Kit-on-a-Shield Pin Description

Power Pins

IOREF

Provides a reference voltage showing what the primary operating voltage of the microcontroller is.

RESET

Provides a way to allow the user to send a programmatic reset signal to the Arduino, instead of having to press the reset button.

3V3

The 3.3V Power Rail

5V

The 5.0V Power Rail, usually measures slightly lower (4.8V)

GND

Ground Rail.

GND

Ground Rail.

Vin

Voltage in, max 12V. This pin is not protected by the 500mA polyfuse, as the USB connection is.

Analog Pins

Analog 00 = POT01

General Purpose I/O pin with analog measurement capability. Measures the voltage output level from Potentiometer 1. The potentiometer acts as a variable voltage divider - as the knob is turned, the voltage level measured will go up and down linearly.

Analog 01 = POT02

General Purpose I/O pin with analog measurement capability. Measures the voltage output level from Potentiometer 2. The potentiometer acts as a variable voltage divider - as the knob is turned, the voltage level measured will go up and down linearly.

Analog 02 = Light Dependent Resistor (LDR)

General Purpose I/O pin with analog measurement capability. Measures the voltage output level from the Light Dependent Resistor. As the LDR is exposed to more light, the resistance with decrease, and as it is exposed to less light, the resistance increases. Three 330Ω resistors in series (essentially a 1K resistor) are used to form a voltage divider with the LDR.

Analog 03 = Piezo Buzzer

General Purpose I/O pin with analog measurement capability. Connected to the Piezo Buzzer and fully compatible with the Arduino Tone functions.

Analog 04 = LM34 Temperature Sensor / I2C SDA

General Purpose I/O pin with analog measurement capability. Peforms the Serial Data action for the I2C bus. Measures the voltage output level from the TI LM34 Analog Temperature Sensor. The voltage output directly corresponds to the ambient temperature using the following formula from page 12 of the datasheet...

$$VOUT = 10mV/°F \times T°F$$

Analog 05 = I2C SCL

General Purpose I/O pin with analog measurement capability. Performs the Serial Clock function for the I2C bus.

Digital Pins

Digital 00 = UART Rx

General Purpose I/O pin. Performs the serial receive function for the UART bus.

Digital 01 = UART Tx

General Purpose I/O pin. Performs the serial transmit function for the UART bus.

Digital 02 = Debounced Interrupt Button

General Purpose I/O pin. Connected to Button 00 through a debounce circuit to provide clean input signals for triggering an Interrupt Service Routine. Pressing the button will drive the pin to 5V.

Digital 03 = GPIO

General Purpose I/O pin.

Digital 04 = GPIO

General Purpose I/O pin.

Digital 05 = General Input Button

General Purpose I/O pin. Connected to Button 01 directly (no debounce), with a 10K pulldown resistor. Pressing the button drives the input to 5V.

Digital 06 = LED0

General Purpose I/O pin. Connected to LED0 with a 330Ω current limiting resistor.

Digital 07 = LED1
General Purpose I/O pin. Connected to LED1 with a 330Ω current limiting resistor.

Digital 08 = LED2
General Purpose I/O pin. Connected to LED2 with a 330Ω current limiting resistor.

Digital 09 = LED3
General Purpose I/O pin. Connected to LED3 with a 330Ω current limiting resistor.

Digital 10 = LED4
General Purpose I/O pin. Connected to LED4 with a 330Ω current limiting resistor.

Digital 11 = LED5
General Purpose I/O pin. Connected to LED5 with a 330Ω current limiting resistor.

Digital 12 = LED6
General Purpose I/O pin. Connected to LED6 with a 330Ω current limiting resistor.

Digital 13 = LED7
General Purpose I/O pin. Connected to LED7 with a 330Ω current limiting resistor.

GND
Ground Rail.

AREF
Provides a way to deliver a different reference voltage to the Arduino's internal 10-bit ADC other than the general 5V reference.

SCL
Performs the Serial Clock function for the I2C bus.

SDA
Performs the Serial Data function for the I2C bus.

Test Points

5V

A test point for measuring the 5V Power Plain of the Basics Electronics Shield.

GND

A test point for measuring the Ground Plain of the Basics Electronics Shield. In V1, this test point was left isolated from the ground plain and does not function.

LDR

A test point for measuring the voltage level of the Light Dependent Resistor divider output.

POT 1

A test point for measuring the voltage level of potentiometer 1.

POT 2

A test point for measuring the voltage level of potentiometer 2.

TEMP

A test point for measuring the voltage level of the LM34 Temperature Sensor.