



Keyes KY-008 Laser Transmitter Demystified

by [gr8yt](#) on December 9, 2015

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Author: gr8yt

Hi, I'm Brad. My interests spread over a large area and I tend to get carried away when something new peaks my interest. I picked up my basic electronics knowledge in bed. Say what? I was laid up after surgery (years ago) and my wife got me a Radio Shack Electronics Learning Lab to pass the time. I still have it and I HIGHLY recommend it to anyone interested in learning about electronics. /*please let me know if I'm behind the times and there's something better out there now */ } Please do not be shy about letting me know if you spot any mistakes or omissions in any of my Instructables. Your feedback is appreciated! And here are a couple of "rules" I've learned along that way that help me with my DIY projects; #1. (And this is the "number one rule") Finish what you start #2. K.I.S.S. (Keep it Simple Stupid) #3. The enemy of good is better (think about that one)

Intro: Keyes KY-008 Laser Transmitter Demystified

I picked up a Keyes KY-008 Laser Transmitter from [ICStation](#). I just went to play with it and found out there's a lot of confusion out there about this particular module. The fact that it appears to be impossible to locate an actual datasheet or any kind of official specifications document for it doesn't help matters any. Neither does the fact that it appears the circuit board is mislabeled.

This module has three pins. Reference the second picture above and the pins are labeled (from left to right), pin1 = S, pin2 (center) = good question/not labeled, pin3 = - (minus sign).

From what I've been able to determine the pins should be labeled;

Pin1 = Vdc

Pin2 = Ref

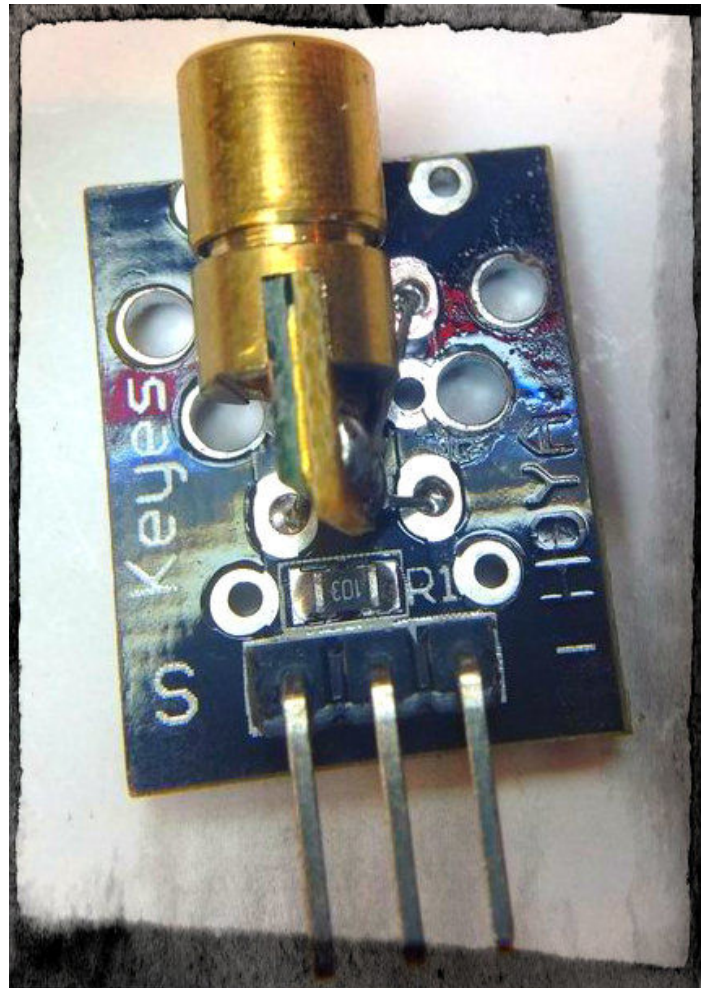
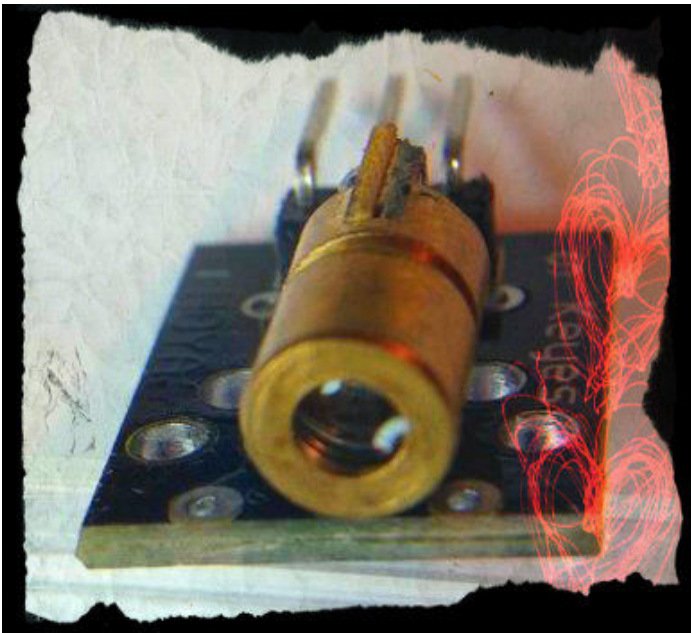
Pin3 = GND

