

Switches 1

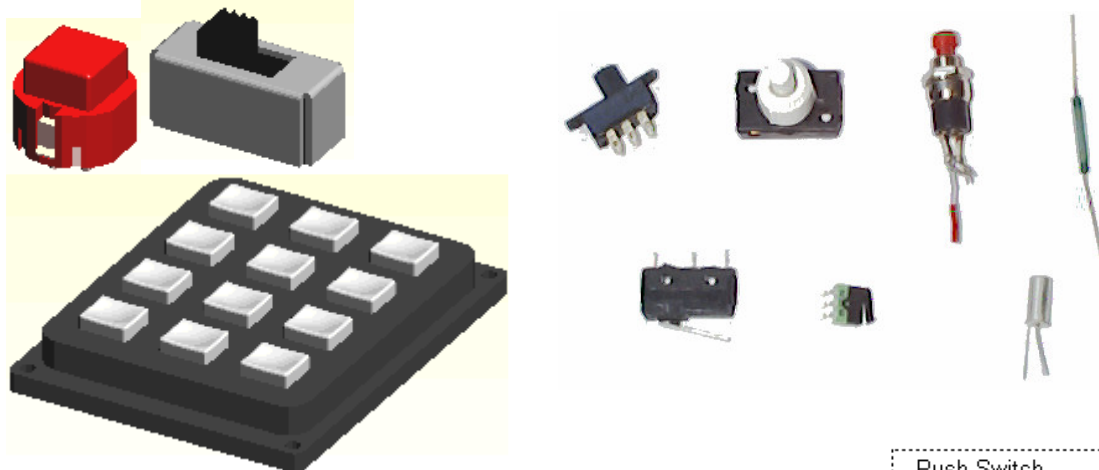
There are lots of different switches in all sorts of shapes and sizes but electronically they are all one of a few simple types.

Push to make switch		Push to break switch	
Single pole single throw, normally open		Single pole single throw, normally closed	
Single pole double throw switch		Double pole double throw switch	

Push-to-make and push-to-break switches are usually momentary – the contact is only made or broken while the switch is being pressed. However, they can be latching – they stay on or off until the next press.

Single pole single throw (spst) switches can be made from single pole double throw (spdt) switches just by ignoring one contact. Both double throw switches (spdt and dpdt) can be found with centre off positions – triple throw. Slide, toggle and rocker switches are all electrically the same but just use a different actuator.

There are also large rotary multi-pole multi-throw switches as well as switches for special purposes such as key or tilt switches, membrane and micro-switches. Whole keypads are available using membrane switches. Reed switches are switched by using a magnet.



Switches can be used in lots of ways, but a common one is as part of a potential divider circuit. With a push-to-make switch at the top, the output of the block is held low (0v) by the “pull-down” 100k resistor. When the switch is pressed the output goes high (battery voltage). This is a “normally low” or “active high” block. With the components reversed it becomes a normally high block using a “pull-up” resistor. The 1k resistor is not really necessary but is included to avoid problems if the output of the block is short-circuited.

