Chipsmall

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

PS/2 to Breadboard Adapter (#28060)

The Parallax PS/2 to Breadboard Adapter makes it convenient to connect a PS/2 mouse or keyboard to breadboards, protoboards and perfboards with 0.1-inch hole spacing. Designed with the Propeller Education Kit in mind, this adapter simplifies connecting PS/2 mice and keyboards to the PE Platform's Propeller Microcontroller.

Our "...to Breadboard" adapters make connectors breadboard-friendly for prototyping. These adaptors tend not to feature built-in circuits, just the connector mounted on a PCB and routed to pins. This makes each adapter more flexible for different applications. Hand wiring the interface circuit also gives students the opportunity to become more familiar with the relationships between circuits, theory of operation, and microcontroller code.

Features

- PS/2 female socket (mini-DIN-6)
- 4 dual-pin DIP board provides a steady base for plugging and unplugging the peripheral's cable.
- Compact board can be oriented across a breadboard trench lengthwise or crosswise for flexibility in parts placement.
- Narrow width (approx. 0.525") allows for placement of multiple adjacent modules with minimal breadboard space consumed.

Key Specifications

- Supply voltage: + 5 VDC
- Supply current: See PS/2 peripheral's specifications
- Communication: Synchronous serial, open collector
- Package: 4 dual-pin DIP, 0.1" spacing
- Operating temperature: 0 – 70° C.
- Size: 0.92 in H x 0.525 in W x 0.90 in D (23 mm x 13.3 mm x 22.8 mm)
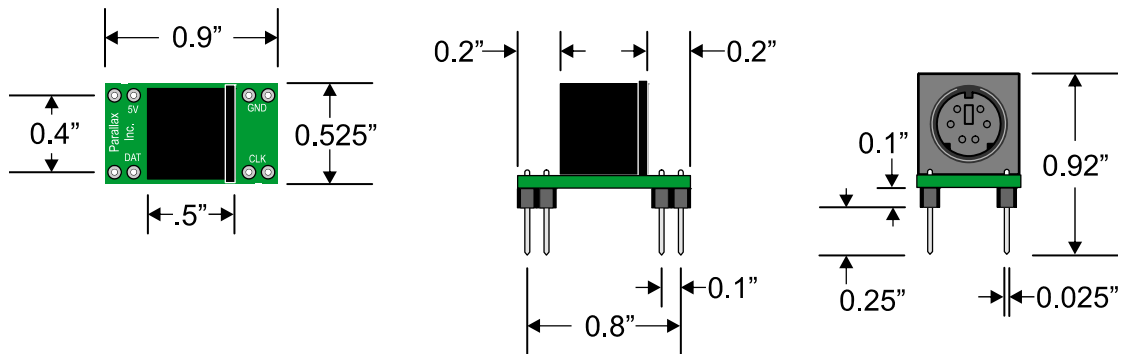- Weight: 7.8 g (0.28 oz)

Pin Definitions & Schematic

GND	Ground (Vss)
5 V	Regulated +5 VDC
DAT	Data (I/O pin)
CLK	Clock (I/O pin)

The two pins in each pin-pair are electrically connected to each other; either pin by a given pin label can be used to make the electrical connection.
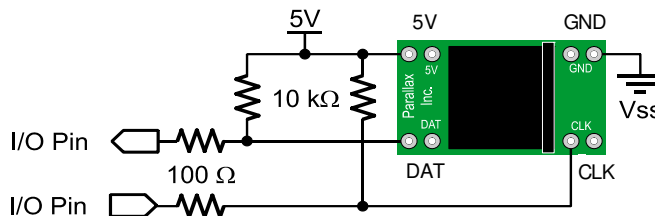
Dimensions

Dimensions are approximate and subject to minor changes based on component availability.

