

Subject: Using the SA-1 as a lock out relay.

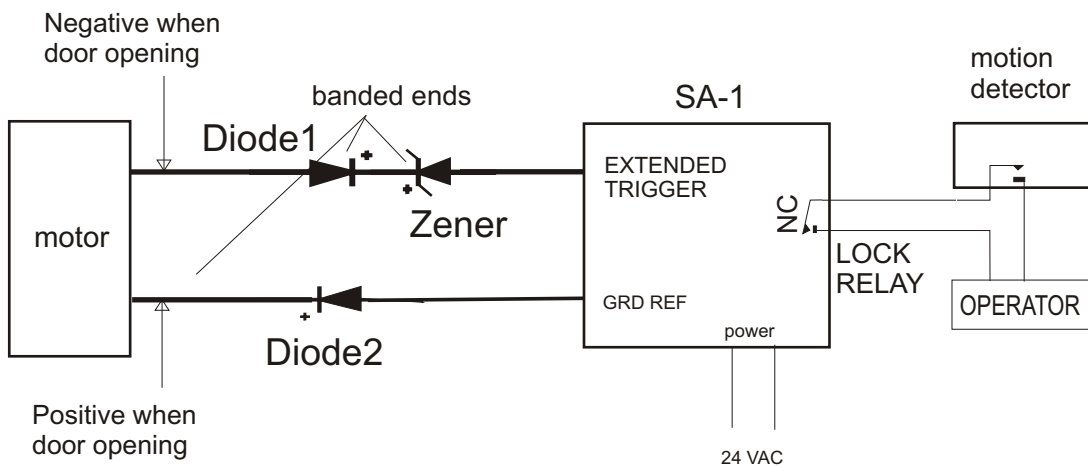
Note: This application note is describing the use of an SA1 M5 with a Gyro Tech operator, and may require some modification to work with another operator.

Premise: When the door is closing at maximum speed, the motor generates a voltage of about 48 VDC with a reverse polarity with respect to the applied opening voltage.

Theory of operation: With the SA-1 inactive, the motion detector is enabled through the normally closed side of the lock relay. The motion detector is able to close the circuit, activating the operator. When the motion detector opens the circuit, the door begins to close and the SA-1 gets triggered. This opens the lock relay contacts and disables the motion detector. With the SA-1 set to leave the lock relay ON while the extended trigger is ON (switch in the UP position), the motion detector will remain disabled as long as the door is moving.

Diode1 and Diode2 (1N4004 or 5) make sure that the inputs to the SA-1 are the correct polarity. Ensure that the cathode (banded end) of Diode2 is connected to the NEGATIVE lead of the motor WHEN CLOSING. This prevents the ground reference on the SA-1 from getting shorted to the supply of the motor.

If the Zener diode is 24volt part (such as 1N4749, 1N5252 or 1N5359), the SA-1 will not trigger until the output from the motor goes to about 30 V, which can only happen when the motor becomes a generator. The SA-1 needs at least 6 volts to trigger and can handle up to 48V on it's inputs. There should be between 6 and 24VDC at the SA-1 terminals when the door is closing and nothing when it is opening.



Note the polarity of the DC when the motor is powered for opening.