PS/2 Keyboard Interface

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<u>**PS/2 Communication Theory**</u>

This section will go through the theory of the specific connectors we will be using and their associated pinouts, as well as an example data output from a PS/2 keyboard device. PS/2 is a serial protocol and only uses 2 pins to communicate information. The data pin is actually bi-directional, but we will only consider the data-output from the PS/2 device.

PS/2 Connectors
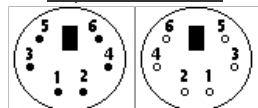
6-pin Mini-DIN (PS/2):

1 - Data
2 - Not Implemented
3 - Ground
4 - Vcc (+5V)
5 - Clock
6 - Not Implemented

The standard pinout for a mini-din or **PS/2** port can be seen above for both the male and female connectors. Typically the male connector is on the keyboard/mouse or whatever PS/2 device you have and the female connector will be on the receiving device (laptop/desktop) which is the PIC 18F452 in our case.

PS/2 Data Output
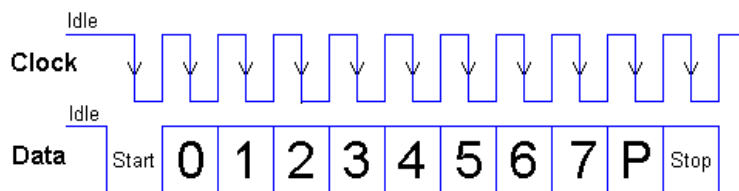
The timing diagram seen above is the standard way for any PS/2 device to output data. It follows a specific sequence everytime:

- **[1] Data Bit Goes Low**
- **[2] Clock Goes Low**
- **[3] Data Kept Low (Start Bit)**
- **[4] Clock Goes High**
- **[5] 8 Data Bits Clocked Out**
- **[6] Parity Data Bit Kept High**
- **[7] 1 Clock Cycle**
- **[8] Stop Data Bit Kept High**
- **[9] 1 Clock Cycle**

The main points to catch from the timing diagram is that: [1] for every 8 bits of data output, there is a start and a stop bit and [2] all data output is valid only on a falling clock edge.

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