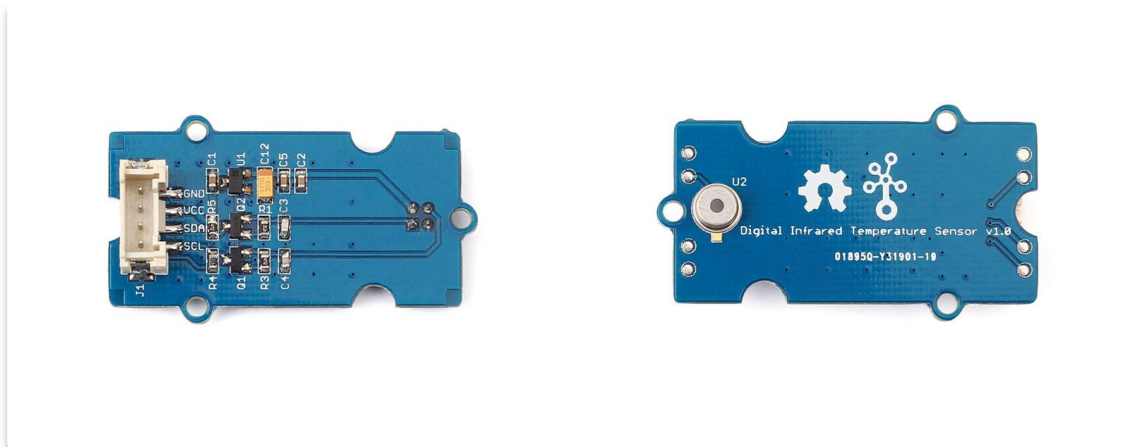


Grove - Digital Infrared Temperature Sensor



The Digital Infrared temperature sensor is a non-contact temperature measurement module which bases on MLX90615. Both the IR sensitive thermopile detector chip and the signal conditioning chip are integrated in the same package. This module communicates with Arduino using SMBus, up to 127 sensors can be read via common 2 wires. Thanks to the module's low noise amplifier, 16-bit ADC and powerful DSP unit, it can achieved a high accuracy of 1°C over wide temperature rage and a high measurement resolution of 0.02°C.

[Get One Now !\[\]\(3dfb8d66e81160ad61421a3452093d1b_img.jpg\)](#)

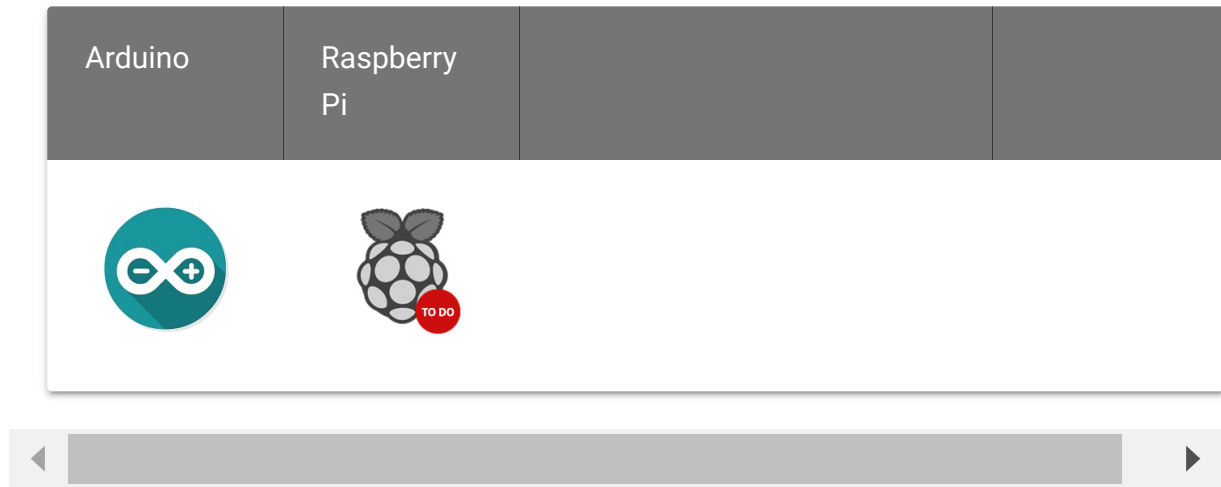
[<https://www.seeedstudio.com/Grove-Digital-Infrared-Temperature-Sensor-p-2385.html>]

