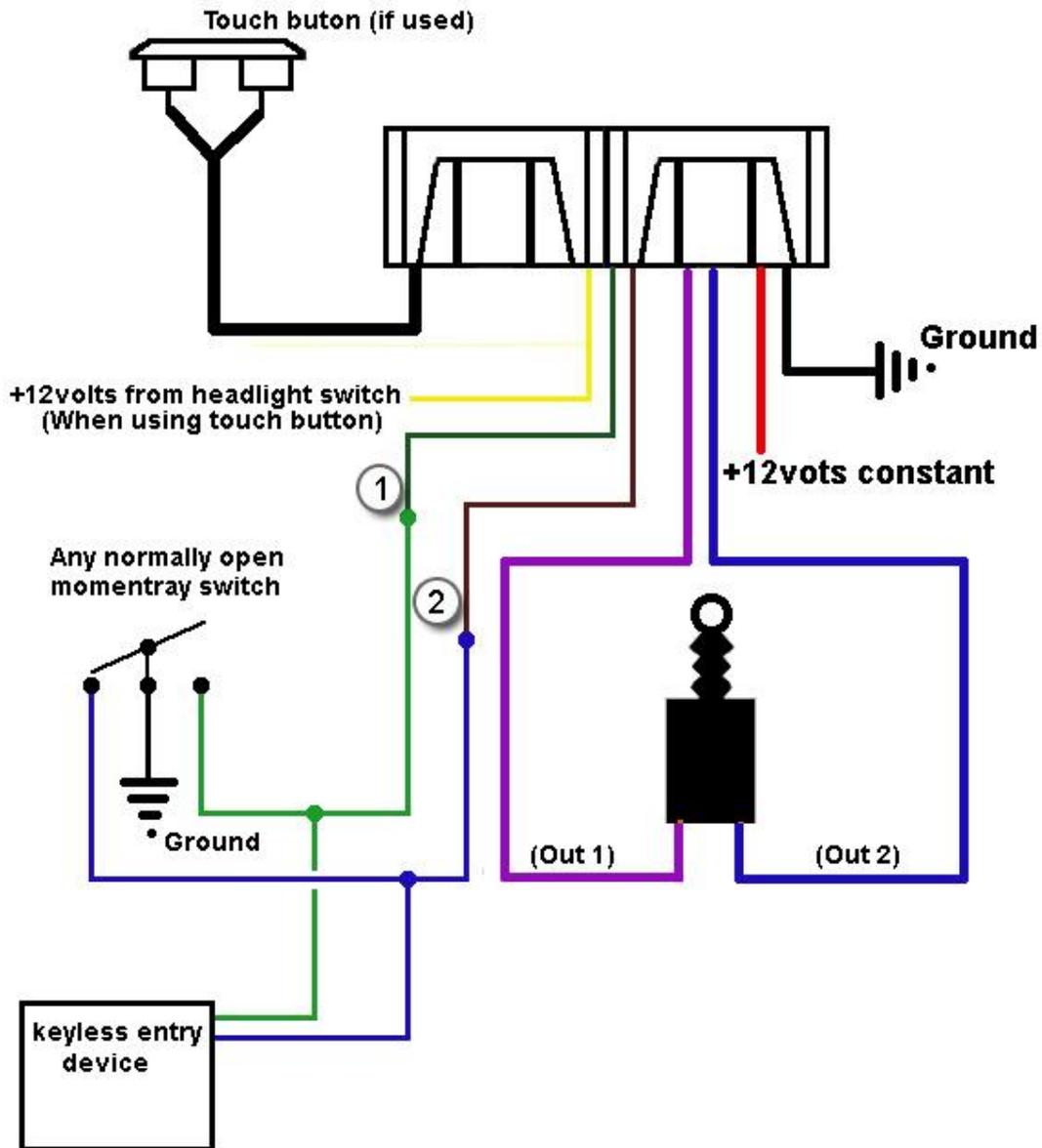
## Wiring for lock /unlock using Phantom Xylem switching polarity unit



