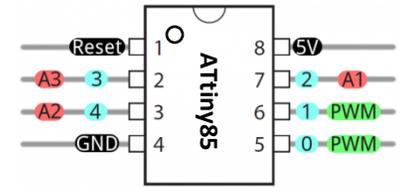




# Sparkfun Electronics ATtiny85 Arduino Quick Reference Sheet



## Structure

```

/* Each Arduino sketch must contain the
following two functions. */

void setup()
{ // this code runs once at the
  // beginning of the code execution.
}

void loop()
{ // this code runs repeatedly over
  // and over as long as the board is
  // powered.
}

```

## Comments

```

// this is a single line comment
/* this is
  a multiline
  comment */

```

## Setup

```

pinMode(pinNum, INPUT/OUTPUT/INPUT_PULLUP);
/* Sets the mode of the digital I/O pin.
All pins are general I/O on the board. You
must define what the pin will be used for at
the beginning of your code in setup() */

```

## Control Structures

```

if(condition)
{ // if condition is true, do something here
}
else
{ // otherwise, do this
}

for(init; condition; increment)
{
  // do this, increment, and
  // repeat while condition is true.
}

```

The 'for' loop is used to repeat a block of statements enclosed in curly braces. An increment counter is usually used to increment (or decrement) and terminate the loop.

## Digital I/O

```

digitalWrite(pin, val);
/* val = HIGH or LOW write a HIGH or a LOW
value to a digital pin. */

buttonVal = digitalRead(pin);
/* Reads the value from a specified digital
pin, either HIGH or LOW. */

```

## Analog I/O

```

analogWrite(pin, val);
/* Writes an analog voltage (using PWM) to a
pin. val = integer value from 0 to 255 */

```

```

sensorVal = analogRead(pin);
/* Reads the voltage from the specified
analog pin. 0V returns 0; Vcc returns 1023*/

```

## Time

```

delay(time_ms);
/* Pauses the program for the amount of time
(in milliseconds). */

millis();
/* Returns the number of milliseconds since
the board began running the current program.
max: 4,294,967,295 */

```

## Serial Communication

A separate USB to serial adapter like FTDI is needed for Serial communication with the ATtiny. And. the ATtiny must be flashed to run at 8 MHz instead of 1 MHz.

The ATtiny does not support Serial natively. You need to use SoftwareSerial to enable this function.

## ATtiny85 Pins

- Pins 0 - 4 : general purpose I/O pins (GPIO).
- Both digitalWrite() and digitalRead() can be used with any of these pins.
- Pins 0 & 1 : setup for PWM output using analogWrite().
- Pins A1, A2, A3 : setup for reading sensor input with analogRead().

## Data Types

```

void // nothing is returned
boolean // 0, 1, false, true
char // 8 bits: -128 to 127
byte // 8 bits: 0 to 255
int // 16 bits: -32,768 to 32,767
unsigned int // 16 bits (unsigned)
long /* 32 bits: -2,147,483,648
to 2,147,483,647 */
unsigned long // 32 bits (unsigned)
float // 32 bits, signed decimal

```

```

#include <SoftwareSerial.h> // include library

SoftwareSerial tinySerial(3, 4);
/* Put above setup() and loop() - declares
tinySerial using 3 & 4 for Transmit (tx) and
Receive (rx) */

tinySerial.begin(9600); /* begin Serial at
9600 baud. Put this line in setup() */

tinySerial.print(""); /* sends data on TX line
- to your receiving computer. */

tinySerial.println(""); /* sends data to
Serial Monitor with CRLF. */

inChar = tinySerial.read();

```