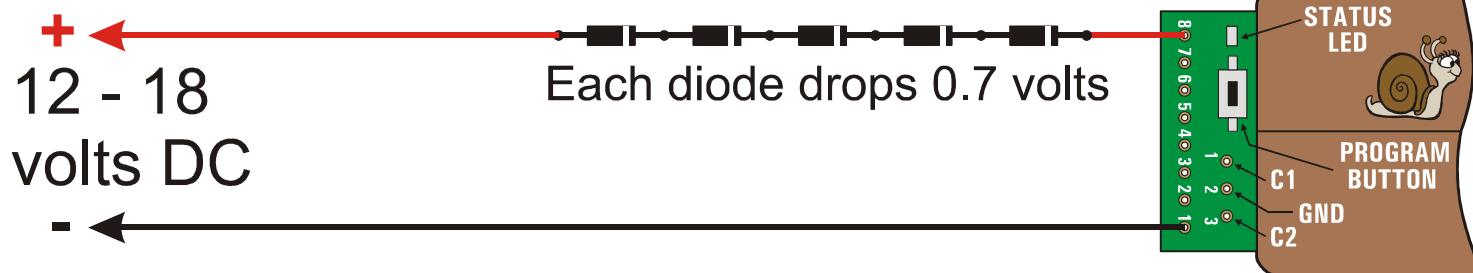


Slowing the SMAIL™ Speed for Grade Crossing Gates and other Animations.

At times, when using the SMAIL™ for DC signal applications, you may want to reduce the speed of the switch machine. If you are powering the SMAIL™ from 12 volts DC or higher, you may feel your accessory is moving too quickly. Slowing it down is easy to do. The solution is just to reduce the voltage being applied to terminals 1 and 8 and the machine will run slower. And the simplest way to do this is to insert standard 1 amp diodes wired in series to the input. Each diode will reduce the voltage by 0.7 volts, so 4 diodes in series will give you a little less than a 3 volt reduction. The decoder in the SMAIL requires a minimum of 6-7 volts DC on terminals 1 and 8 and at that low voltage, it runs VERY slowly. Going any lower is not recommended as the machine will likely just stop working. We cannot give you a specific number of diodes to use as the speed desired is very subjective and the voltage reduction will depend on your initial starting voltage. Diodes are available from Jameco and other online merchants and CIRCUITRON sells a package of 6 with our part number 800-9351. We recommend starting with 4 diodes and then adding more if you need a greater reduction. If it appears you will need many diodes in series, an alternative is to use a single 1 watt zener diode (available from Jameco) of the proper voltage for the reduction. Both methods are shown below:

USING STANDARD 1N4001 – 1N4004 DIODES



USING A 1 WATT ZENER DIODE

3.3 volt	1N4728A
3.6 volt	1N4729A
4.3 volt	1N4731A
4.7 volt	1N4732A

5.1 volt	1N4733A
5.6 volt	1N4734A
6.2 volt	1N4735A
7.5 volt	1N4737A

8.2 volt	1N4738A
9.1 volt	1N4739A
10 volt	1N4740A
11 volt	1N4741A