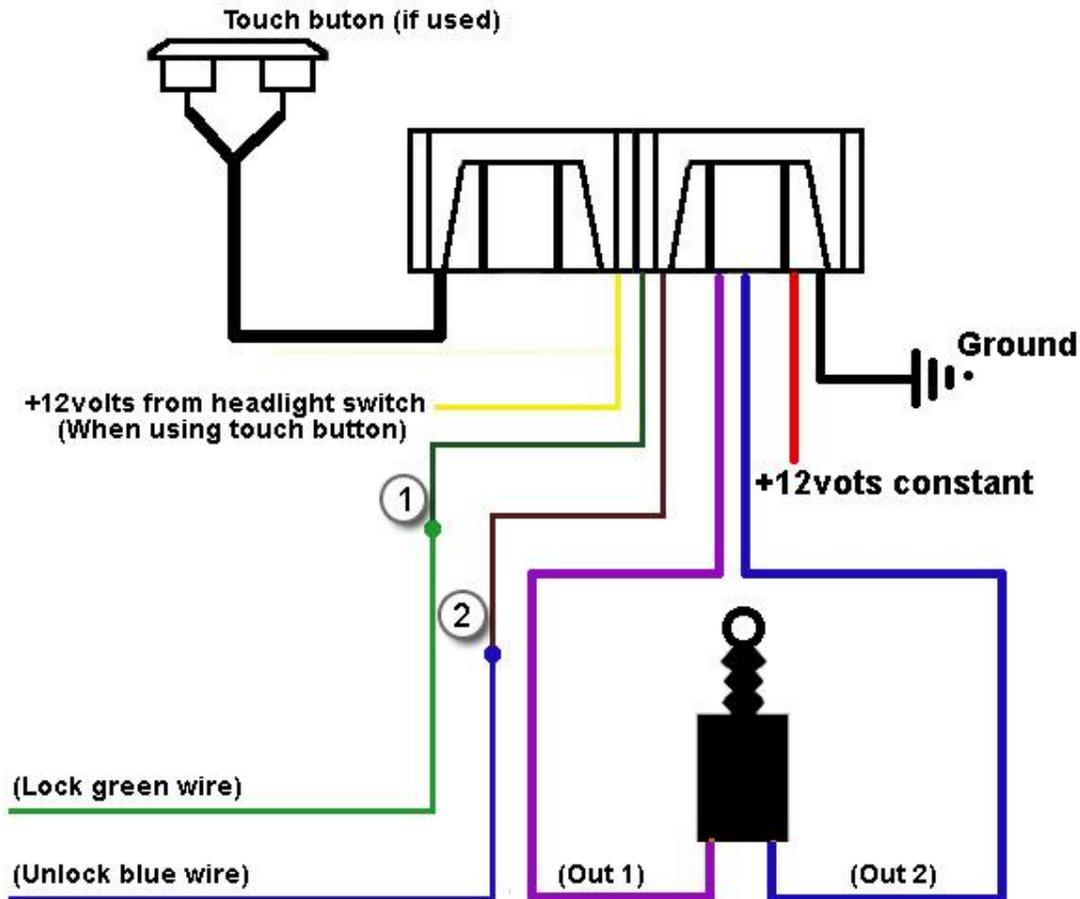
- ① Analog (-12v ground) input for Out 1
- ② Analog (-12v ground) input for Out 2

**Wiring for lock /unlock using Phantom Xylem switching polarity unit and alarm or keylessentry device (alarm etc).**

- ① **Analog input 1 for out 1 must receive a ground signal**
- ② **Analog input 2 for out 2 must receive a ground signal**



