

# NCIR



## Description

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**NCIR** featured with built-in infrared sensor **MLX90614**. It can be used to measure the surface temperature of a human body or other object.

Unlike most temperature sensors, this sensor measures infrared light bouncing off of remote objects so it can sense temperature without having to touch them physically. Simply point the sensor towards what you want to measure and it will detect the temperature by absorbing IR waves emitted. Because it doesn't have to touch the object it's measuring, it can sense a wider range of temperatures than most digital sensors! It takes the measurement over an 90-degree field of view so it can be handy for determining the average temperature of an area.

The MLX90614 is factory calibrated in wide temperature ranges: -40 to 125 °C for the ambient temperature and -70 to 380 °C for the object temperature.

Connect with M5Core via GROVE A IIC(0x5A).

## Product Features

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- Operating voltage: 4.5 to 5.5V
- Measuring object temperature range: -70°C ~ 380°C
- Measuring ambient temperature range: -40 to 125 °C
- Measurement accuracy at room temperature: ±0.5°C
- Field of view: 90°
- Software Development Platform: Arduino, UIFlow(Blockly, Python)
- Two Lego-compatible holes
- Product Size: 32.2mm x 24.2mm x 8.2mm
- Product weight: 4.6g

## Include

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- 1x NCIR Unit
- 1x Grove Cable

## Applications

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- Body Temperature Measurement
- Object (biological) Motion Detection

- [MLX90614 Datasheet](#)

## EasyLoader

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1. EasyLoader is a simple and fast program burner. Every product page in EasyLoader provides a product-related case program. It can be burned to the master through simple steps, and a series of function verification can be performed. .

2. After downloading the software, double-click to run the application, connect the M5 device to the computer through the data cable, select the port parameters, click "**Burn**" to start burning. **(For M5StickC burning, please Set the baud rate to 750000 or 115200)**

3. Currently EasyLoader is only suitable for Windows operating system, compatible with M5 system adopts ESP32 as the control core host. Before installing for M5Core, you need to install CP210X driver (you do not need to install with M5StickC as controller)

## Example

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### 1. Arduino IDE

*The code below is incomplete.*

```

#include <M5Stack.h>
#include <Wire.h>

#define NCIR_ADDR 0x5A

// declaration
uint16_t result;
float temperature;

// initialization
Wire.begin();\
M5.begin();

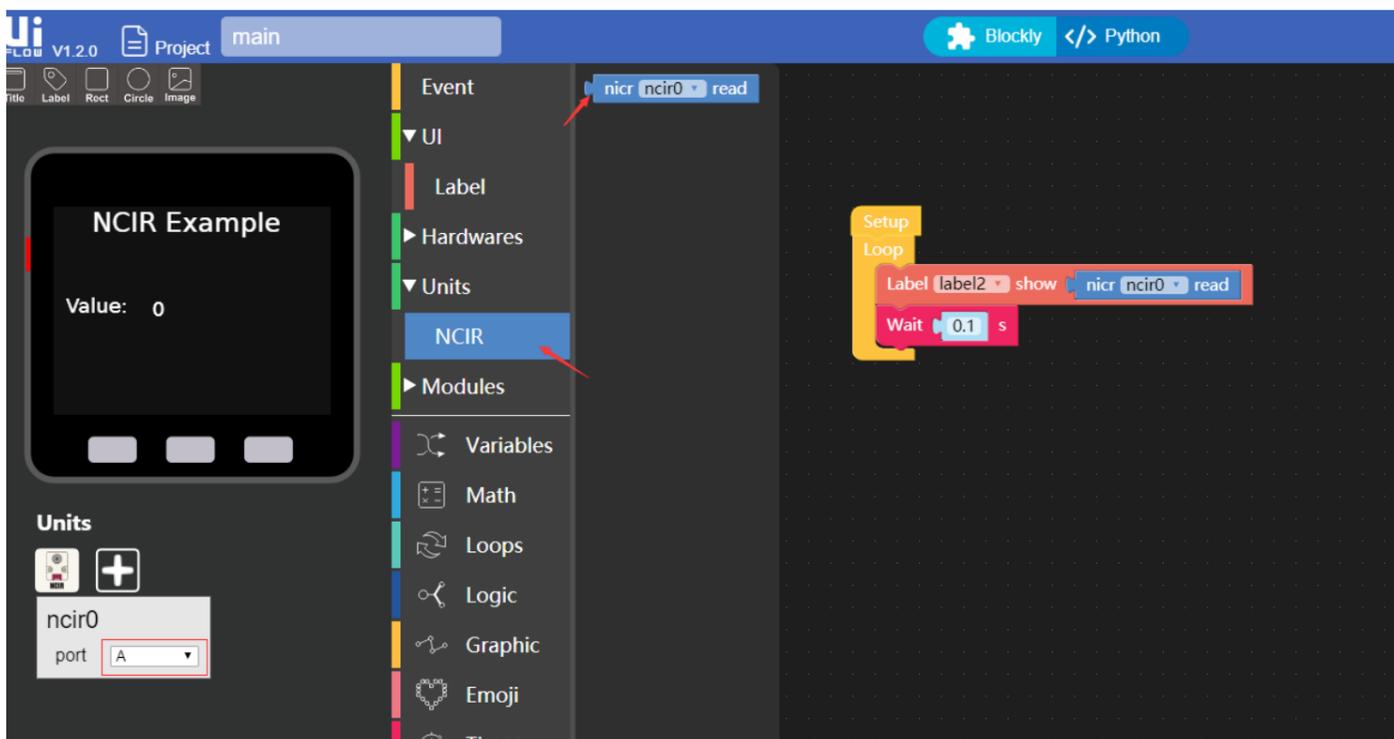
// read data
Wire.beginTransmission(NCIR_ADDR);Wire.write(0x07);Wire.endTransmission(false);
Wire.requestFrom(NCIR_ADDR, 2);
result = Wire.read();// Receive DATA
result |= Wire.read() << 8;// Receive DATA

// store temperature value
temperature = result * 0.02 - 273.15;

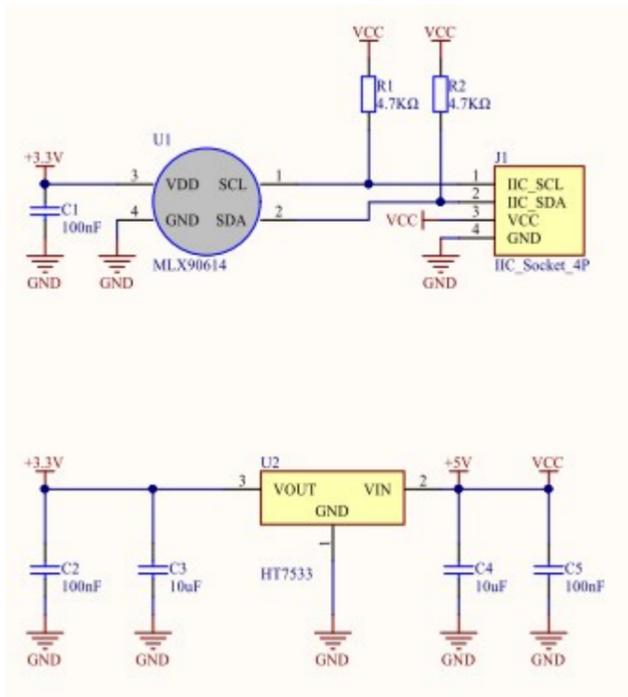
```



## 2. UIFlow



## Schematic



### PinMap

M5Core (GROVE A)	GPIO22	GPIO21	5V	GND
NCIR Unit	SCL	SDA	5V	GND