5-Position Switch (#27801)

The 5-Position Switch is a normally open contact switch that provides directional output to your project. It has a nice snappy feel, and returns to the center/un-pressed position immediately when it is released. By monitoring the input state of five pins, it's easy for any Parallax microcontroller to detect whether the switch is in the up, down, left, right, or pressed position. It is possible for more than one position to make contact at a time, such as pressed+right, left+down, or pressed+right+down, for a total of 18 output states.

Features

- 8-pin DIP module is ready for breadboard or through-hole projects
- 10 kΩ pull-up resistor included on each positional pin
- Simple communication with any Parallax microcontroller
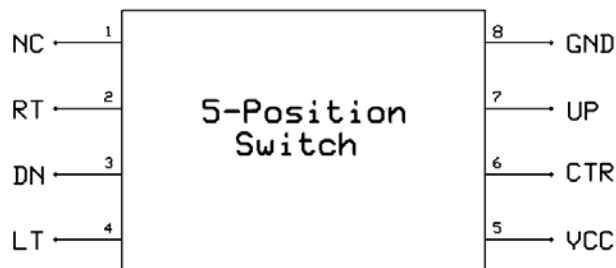
Key Specifications

- Power Requirements: Supply voltage = output signal voltage. Set supply voltage for compatibility with your microcontroller's inputs.
- Communication: Single bit high/low output for each position
- Operating temperature: 32 to 158 °F (0 to +70 °C)
- Dimensions: 0.70 x 0.95 x 0.78 in (1.78 x 2.41 x 1.98 cm)

Application Ideas

- Video game input
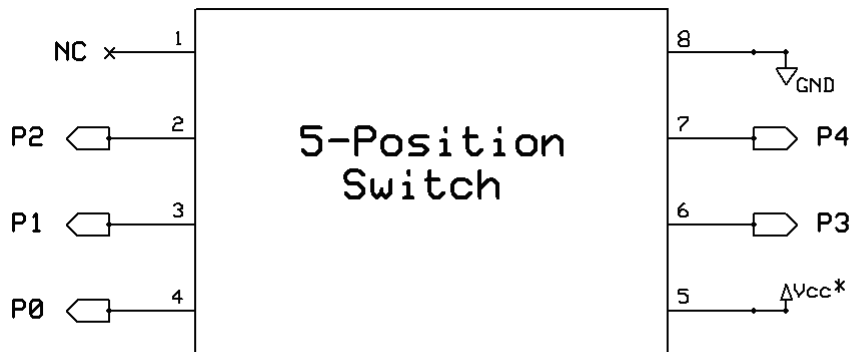- Robot control

Pin Definitions and Ratings

Pin	Name	Function
1	NC	No Connection
2	RT	Right Contact Switch
3	DN	Bottom Contact Switch
4	LT	Left Contact Switch
5	VCC	Supply Voltage*
6	CTR	Center Contact Switch
7	UP	Top Contact Switch
8	GND	Ground

*Supply voltage will determine output voltage. Be sure to use a supply voltage that your microcontroller will tolerate as an input signal.

Connection Diagram

The figure below depicts the connection diagram to use with the included sample programs.


```
         1                                    8
NC  ×───────┐                          ┌───────●───┐
            │                          │        ▽GND
         2  │      5-Position          │  7
P2 ◁────────┤        Switch            ├──────── ▷ P4
         3  │                          │  6
P1 ◁────────┤                          ├──────── ▷ P3
         4  │                          │  5
P0 ◁────────┤                          ├──────── △Vcc*
            └──────────────────────────┘
```

*Vcc = 3.3V for Propeller Applications
Vcc = 5V for BASIC Stamp Applications

Note: 220 Ω resistors may also be placed in series between the 5-Position Switch and the microcontroller I/O pins to prevent potential I/O pin damage from accidental code errors.

Source Code

These programs are available from the 5-Position Switch product page. Browse to www.parallax.com and "Search" for 27801.

BASIC Stamp® 2 Program

This program will display the current position of the 5-Position Switch using the Debug Terminal built into the BASIC Stamp Editor, which is available for download from www.parallax.com/basicstampsoftware.

```
' {$STAMP BS2}
' {$PBASIC 2.5}

DEBUG CLS,                       ' Display directional graph
"          ", CR,
"    |     ", CR,
"  -   -   ", CR,
"    |     ", CR

DO
  IF (IN0 = 0) THEN DEBUG CRSRXY, 2, 2, "<" ELSE DEBUG CRSRXY, 2, 2, " "
  IF (IN1 = 0) THEN DEBUG CRSRXY, 5, 4, "v" ELSE DEBUG CRSRXY, 5, 4, " "
  IF (IN2 = 0) THEN DEBUG CRSRXY, 8, 2, ">" ELSE DEBUG CRSRXY, 8, 2, " "
  IF (IN3 = 0) THEN DEBUG CRSRXY, 5, 2, "o" ELSE DEBUG CRSRXY, 5, 2, " "
  IF (IN4 = 0) THEN DEBUG CRSRXY, 5, 0, "^" ELSE DEBUG CRSRXY, 5, 0, " "
  PAUSE 20
LOOP
```

Propeller™ P8X32A Application

This program will display the current position of the 5-Position Switch using the Parallax Serial Terminal. Note: This application uses the Parallax Serial Terminal.spin object for displaying the state of the sensor. This object as well as the Parallax Serial Terminal itself is installed with the Propeller Tool v1.2.6, which is available from the Downloads link at www.parallax.com/Propeller.

```
'5PositionSwitch_Simple.spin for P8X32A

  _clkmode = xtal1 + pll16x
  _xinfreq = 5_000_000

OBJ
  pst : "Parallax Serial Terminal.spin"

PUB Main
  dira[0..4]~                               ' Set pins 0-4 to input

  pst.Start(115_200)                        ' Set Parallax Serial Terminal to 115,200 baud
  waitcnt(clkfreq + cnt)

  pst.NewLine                               ' Display directional graph
  pst.Str(string("    |    "))
  pst.NewLine
  pst.Str(string("  -   -  "))
  pst.NewLine
  pst.Str(string("    |    "))

  repeat
    if ina[0] == 0
      pst.Position(1, 2)
      pst.Char("<")
    else
      pst.Position(1, 2)
      pst.Char(" ")

    if ina[1] == 0
      pst.Position(4, 4)
      pst.Char("v")
    else
      pst.Position(4, 4)
      pst.Char(" ")

    if ina[2] == 0
      pst.Position(7, 2)
      pst.Char(">")
    else
      pst.Position(7, 2)
      pst.Char(" ")

    if ina[3] == 0
      pst.Position(4, 2)
      pst.Char("o")
    else
      pst.Position(4, 2)
      pst.Char(" ")

    if ina[4] == 0
      pst.Position(4, 0)
      pst.Char("^")
    else
      pst.Position(4, 0)
      pst.Char(" ")
```