## Wiring for lock / unlock motor using Phantom Xylem switching polarity unit with Touch n Go

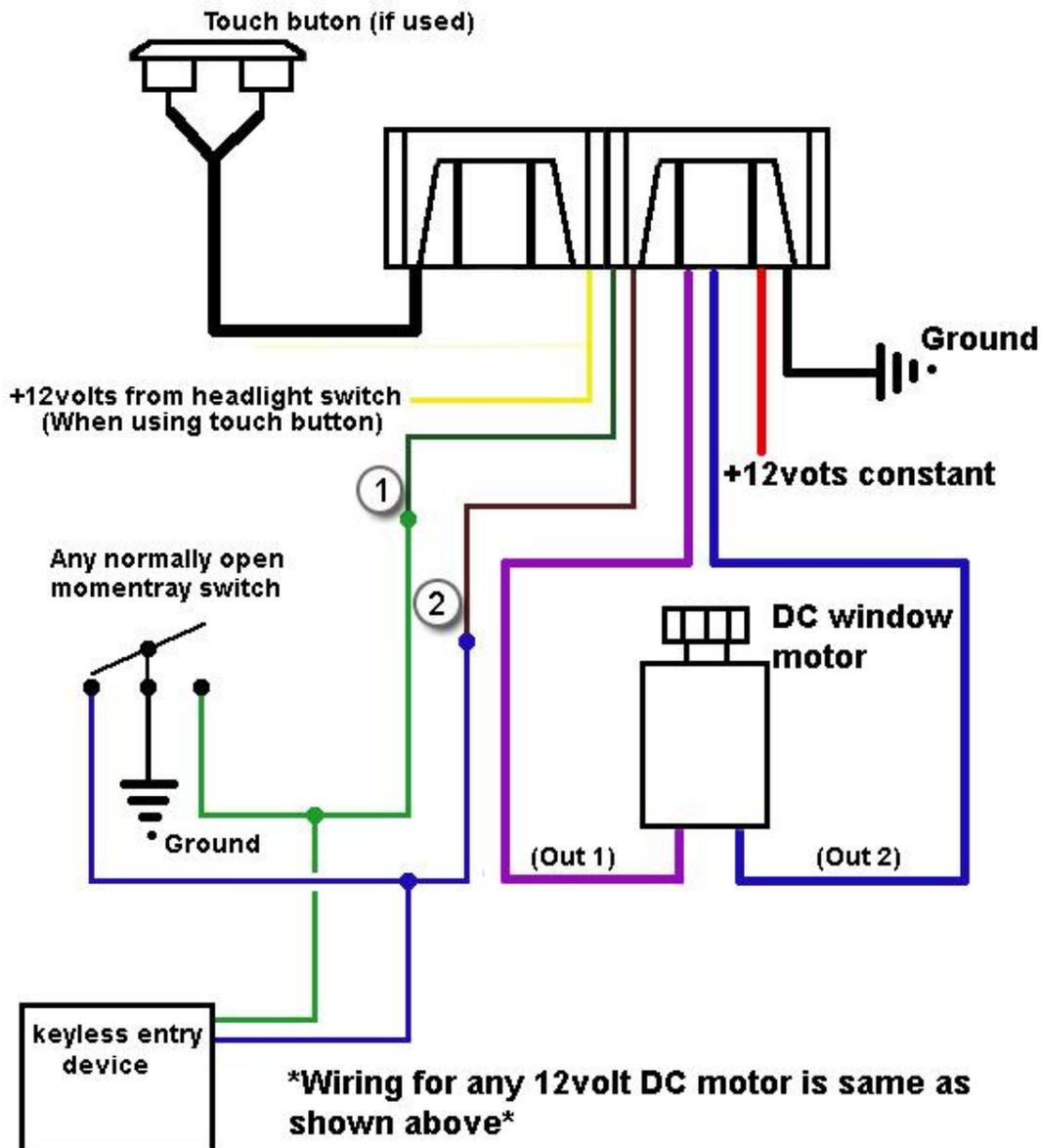


- ① Analog (-12v ground) input for Out 1
- ② Analog (-12v ground) input for Out 2