## Example Programs and Applications

Propeller Microcontroller – Test Parallax PS/2 Keyboard

This application tests the Parallax PS/2 keyboard connected to Propeller chip I/O pins P26 and P27 and displays the characters entered in the Parallax Serial Terminal. This program relies on the Keyboard and FullDuplexSerial objects, which are included in the Propeller Tool software's Propeller Library. The Parallax Serial Terminal is available for free from the Downloads link at www.parallax.com/Propeller.
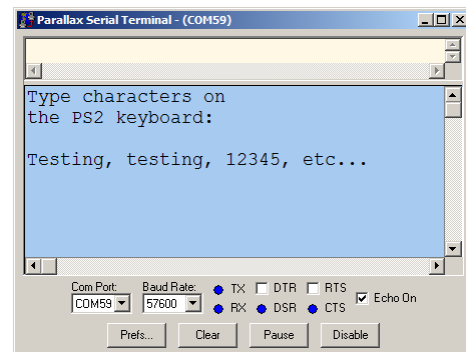
- ✓ Set the Parallax Serial Terminal's Com Port to your Propeller microcontroller's programming port.
- ✓ Set the Parallax Serial Terminal's baud rate to 57600.
- ✓ Use the Propeller Tool software to load Test Parallax Keyboard.spin into the Propeller chip.
- ✓ You can click the Parallax Serial Terminal's Enable button immediately after starting the Propeller Tool software's Load EEPROM feature. The Parallax Serial Terminal will automatically wait for the Propeller Tool to finish before opening the Com Port.

If you waited more than 1 second after the Propeller Tool finished loading the program, you might not see the "Type characters on the PS2 Keyboard:" message.

- ✓ To display the "Type characters…" message, you can restart the program by holding your computer keyboard's CTRL key and clicking the Parallax Serial Terminal's DTR checkbox.
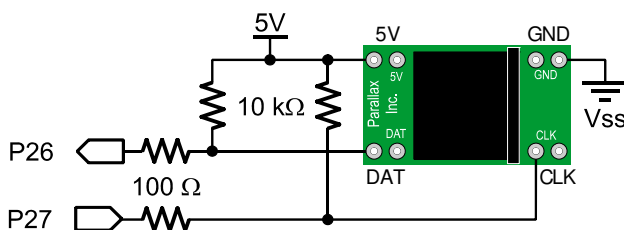
Schematic for Test Parallax Keyboard.spin

```
'' Test Parallax Keyboard.spin
'' Displays characters typed on the Parallax PS/2 keyboard in the Parallax Serial Terminal.

'' See 28060-PS2-to-Breadbaord.PDF for schematics and instructions.

CON

  _clkmode = xtal1 + pll16x                    ' System clock settings
  _xinfreq = 5_000_000
  CLS     = 16                                 ' Parallax Serial Terminal constants
  CR      = 13

OBJ

  keys  : "Keyboard"                           ' Declare keyboard object
  debug : "FullDuplexSerial"                   ' Declare FullDuplexSerial object

PUB KeyboardDisplay

  keys.start(26, 27)                           ' Start keyboard
  debug.start(31, 30, 0, 57600)                ' Start serial connection

  waitcnt(clkfreq + cnt)                       ' Wait 1 s before starting

  ' Display static text.
  debug.str(string(CLS, "Type characters on", CR, "the PS/2 keyboard:", CR, CR))

  repeat
    if keys.gotKey                             ' If key in buffer
      debug.tx(keys.getKey)                    ' Display character
```

Propeller Microcontroller – Test Parallax PS/2 Mouse

This application tests the Parallax PS/2 mouse connected to Propeller chip I/O pins P24 and P25 and displays the X, Y and scroll wheel positions along with the center (scroll wheel), right, and left buttons in the Parallax Serial Terminal.   This program relies on the Mouse and FullDuplexSerial objects, which are included in the Propeller Tool software's Propeller Library.

