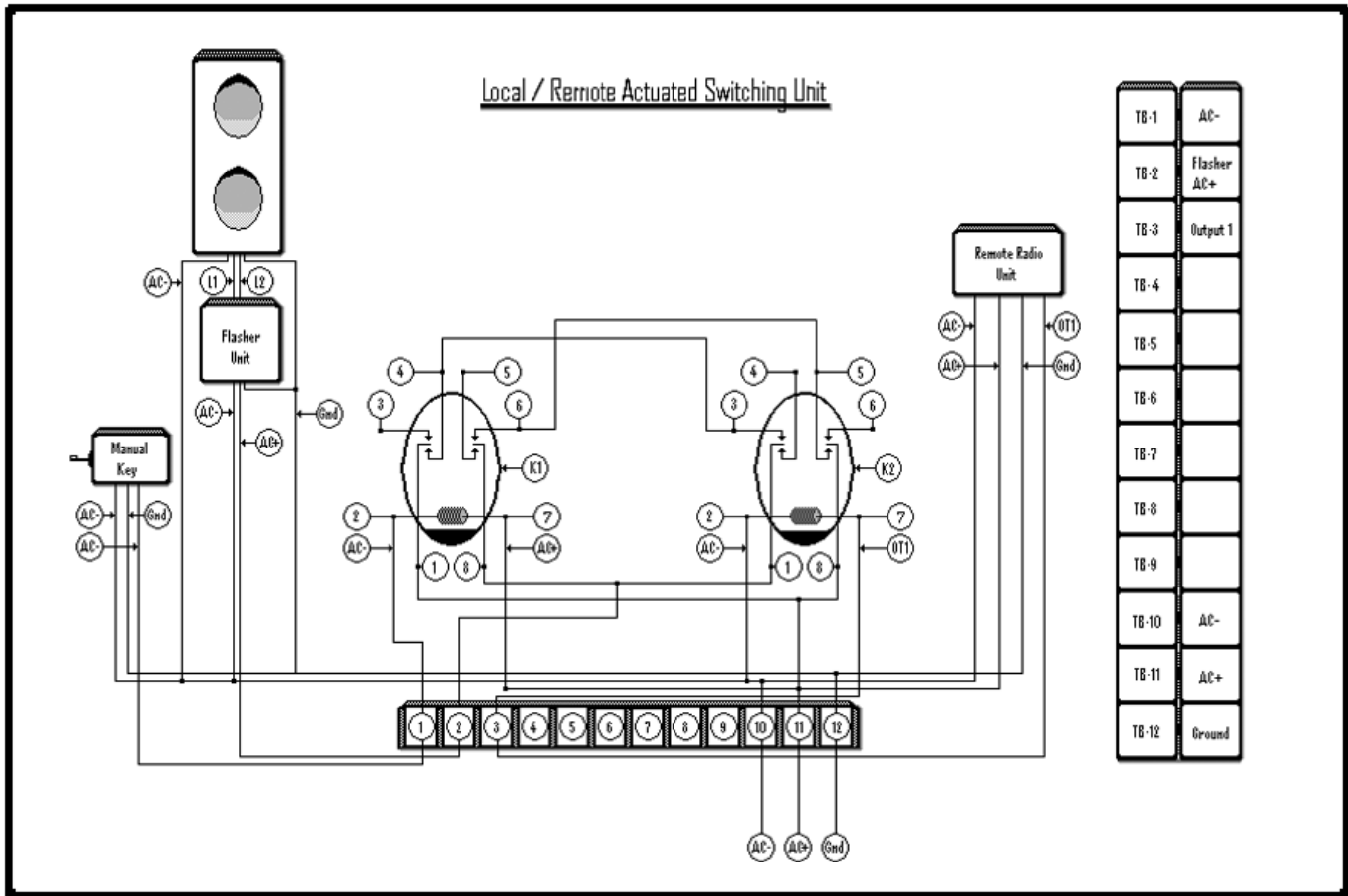


Local/Manual Actuated Switching Unit

By William Tibbetts, City of Norfolk



The circuit schematic depicted in the above diagram, will allow local / manual and remote activation of a device. The circuit acts similarly to a two way ac lighting circuit. By routing the electric path thru the relays you make two ways to turn on and two ways to turn off the device.

Using this circuit to control a device, you benefit from a low cost solution to being able to control a remote station. This system is mobile, you can test out the location of the device that is being used, and if it doesn't work there you can move it with very little effort and cost.

This circuit is currently being used to control the activation of school flashing warning lights, but the possibilities of what it can be used to activate is endless. For example, you could use it to turn on/off evacuation signs in case of an emergency, or turn on/off no semi-truck signs, or hazard horns, traffic jam signs, ext.

The relay circuit has Boolean algebraic values of $A(\text{Low}) + B(\text{Low}) = C(\text{Low})$, $A(\text{High}) + B(\text{Low}) = C(\text{High})$, $A(\text{High}) + B(\text{High}) = C(\text{Low})$ and $A(\text{Low}) + B(\text{High}) = C(\text{High})$. The value of A equals K1 pin 7, the value of B equal K2 pin 7 and the value of C equals AC+ value to flashing unit. In essence a flip-flop circuit that will allow two ways to turn the output to the sign on or off.

With A(low) + B(low) equals a low value for C. This leaves both relays in the common state (non-active) with the AC+

value of Pin7 at AC0. The AC 120 is applied to K1 pin 1 and K2 Pin 8 has no route to travel which leaves the output of the circuit at a value of zero.

With $A(\text{High}) + B(\text{Low})$ equals a high value for C. This is with the manual switch in the closed position, which completes the circuit path for AC-(neutral) K1 pin 2 (coil). Relay K1 is active and K2 is non-active. The path for AC120 is as follows, K2 pin 8 to K2 pin 5, then K2 pin 5 to K1 pin 6, then K1 pin 6 to K1 pin 8, and finally K1 pin 8 to flasher (sign). This leaves the output value of this circuit configuration at the value of 120AC volts.

With $A(\text{High}) + B(\text{High})$ equals a low value for C. This leaves both relays in the open state (active) with the AC+ value of Pin7 at AC120 . The AC 120 is applied to K1 pin 1 and K2 Pin 8 has no route to travel which leaves the output of the circuit at a value of zero.

With $A(\text{Low}) + B(\text{High})$ equals a high value for C. This is with the manual switch in the open position, and the output from the remote radio High. Relay K2 is active and K1 is non-active. The path for AC120 is as follows, K1 pin 1 to K1 pin 4, then K1 pin 4 to K2 pin 3, then K2 pin 3 to K2 pin 1, and finally K2 pin 1 to flasher (sign). This leaves the output value of this circuit configuration at value of 120AC volts.