Specifications

Item	Min	Typical	Max	Unit
Voltage	2.6	3	5	V
Current		1.4	1.5	mA
Ambient Temperature Range	-40 - 85			°C
Object Temperature Range	-40 - 115			°C
Dimension	20x40x9.6			mm

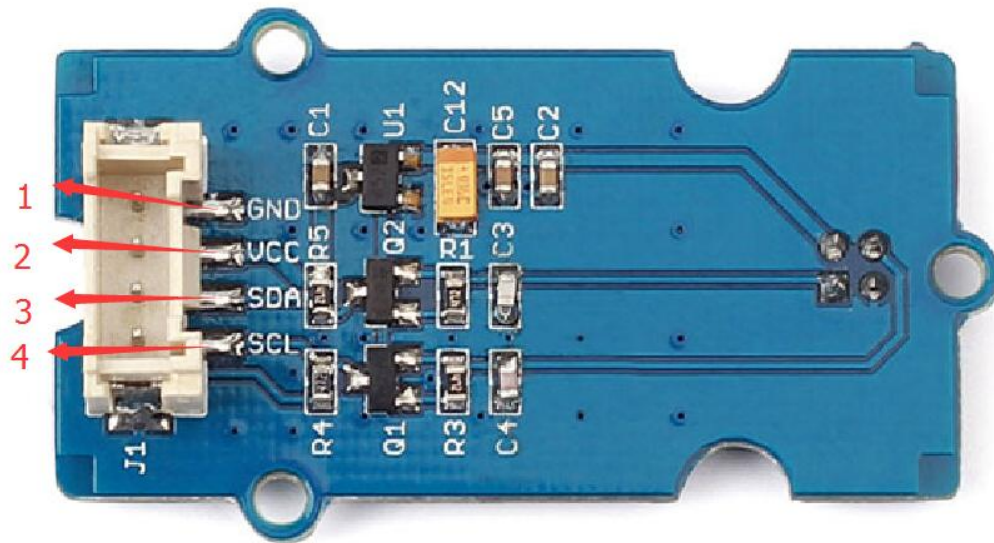


Platforms Supported

**Caution**

The platforms mentioned above as supported is/are an indication of the module's software or theoretical compatibility. We only provide software library or code examples for Arduino platform in most cases. It is not possible to provide software library / demo code for all possible MCU platforms. Hence, users have to write their own software library.

Hardware Overview



Pin Number	Name	Type	Function Description
1	GND	-	Signal ground
2	VCC	in	Positive Power Supply Input Terminal(3.3V or 5V)
3	SDA	in/out	I2C data input/output
4	SCL	in	I2C CLK

Getting Started

Play With Arduino

We provide an example here to show you how to use this sensor to measure the temperature of the target which is in front of the sensor, and print the result on the serial monitor.

**Note**

If this is the first time you work with Arduino, we firmly recommend you to see [Getting Started with Arduino](https://wiki.seeedstudio.com/Getting_Started_with_Arduino/) [https://wiki.seeedstudio.com/Getting_Started_with_Arduino/] before the start.

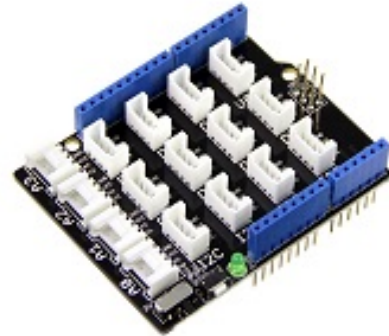
Hardware

Hardware components:

