SHARP GP2Y0A41SK0F IR ranger sensor (4-30cm) SKU:SEN0143

Specifications

- Output：analog output
- Detection Range ：4-30cm
- Voltage：4.5～5.5V
- Current：33mA
- Size：40x20x13.5 mm

formulas

Formulas

These formulas are derived from the Sharp datasheets to compute distance.

The formula to translate SensorValue into Distance for Sharp 10-80cm analog sensors is:

$$Distance (cm) = 4800/(SensorValue - 20)$$

This formula is only valid over the SensorValue range 80-500.

The formula to translate SensorValue into Distance for Sharp 20-150cm analog sensors is:

$$Distance (cm) = 9462/(SensorValue - 16.92)$$

This formula is only valid over the SensorValue range 80-490.

The formula to translate SensorValue into Distance for Sharp 4-30cm analog sensor is:

$$Distance (cm) = 2076/(SensorValue - 11)$$

This formula is only valid over the SensorValue range 80-530.

For digital distance sensors, SensorValue will be greater than 200 if the distance of the object being measured is less that the detection distance of the sensor. Otherwise the SensorValue will be less that 200.

formulas

Connection Diagram
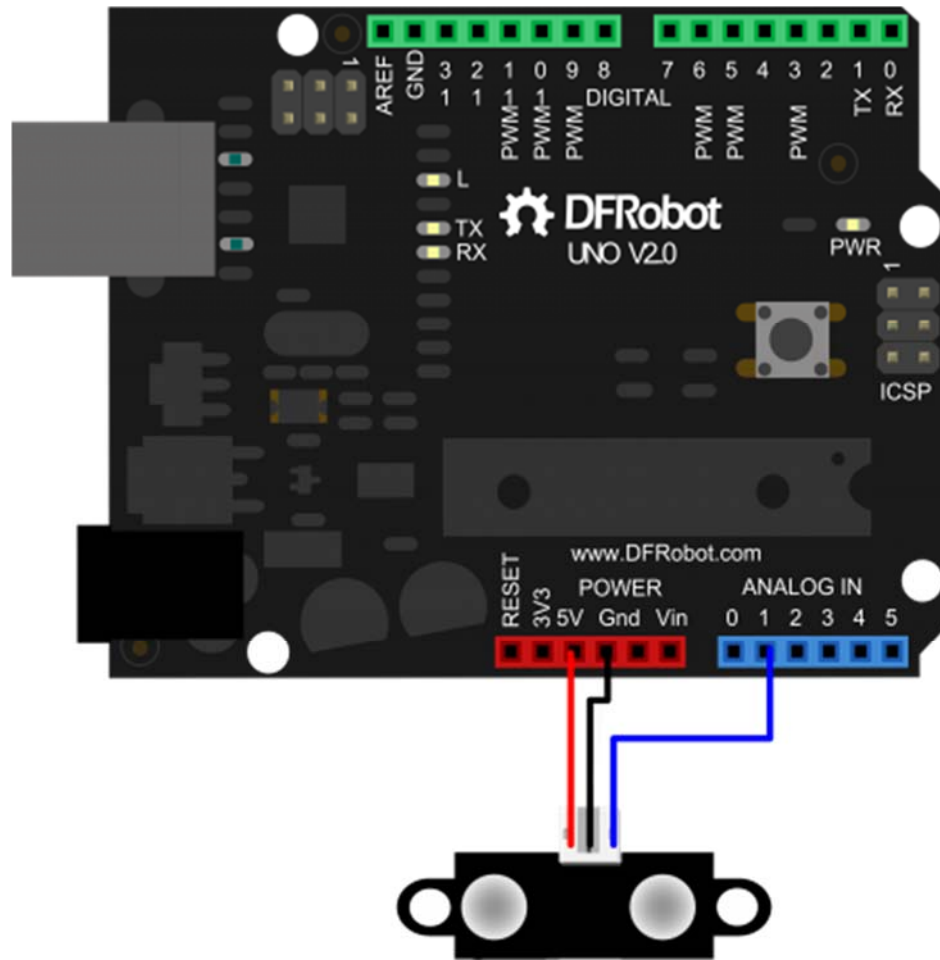
Sample Code

```
/******** start code ********/
/*
 *      created         2013-07-29
 *      by              lisper (leyapin@gmail.com)
 *      function        test GP2Y0A41SK0F
 *
 */


//connect gp2d120x to A1
#define pin A1
```

```
void setup () {

        Serial.begin (9600);

        pinMode(pin, INPUT);

}


void loop () {

        uint16_t value = analogRead (pin);

        double distance = get_IR (value); //Convert the analog voltage to the
distance

        Serial.println (value);                    //Print the data to the ardui
no serial monitor

        Serial.print (distance);

        Serial.println (" cm");

        Serial.println ();

        delay (500);                               //Delay 0.5s

}


//return distance (cm)

double get_IR (uint16_t value) {

        if (value < 16)  value = 16;

        return 2076.0 / (value - 11.0);

}


/******** end code ********/
```