

Switches

ELTN 130

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Switches are devices used to interrupt or re-direct current flow.

Switches come in many different types and packages:



Switches can be categorized by physical activation method:



Pushbutton



Toggle



Slide



Rotary



Rocker



Lever-arm



Switches can be momentary or latching

Momentary – only maintains the contact as long as the switch is pressed or activated

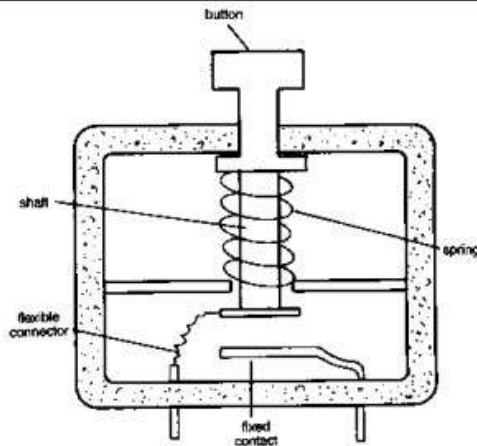
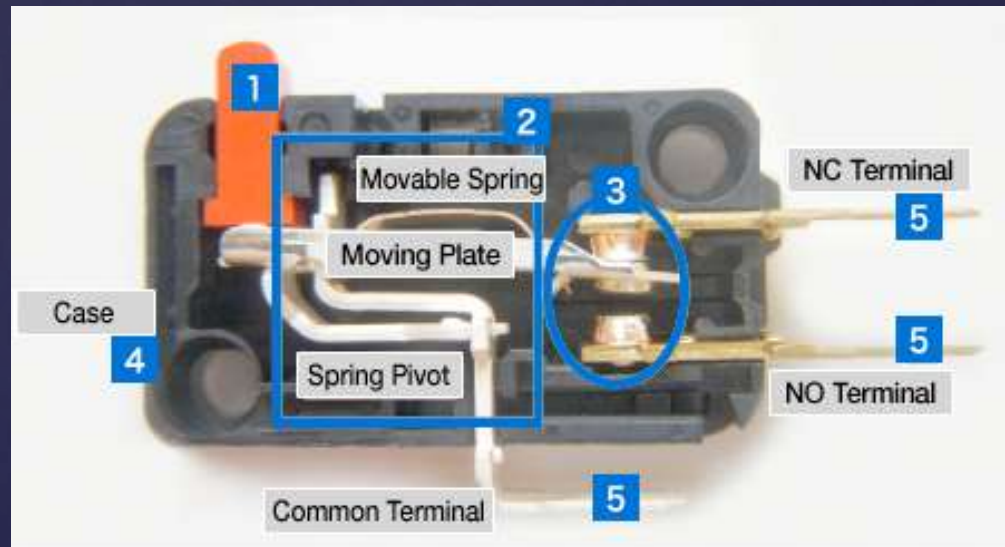


Figure 11.6 Operating principle of the momentary-contact push-for-on switch.