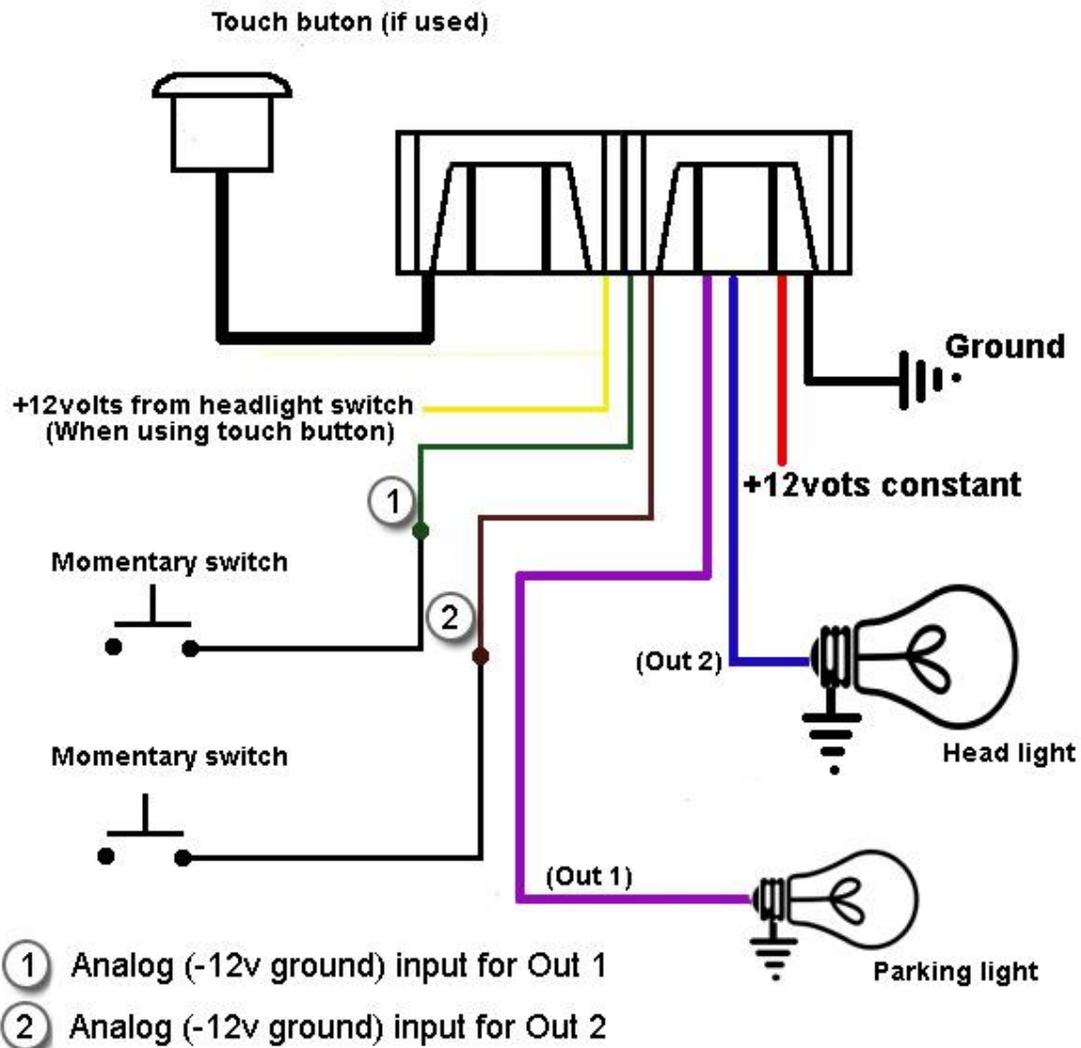
\*If lock motor works backwards simply reverse lock and unlock wires from security unit\*

**Wiring for power window using Xylem switching polarity unit and keyless entry device (alarm etc.)**

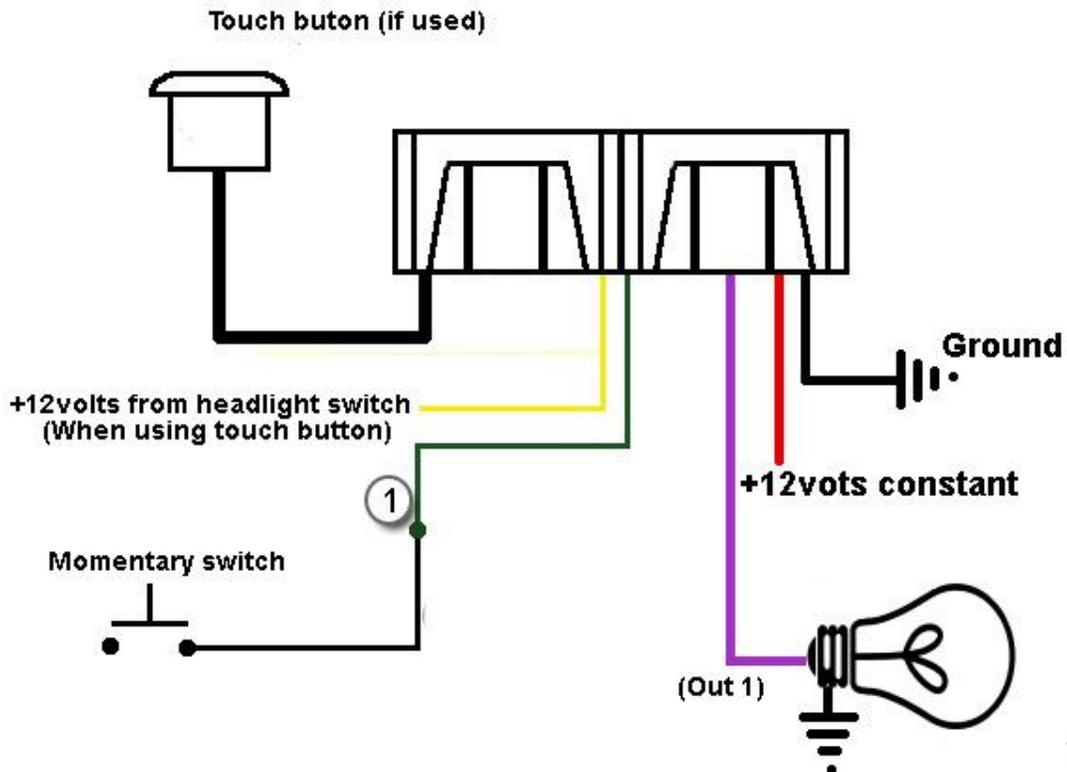
- ① **Analog input 1 for out 1 must receive a ground signal**
- ② **Analog input 2 for out 2 must receive a ground signal**