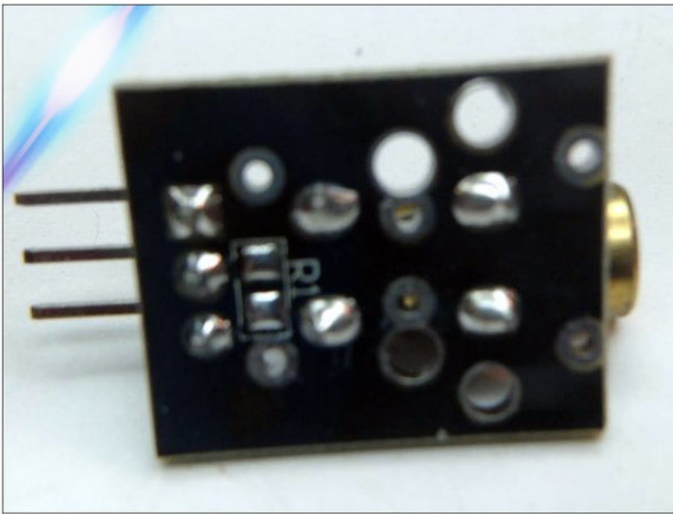
I found a lot of comments about Pin2 (the center pin) not being connected to anything. That may be true on different models or older models perhaps, but on mine Pin2 is outputting the exact same voltage that's coming into the module. Off the top of my head I can see two good uses for that type of output; 1. You could use it to monitor the incoming power supply and adjust it automatically based on the output voltage. 2. You could also monitor that pin and trip a warning or alarm when that pin drops to zero (as in someone cut the power supply) or when the voltage drops below an acceptable level for your application.

Long story short, this module works and provides an option to monitor the modules power supply.

So let's set it up to work with your Arduino and make a bright red dot appear on the ceiling.

Do me a favor and click that NEXT button over there for me...





Step 1: Setup Instructions

Items you will need: (not much)

