

Thermo-Duino (Thermometer Using OLED Display and Tiny Arduino Compatible Board)

ThermoDuino is a mini Arduino compatible board that consists of LM35 temperature sensor, ATMEGA328 chip, and 0.96" OLED display. The board has been designed to measure temperature. We have used the LM35 SO8 SMD sensor which is connected to A0 analog pin of the chip, and the OLED display is connected to A4 and A5 pin of MCU. LM35 senses the temperature and the microcontroller displays the temperature value on the OLED display. CN2 connector helps to program the microcontroller using Arduino IDE and boot-loader burning. This low profile and small board can fit in a very small case. Example code will help you to display the temperature in Centigrade and Fahrenheit. It is an open-source Arduino compatible hardware and it is easy to create your own code using Arduino IDE.

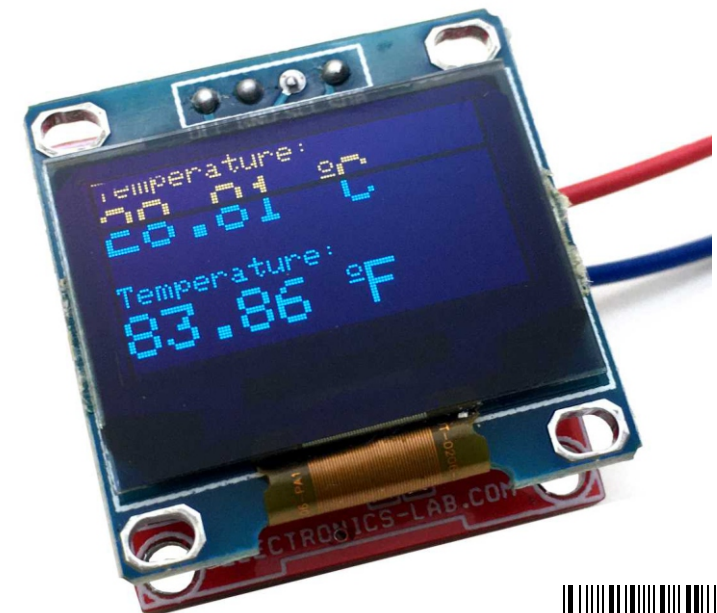
The LM35 is a precision temperature sensor IC with an output voltage linearly proportional to the Centigrade temperature. We have used the SMD SO8 sensor which can directly mount on board. The device can measure temperature from -55 degrees Celsius to +150 degrees Celsius. The voltage output of the LM35 increases by 10mV per degree Celsius in the rising temperature.

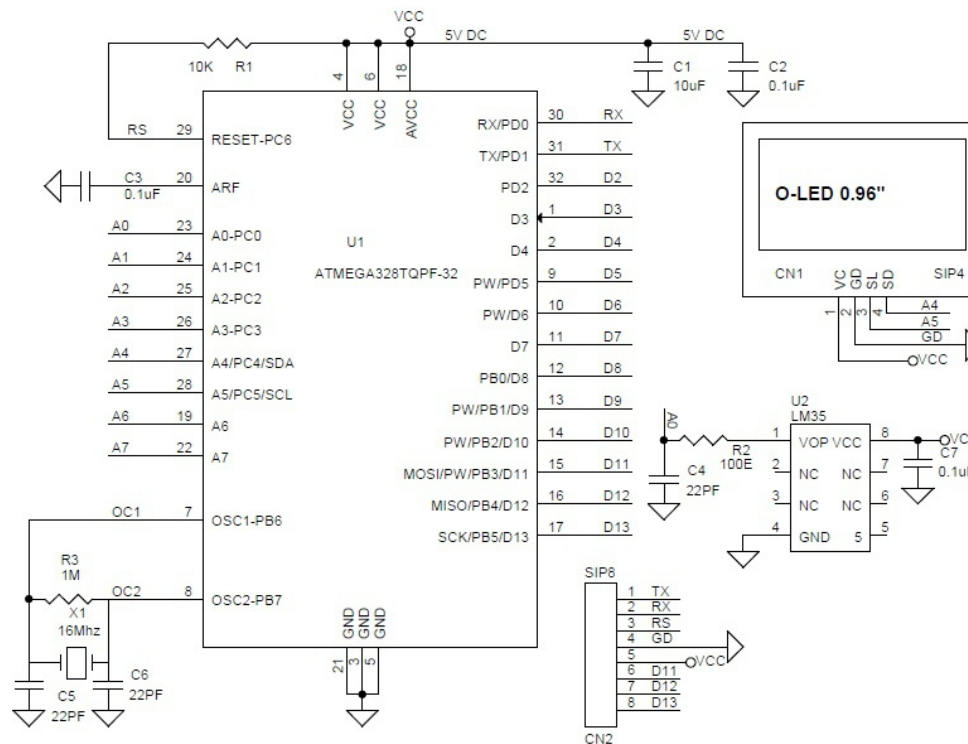
Note: A new Atmega328 chip requires Boot-Loader burning before uploading the Arduino code. Follow the link for more info on Boot-loader burning and Programming.