Seeeduino V4.2

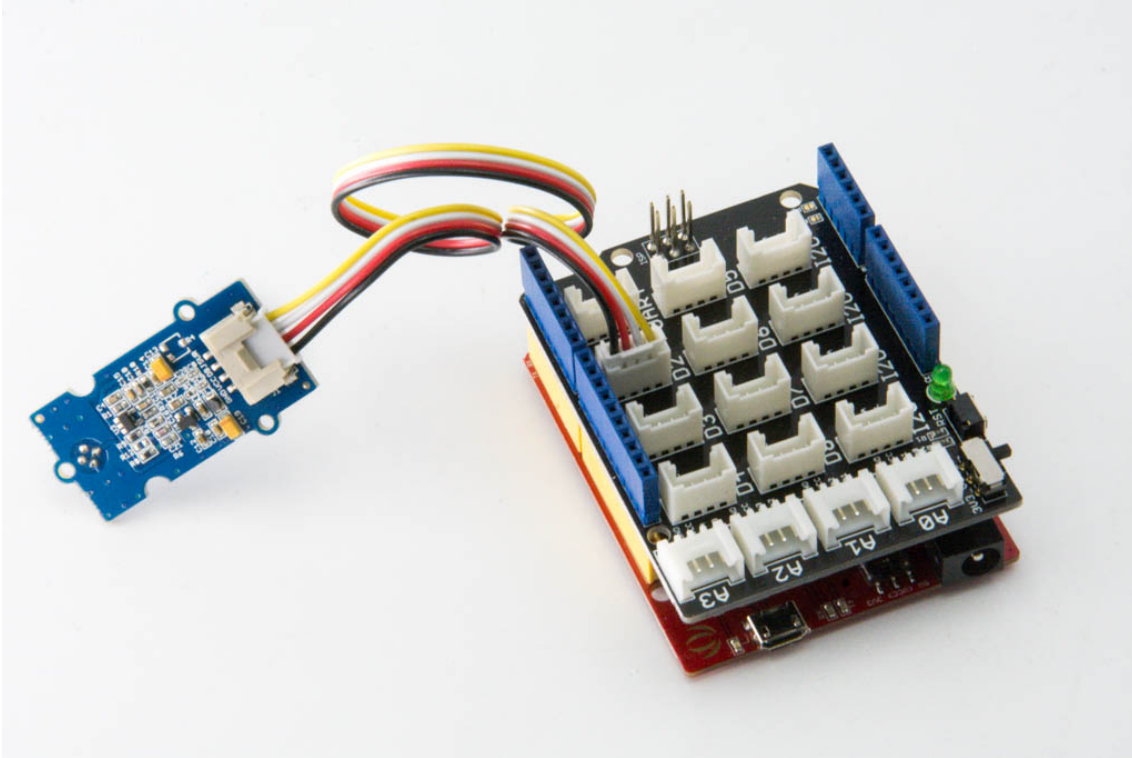
[Get One Now](https://www.seeedstudio.com/Seeeduino-V4.2-p-2517.html)[\[https://www.seeedstudio.com/Seeeduino-V4.2-p-2517.html\]](https://www.seeedstudio.com/Seeeduino-V4.2-p-2517.html)

Base Shield

[Get One Now](https://www.seeedstudio.com/Base-Shield-V2-p-1378.html)[\[https://www.seeedstudio.com/Base-Shield-V2-p-1378.html\]](https://www.seeedstudio.com/Base-Shield-V2-p-1378.html)

- **Step 1.** Plug Grove - Digital Infrared Temperature Sensor into D2 port of Grove-Base Shield.

- **Step 2.** Plug Grove - Base Shield into Seeeduino.
- **Step 3.** Connect Seeeduino to PC via a USB cable.



Note

If we don't have Grove Base Shield, We also can directly connect Grove - Digital Infrared Temperature Sensor to Arduino as below.