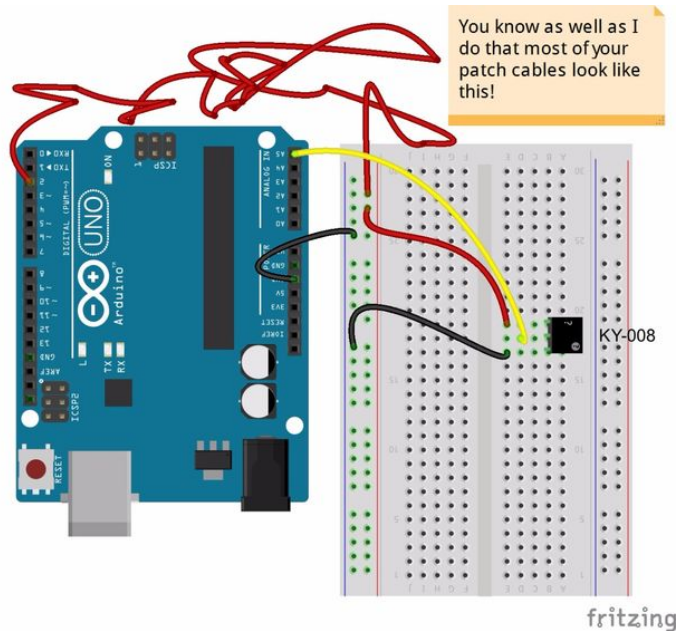
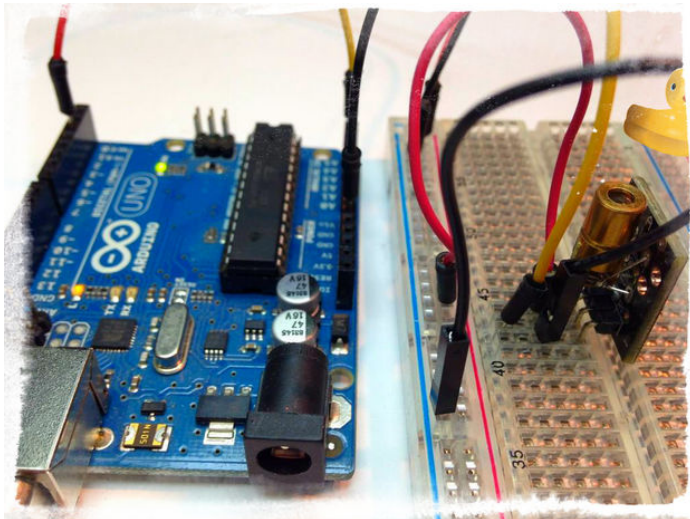
1. your Arduino
2. one (1) Keyes KY-008 Laser Transmitter Module (available at ICStation and just about everywhere else)
3. your breadboard and jumper wires (no breadboard? - go buy one you cheap... - they really do make life a whole lot easier when you're playing with this stuff)

Wiring Setup: (not much to do here either)

(always remember to disconnect any and all power supplies prior to setting things up)

1. connect pin 2 from Arduino to Vdc (sorry, to "S") on the module
2. connect GND from Arduino to - on module
3. and optionally connect the modules center pin to A5 on your Arduino (one of the attached sketches will output the voltage being monitored on the center pin of the module to Arduino's serial monitor)

That appears to be all we need to set this up. Could you hit that Next button again for me please...



Step 2: Code

So I'm going to give you a couple of options here; the first sketch will simply turn the laser on and off. And the second sketch will do the same but we will monitor the output from the modules center pin and display the results on the Arduino serial monitor.

Both files are attached, double click one and it will automatically load into the Arduino interface for you.

Sketch 1 (KY_008_Laser_A.ino) This sketch turns the laser on and off without sending information to the serial monitor

// KY-008 Laser Transmitter Demo by Brad White 12/09/2015

```
int Laser = 2; // creating a variable named Laser and assigning it to digital pin 2
```

```
void setup() {
```

```
  pinMode (Laser,OUTPUT); // designating pin 2 as output (we can use "Laser" instead of the pin # because we assigned "Laser" to pin 2 above)
```

```
  digitalWrite(Laser,LOW); // making sure the laser is off at startup or reset
```

```
}
```

```
void loop() {
```

```
  digitalWrite(Laser,HIGH); // turning the laser on
```

```
  delay(250); // waiting for 1/4 of a second
```

```
  digitalWrite(Laser,LOW); // turning the laser off
```

```
  delay(250); // waiting for 1/4 of a second
```

```
  /* That's it, the code will repeat itself (from "void loop" down) over and over until you pull the plug. You can go ahead and play with the "delay" times for faster or slower on/off speeds */
```

```
}
```

End of Sketch 1 _____

Sketch 2 (KY_008_Laser_B.ino) This sketch turns the laser on and off and reads the voltage coming from the modules center pin which is displayed on the serial monitor.

