Sensitivity Adjustment of Controls

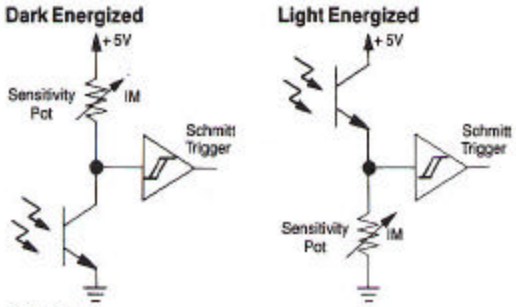

FIG. 27

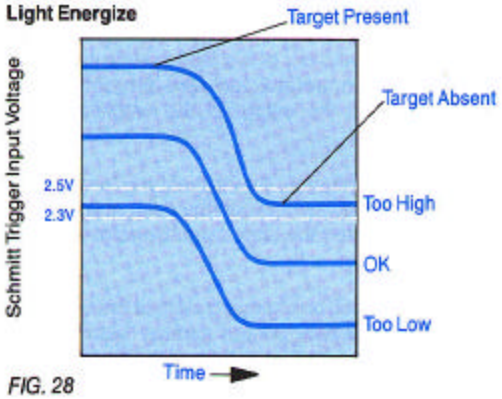

FIG. 28

USING A REMOTE POTENTIOMETER
R40 and T40 Series, R46 and T46 Series

Omit jumper wire connected to pin 6 and connect external pot as shown.

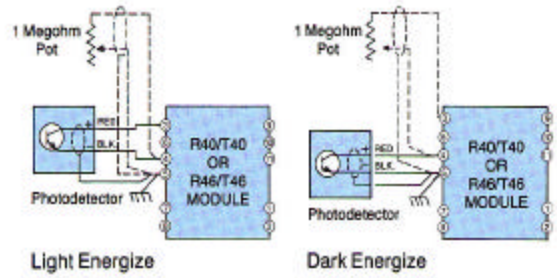

FIG. 29

Fig. 27 shows the relationship between the photodetector, the sensitivity potentiometer (pot) and the Schmitt trigger amplifier. Notice that the photodetector and sensitivity pot divide the +5 Volts DC bias voltage. The Schmitt trigger turns ON when its input voltage rises to about 2.5V and turns OFF when the input voltage falls below about 2.3V because of the hysteresis built into the circuit.

Consider what happens when the control is wired for LIGHT ENERGIZE. The amplifier stays OFF as long as the voltage at the amplifier input remains below 2.5V. Since the 2.5V is half of the bias voltage, the amplifier stays OFF as long as the resistance of the sensitivity pot is less than the resistance of the photodetector. The resistance of the photodetector decreases as the intensity of captured light increases. The Schmitt trigger amplifier turns ON when the resistance of the photodetector falls below the resistance of the sensitivity pot.

All Skan-A-Matic controls except the T21004 have sensitivity pots which give higher resistance and higher sensitivity when turned clockwise. From the example above, we see that when resistance across the pot is high, only a little light will drive the resistance of the photodetector low enough to turn ON the amplifier.

Fig. 28 shows Schmitt trigger input voltage at three different settings of the sensitivity pot. The curve labeled "TOO HIGH" is produced when the sensitivity is turned too far clockwise — the control is ON continuously. The "TOO LOW" curve shows a control that can never switch ON because the sensitivity is turned too far counterclockwise.

Using a Remote Potentiometer

The R40/T40 and R46/T46 Series controls can be wired with a remote sensitivity adjustment. This is recommended in cases where the sensitivity must often be readjusted, or if the control is located in an inaccessible area. When a remote potentiometer is used, the internal sensitivity pot has no effect. Wiring must be done using shielded cable. The value of the external potentiometer is one megohm, and multiple turn potentiometers, such as the CTS Series VA45, are recommended.