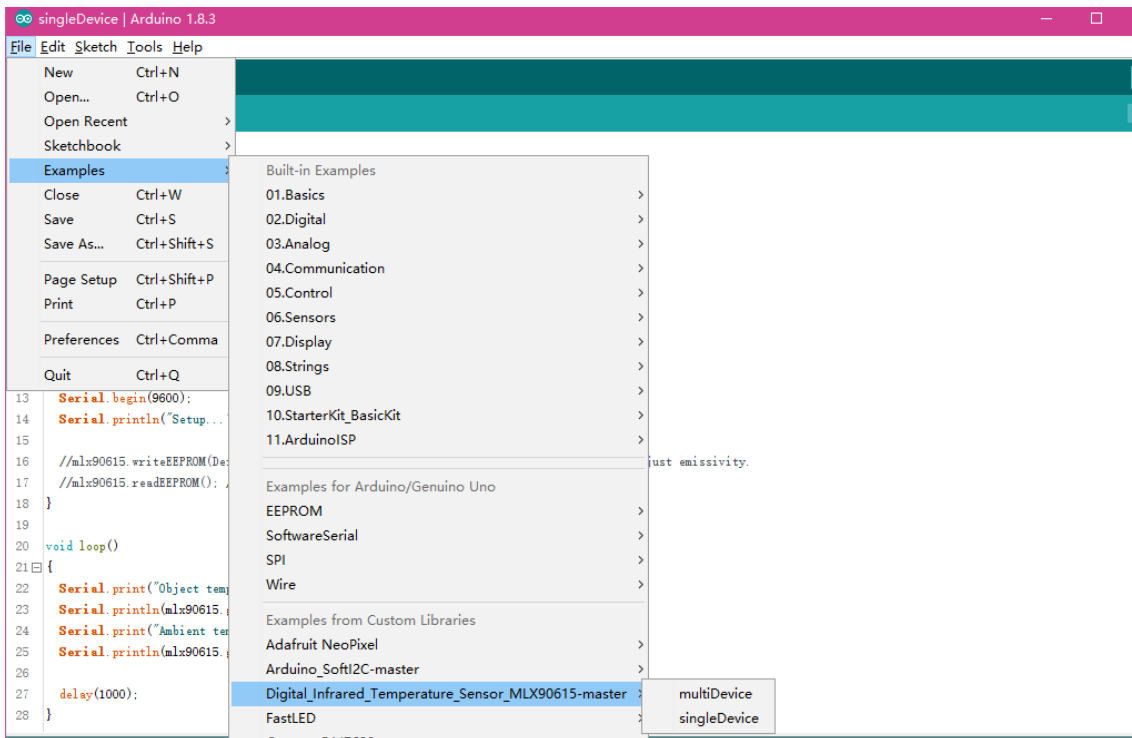
Seeeduino	Grove - Digital Infrared Temperature Sensor
5V	Red
GND	Black
D3	NA
D2	Yellow

Software

- **Step 1.** Download the library and demo code [Digital_Infrared_Temperature_Sensor_MLX90615](https://github.com/Seeed-Studio/Digital_Infrared_Temperature_Sensor_MLX90615) [https://github.com/Seeed-Studio/Digital_Infrared_Temperature_Sensor_MLX90615].
- **Step 2.** Refer to [How to install library](https://wiki.seeedstudio.com/How_to_install_Arduino_Library) [https://wiki.seeedstudio.com/How_to_install_Arduino_Library] to install library for Arduino.
- **Step 3.** Open the demo code directly by the path:

File -> Examples ->

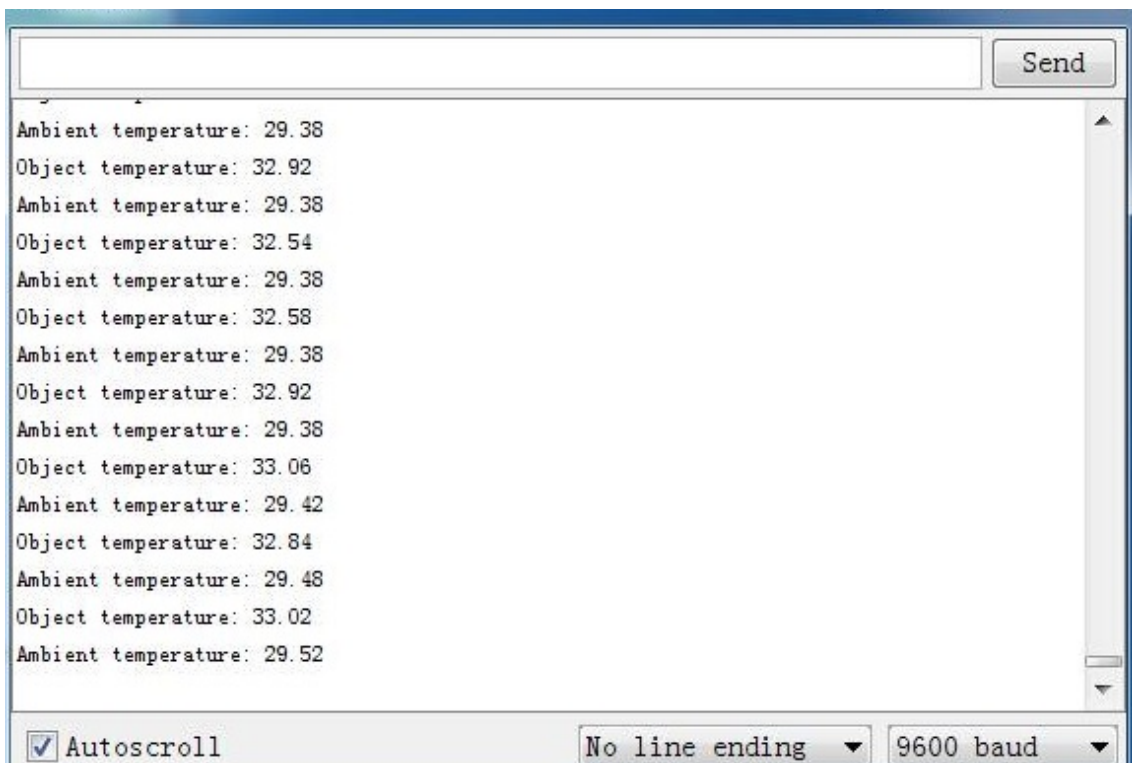
Digital_Infrared_Temperature_Sensor_MLX90615 -> MLX90615Soft. As the following picture shown:



Since the sensor is factory calibrated with the digital SMBus compatible interface enabled, but the library is based on a soft i2c library, so you can use any digital pins on any AVR chip to drive the

SDA and **SCL** lines. We use **D2** as the **SCL** pin and **D3** as the **SDA** pin in this demo code. You can use other port as long as you modify the code with matched pins.

- **Step 4.** Upload the code into Arduino. If you do not know how to upload the code, please check [how to upload code](https://wiki.seeedstudio.com/Upload_Code/) [https://wiki.seeedstudio.com/Upload_Code/].
- **Step 5.** Click **Tool -> Serial Monitor** to start up the Serial Monitor. And you will see the result.



Now, you can measure the temperature with this sensor. Ambient temperature is the MLX90615 package temperature and Object temperature is the object target temperature. According to our experiment, when you place the sensor in the normal indoor temperature, and ensure that there is nothing source of heat in front of the sensor's 1M scope. The Object temperature will approximately equal to Ambient temperature. When measuring the

Object temperature, you should ensure the object is as close as possible with the sensor, but do not touch the surface of the sensor, we recommend the distance is less than 3cm. Wish you have a fun try.

**Tip**

More details about Grove modules please refer to [Grove System](https://wiki.seeedstudio.com/Grove_System/)
[https://wiki.seeedstudio.com/Grove_System/]

Schematic Online Viewer



Resources

- **[Zip]** [Grove Digital Infrared Temperature Sensor v1.0 eagle file.zip](https://files.seeedstudio.com/wiki/Grove-Digital_Infrared_Temperature_Sensor/res/Grove_Digital_Infrared_Temperature_Sensor_v1.0_eagle_file.zip) [https://files.seeedstudio.com/wiki/Grove-Digital_Infrared_Temperature_Sensor/res/Grove_Digital_Infrared_Temperature_Sensor_v1.0_eagle_file.zip]
- **[PDF]** [MLX90615.pdf](https://files.seeedstudio.com/wiki/Grove-Digital_Infrared_Temperature_Sensor/res/MLX90615.pdf) [https://files.seeedstudio.com/wiki/Grove-Digital_Infrared_Temperature_Sensor/res/MLX90615.pdf]

- **[Code]** [Demo Code](https://github.com/Seeed-Studio/Digital_Infrared_Temperature_Sensor_MLX90615) [https://github.com/Seeed-Studio/Digital_Infrared_Temperature_Sensor_MLX90615]

Tech Support

Please submit any technical issue into our [forum](https://forum.seeedstudio.com/) [https://forum.seeedstudio.com/].



[https://www.seeedstudio.com/act-4.html?utm_source=wiki&utm_medium=wikibanner&utm_campaign=newproducts]