## Wiring example for Headlights switch using Phantom Xylem multiplexing switch box



## Wiring example for Phantom Xylem toggle switch box



① Analog (-12v ground) input for Out 1

## **90 Day Limited / Conditional Warranty**

Phantom-Products, LLC. (Phantom) promises to the original purchaser to repair or replace (at Phantom's election) with a comparable reconditioned model any Phantom unit (hereafter the "unit"), excluding without limitation remote transmitters, the associated sensors and accessories, which proves to be defective in workmanship or material under reasonable use during the first 90 days from the date of purchase, provided the following conditions are met: the unit was purchased from an authorized Phantom dealer, the unit was professionally installed and serviced; the unit will be professionally reinstalled in the vehicle in which it was originally installed; and the unit is returned to Phantom shipping prepaid with a legible copy of the invoice or other dated proof of purchase bearing the following information: consumer's name, telephone number and address; the authorized dealers name, telephone number and address; complete product description, including accessories; the year, make and model of the vehicle and vehicle engine type. All components including with limitation the controller, remote transmitters and the associated sensors and accessories, carry a ninety-day warranty from the date of purchase of the same. **ALL PRODUCTS RECEIVED BY PHANTOM FOR WARRANTY REPAIR WITHOUT PROOF OF PURCHASE WILL BE DENIED.** This warranty is non-transferable and is automatically void if: the original unit's date code or serial number is defaced, missing or altered; the unit has been modified or used in a manner contrary to its intended purpose; the unit has been damaged by accident, unreasonable use, neglect, improper service, installation or other causes not arising out of defects in materials or construction. The warranty does not cover damage to the unit caused by installation or removal of the unit. Phantom, in its sole discretion, will determine what constitutes excessive damage and may refuse the return of any unit with excessive damage

### **LIMITED WARRANTY TERMS:**

- 1) This warranty covers the Xylem controller only against malfunctions due to defective parts or assembly workmanship of the unit. The warranty is only extended to the original customer. It does not cover labor, towing, loss of earnings, per diem expenses, substitute transportation, or any other claims of any other nature whatsoever. Phantom's liability under this warranty is limited to replacing or repairing damaged and/or defective parts. No labor incurred in the installation, repair, removal, diagnostic or performance of any task on the unit is covered, or refunding the amount of any other repairs. Repair, replace, or refunding option is at the sole discretion of Phantom.
- 2) The unit can fail due to no fault of Phantom. Systems, parts, and accessories related to, but not a part of the unit, can fail during or after the unit installation, causing malfunctions, damage or even failure, to the unit, wiring, starter, battery, electrical components or other vehicle related items. We cannot predict such failures and neither can we guarantee such failures.
- 3) The Purchaser must prepay shipping charges for the return of the component. Items returned freight collect will be refused and returned at Purchasers expense
- 4) Warranty is voided if payment has been neglected and/or if there is outstanding

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