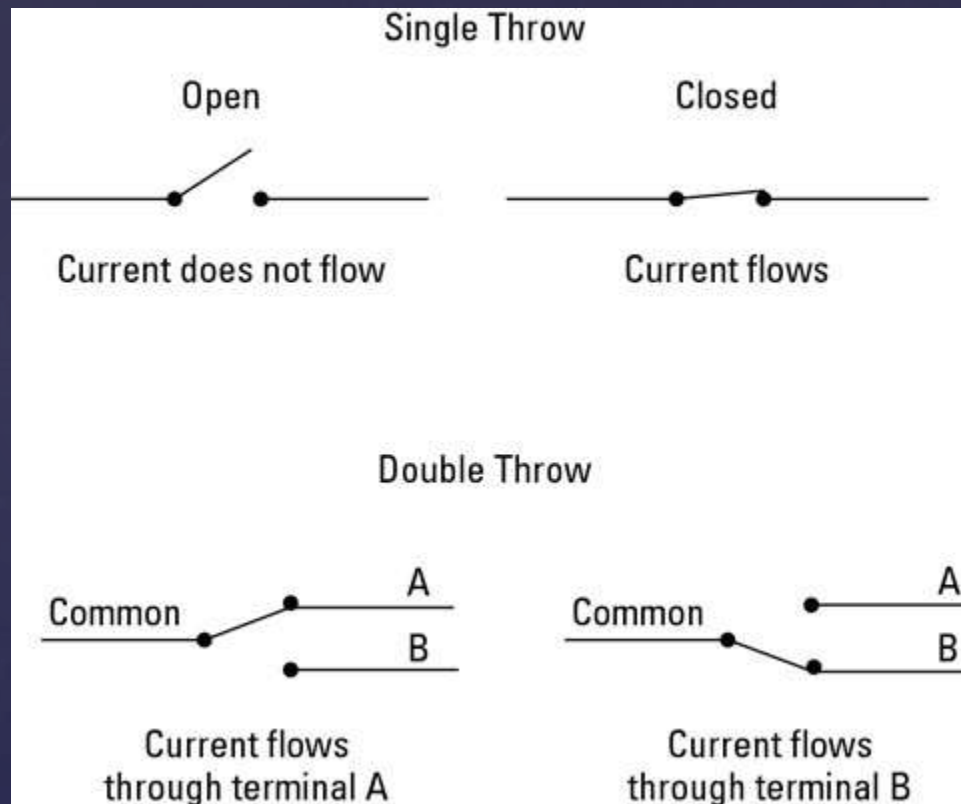
Switches can be momentary or latching

Latching – maintains the contact once the switch is pressed or activated, then releases after it is pressed or activated again

Typically have a “locking” position



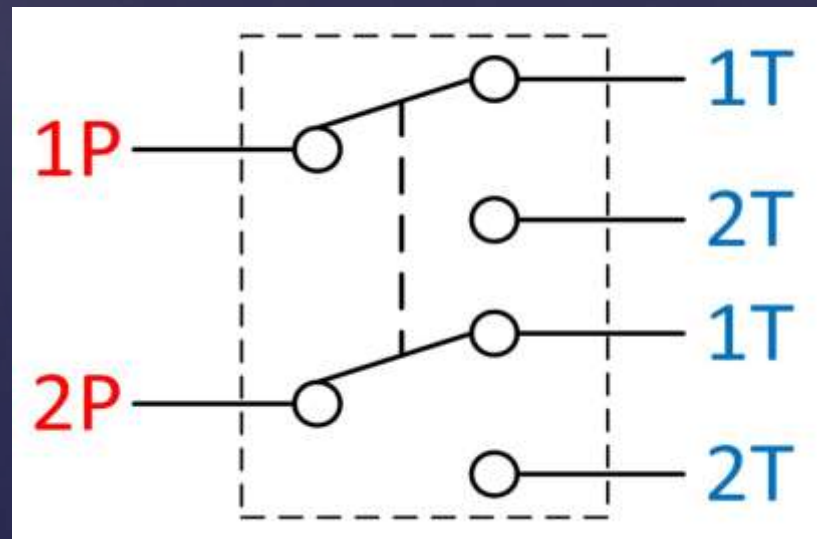
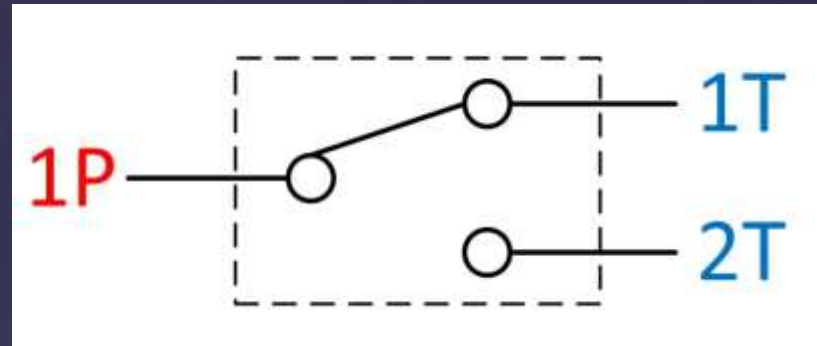
Also categorized as number of *throws* and *poles*. Throws are the number of positions the switch can move to:



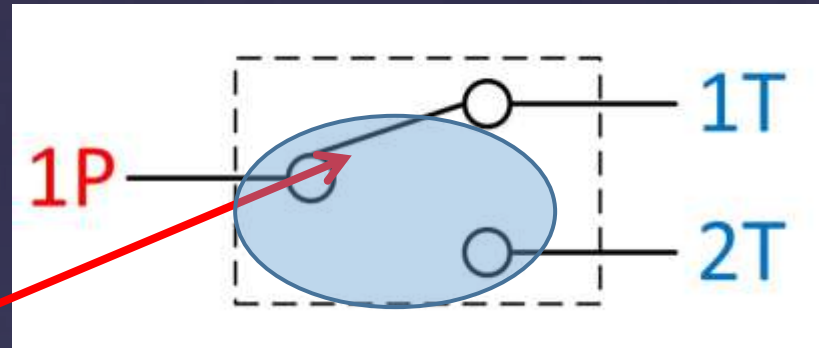
Examples: Two types of switches:

P = Pole

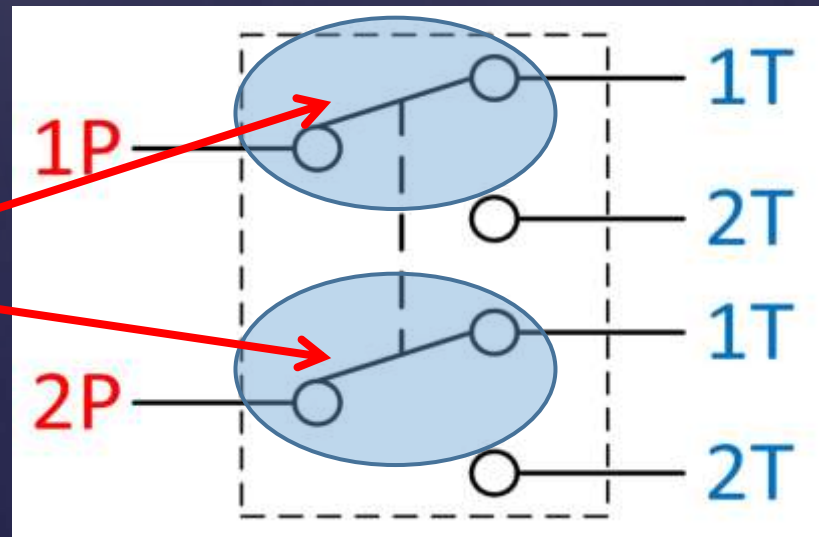
T = Throw



Poles are the number of moving sections in the switch:

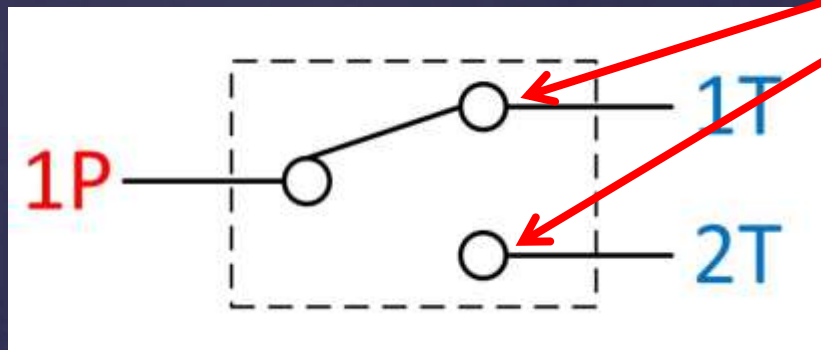


1 Pole



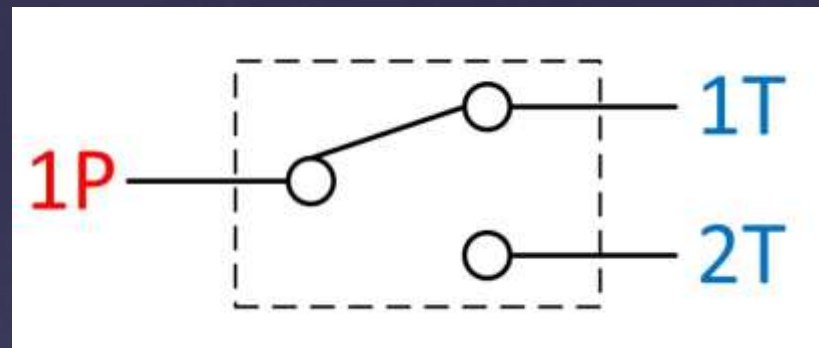
2 Poles

Throws are the number of positions the switch can move to:

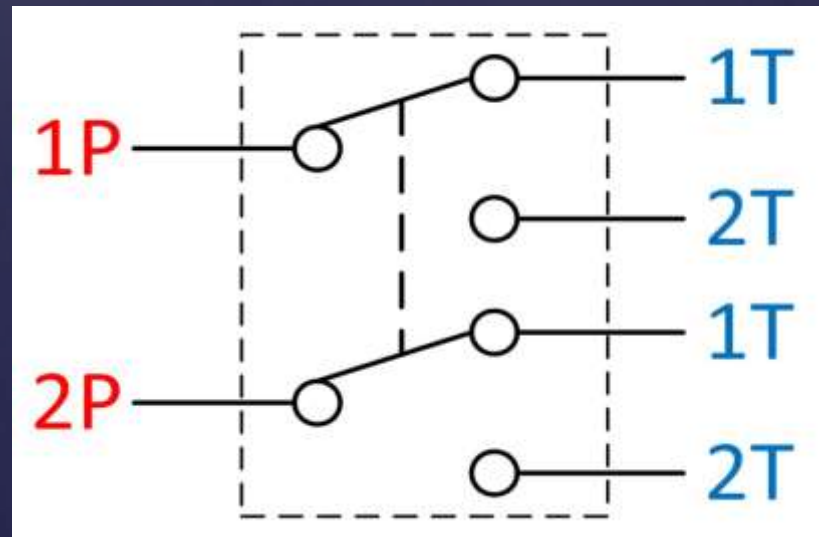


Double Throw

Abbreviations are used to name the switch types:



Single Pole,
Double Throw
(SPDT)



Double Pole,
Double Throw
(DPDT)

Common abbreviations:

- **SPST=Single-pole single-throw**



- **SPDT=Single-pole double-throw**



- **DPST=Double-pole single-throw**

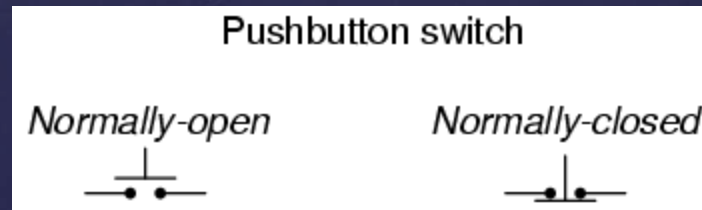
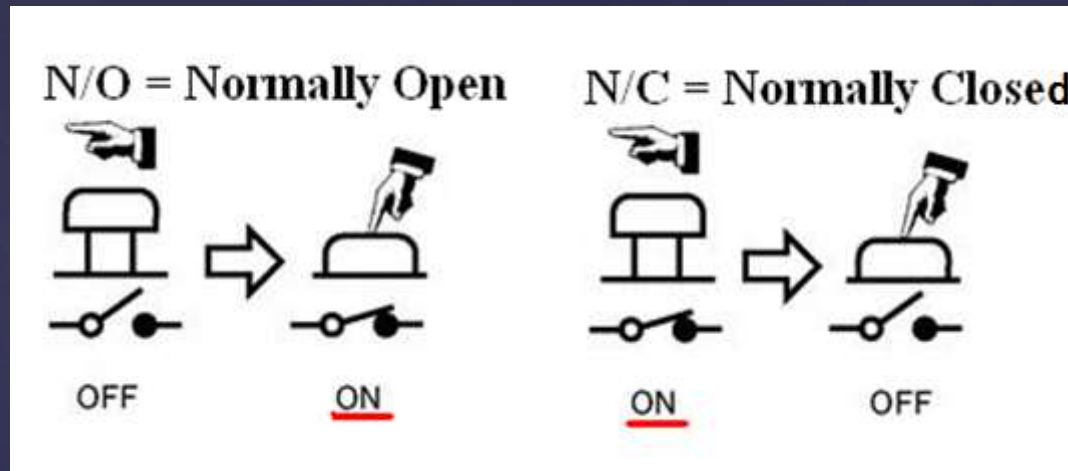


- **DPDT=Double-pole double-throw**



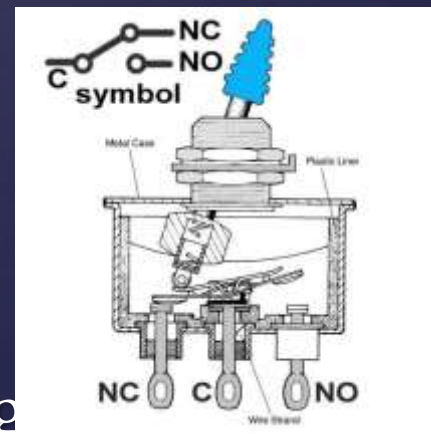
- **3PST,3PDT,SP3T,DP3T...**

Normally Closed (N.O) and Normally Open (N.C.)



Great link for overview:

<https://learn.sparkfun.com/tutorials/switch-basics/all>



References

- ↳ www.nkk.com
- ↳ www.wikipedia.org
- ↳ www.alliedelec.com
- ↳ www.newark.com
- ↳ <http://www.dummies.com/how-to/content/switches-in-electronic-circuits-poles-and-throws.html>