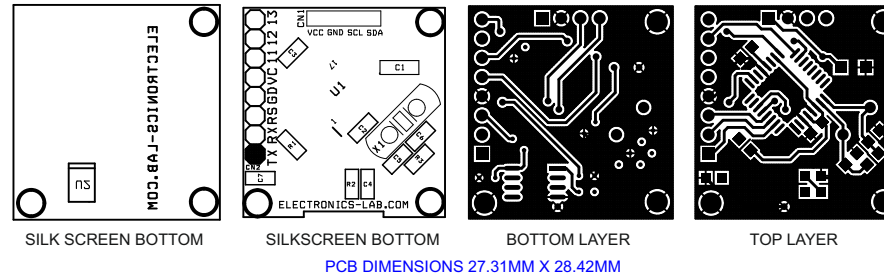
<https://www.arduino.cc/en/Tutorial/BuiltInExamples/ArduinoToBreadboard>

Feature

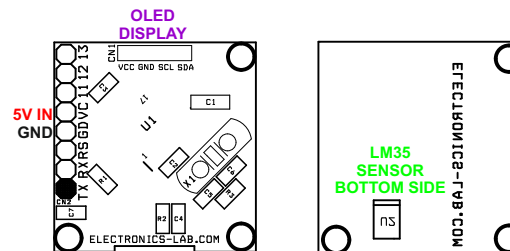
- Operating Supply 5V DC @ 20mA
- Temperature range up to 150 Degree Centigrade
- Sensor Output 10mV/Centigrade (1.5V output @ 150 Degree Temp)
- PCB DIMENSION 27.31MM X 28.42MM

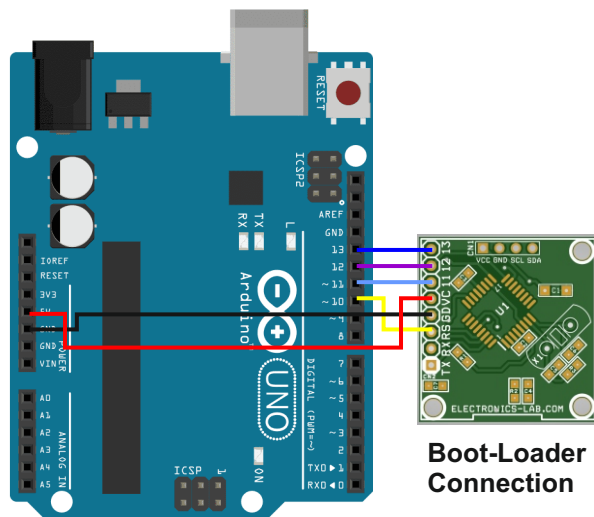




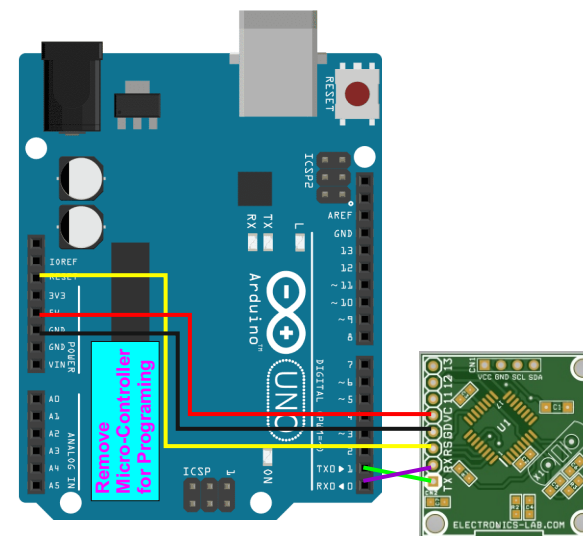


BOM				
SR.	QNTY.	REF.	DESC.	VENDOR/DIGIKEY/MOUSER
1	1	CN1	4 PIN MALE HEADER 2.54 PITCH	DIGIKEY S1011EC-40-ND
2	1	CN2	8PIN MALE HEADER 2.54MM PITCH	DIGIKEY S1011EC-40-ND
3	1	C1	10uF/16V SMD SIZE 1206	YAGEO
4	3	C2,C3,C7	0.1uF/50V SMD SIZE 0805	YAGEO
5	3	C4,C5,C6	22PF/50V SMD SIZE 0805	YAGEO
6	1	R1	10K 5% SMD SIZE 0805	YAGEO
7	1	R2	100E 5% SMD SIZE 0805	YAGEO
8	1	R3	1M 5% SMD 0805	YAGEO
9	1	U1	ATMEGA328TQPF-32	DIGIKEY ATMEGA328PB-AURCT-ND
10	1	U2	LM35 8SOIC	DIGIKEY LM35DMX/NOPBCT-ND
11	1	X1	16Mhz	DIGIKEY X1103-ND





Boot-Loader Connection



Arduino IDE Programming