// KY-009 Laser Transmitter Demo by Brad White 12/09/2015

```
/* Don't forget to open Arduino's serial monitor to see the output from this sketch. The serial monitor can be opened by clicking the serial monitor icon located in the top right corner of the Arduino interface, or select TOOLS / Serial Monitor or press CTRL+SHIFT+M */
```

```
int Laser = 2; // creating a variable named Laser which is assigned to digital pin 2
```

```
int voltage = 0; // creating a variable named voltage and setting its value to zero
```

```
void setup()
```

```
{
```

```
  Serial.begin(9600); // starting the USB serial interface and setting the baud rate (transmission speed) to 9600
```

```
  pinMode (Laser,OUTPUT); // designating digital pin 2 for output (we can use "Laser" instead of the pin # because we assigned pin 2 to Laser above)
```

```
  digitalWrite(Laser,LOW); // just making sure the laser is off at startup or reset
```

```
}
```

```
void loop() {
```

```
  digitalWrite(Laser,HIGH); // turning the laser on
```

```
  voltage = analogRead(A0); //reading the voltage on A0 and storing the value received in "voltage"
```

```
  float voltage1 = voltage * (5.0 / 1023.0); // transforming the value stored in "voltage" to readable information
```

```
  Serial.print("the laser is ON and the voltage on the center pin is "); //sending that sentence to the serial monitor
```

```
  Serial.println(voltage1); // adding the value in voltage1 to the end of the sentence above and starting a new line on the monitor
```

```
  Serial.println(); // adding a blank line for readability
```

```
  delay(1000); // waiting for one second before continuing sketch
```

```
  digitalWrite(Laser,LOW); // turning the laser off
```

```
  voltage = analogRead(A0); // reading the voltage on A0 and storing the value received in "voltage"
```

```
  float voltage2 = voltage * (5.0 / 1023.0); // transforming the value stored in "voltage" to readable information
```

```
  Serial.print("the laser is OFF and the voltage on the center pin is "); // sending that sentence to the serial monitor
```

```
  Serial.println(voltage2); // adding the value in voltage2 to the end of the sentence above and starting a new line on the monitor
```

```
  Serial.println(); // adding a blank line for readability
```

```
  delay(1000); // waiting for one second before continuing sketch
```

<http://www.instructables.com/id/Keyes-KY-008-Laser-Transmitter-Demystified/>

/* You can play with a couple of things with this sketch 1. you can play with the "delay" times, turning the laser on and off faster or slower 2. place a resistor in-line with the power to the module resulting in different voltages displaying on the serial monitor. */

}

End of Sketch 2_____

Have fun! And as always please do not be shy about telling me about any errors or omissions you notice in this Instructable. I'd much rather correct it than let it mess someone up.

```
KY_008_Laser_B1 Arduino 1.6.3
File Edit Sketch Tools Help

KY_008_Laser_B1
1 // KY-008 Laser Transmitter Demo by Reed White 12/19/2015
2
3 /*
4  * This code is intended to be used with the KY-008 Laser Transmitter module.
5  * From this sketch, the serial monitor can be opened by clicking the serial monitor icon located
6  * in the top right corner of the Arduino IDE, or using CTRL+SHIFT+M.
7  * or press CTRL+SHIFT+M.
8  */
9
10 // Laser = D1 // connecting a variable named Laser which is assigned to digital pin 2
11 // Voltage = D2 // connecting a variable named Voltage and setting its value to zero
12
13 // LED STATUS
14 // {
15 // }
16
17 // Serial.begin(9600); // starting the USB serial interface and setting the baud rate (transmission speed) to 9600
18 // pinMode(Laser, OUTPUT); // designating Digital pin 2 for output use (we use "Laser" instead of the pin # because we assigned pin 2 to Laser above)
19 // digitalWrite(Laser, LOW); // just making sure the laser is off at startup or reset
20
21 // {
22 // }
23
24 // void loop()
25 // {
26 // }
27
28 // digitalWrite(Laser, HIGH); // turning the laser on
29
30 // Voltage = analogRead(A0); // reading the voltage on A0 and printing the value received in "Voltage"
31 // float voltage = voltage * (5.0 / 1023.0); // transforming the value printed in "Voltage" to readable information
32
33 // Serial.print("The laser is on and the voltage on the sensor pin is "); // printing that sentence to the serial monitor
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Comments

5 comments [Add Comment](#)



gr8yt says:

Dec 9, 2015. 4:18 PM [REPLY](#)

Oops, cleaned up the code also. The code written in the Instructable that is, darn cut & paste. The code in the attached files is fine.



Eisad says:

Dec 9, 2015. 12:07 PM [REPLY](#)

Donot try this project its great but the connections are wrong he has connected pin2 directly to ground.



gr8yt says:

Dec 9, 2015. 3:45 PM [REPLY](#)

Thanks, I see the issue. Actually Pin 2 is connected correctly, it's the ground from the module that's wrong, it's going to positive on the breadboard instead of ground. Will fix right away, thanks for pointing that out.



gr8yt says:

Dec 9, 2015. 3:48 PM [REPLY](#)

and it's fixed, thanks again



Funktioniert says:

Dec 9, 2015. 2:33 PM [REPLY](#)

no only the Lasers ground is connected to the wrong line on the Board chematic. can happen :D