- ✓ Change the I/O pin connections; they are different from the keyboard example.
- ✓ For tips on finding and using the Parallax Serial Terminal, see the explanation and checklist instructions in the Test Parallax PS/2 Keyboard example.
- ✓ If you did not click the enable button within 1 second after the Propeller Tool's Load EEPROM feature finished, the "Mouse", "x = ", "y = ", and other labels might not display. To refresh the display, you can restart the application by holding down your computer keyboard's CTRL key and clicking the Parallax Serial Terminal's DTR checkbox.
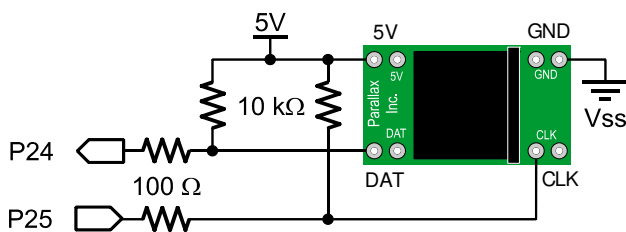
Schematic for Test Parallax Mouse.spin
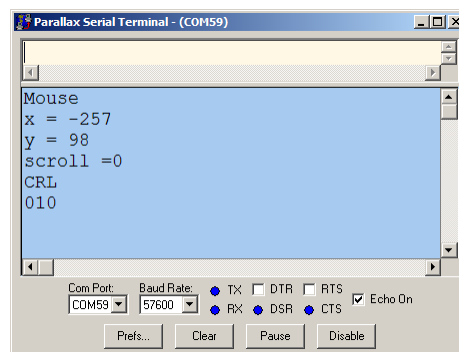
```
'' Test Parallax Mouse.spin
'' Displays Parallax mouse X, Y, and Scroll button coordinates along with the scroll wheel,
'' right and left button states in the Parallax Serial Terminal.

'' See 28060-PS2-to_Breadbaord.PDF for schematics and instructions.

CON

  _clkmode = xtal1 + pll16x                    ' System clock settings
  _xinfreq = 5_000_000

  HOME   = 1                                   ' Parallax Serial Terminal constants
  CRSRXY = 2
  CR     = 13
  CLREOL = 11
  CLS    = 16

OBJ

  mouse : "Mouse"                              ' Declare Mouse object
  debug : "FullDuplexSerial"                   ' Declare FullDuplexSerial object

PUB MouseDisplay | mousex, mousey, mousez, mousebtns

  mouse.start(24, 25)                          ' Start mouse
  debug.start(31, 30, 0, 57600)                ' Start serial connection

  waitcnt(clkfreq + cnt)                       ' Wait 1 s before starting

  ' Display static text.
  debug.str(String(CLS, "Mouse", CR, "x = ", CR, "y = ", CR, "scroll = ", CR, "CRL", HOME))

  repeat

    mousex += mouse.delta_x                    ' Get mouse data
    mousey += mouse.delta_y
    mousez += mouse.delta_z
    mousebtns := mouse.buttons

    debug.str(string(CRSRXY, 4, 1))            ' Display mouse data
    debug.dec(mousex)
    debug.str(string(CLREOL, CRSRXY, 4, 2))
    debug.dec(mousey)
    debug.str(string(CLREOL, CRSRXY, 9, 3))
    debug.dec(mousez)
    debug.str(string(CLREOL, CR, CR))
    debug.bin(mouse.buttons, 3)
    waitcnt(clkfreq/20 + cnt)
```

Resources and Downloads

To get to the resources listed in this section, go to www.parallax.com, enter the part number into the Search field, and click the Go button.

The examples in this document require a PS/2 mouse and keyboard.

- Parallax PS/2 Optical Mouse (# 32350)
- Parallax PS/2 Mini Keyboard (# 32351)

There are more examples that rely on PS/2 keyboards and mice in the Propeller Library – Demos folder. These examples also require a television display such as the Mini LCD A/V Color Display. This display is also included in the Propeller Accessories Kit along with a Parallax PS/2 Optical mouse and Mini Keyboard. You can connect a television display to your PE Platform or other breadboard with the RCA to Breadboard Adapter.

- Mini LCD A/V Color Display (# 603-32000)
- Propeller Accessories Kit (# 32311)
- RCA to Breadboard Adapter (# 28050)

The Propeller Education Kit 40-pin DIP and PropStick USB versions are both compatible with these adapters. The Propeller Education Kit also features tutorials for getting started with the Propeller Microcontroller.

- Propeller Education Kit – 40 Pin DIP version (# 32305)
- Propeller Education Kit – PropStick USB version (# 32306)