KY-22 HX1838B Infrared Sensor Receiving Module – IR 38kHz Receiver for Arduino and Microcontrollers

The **KY-22 HX1838B Infrared Sensor Module** is a compact, high-performance device designed to receive **38kHz infrared (IR) signals** from remote controls and other IR transmitters. This module is widely used in **home automation, robotics, IoT projects, and DIY electronics**, providing an easy and reliable way to interface **IR remote signals with Arduino, Raspberry Pi, ESP32, ESP8266, and other microcontrollers**.

The module is specifically designed for **receiving modulated infrared signals**, making it ideal for controlling devices remotely or integrating IR-based control systems into your projects. With its **digital output**, the KY-22 HX1838B offers a straightforward connection and easy integration into microcontroller-based systems.

Key Features

- **Infrared Receiving Frequency:** 38kHz, standard for most IR remote controls.
- **Digital Output (DO):** Easily interfaces with Arduino, Raspberry Pi, ESP32, and other microcontrollers.
- **Compact & Lightweight:** Small footprint for easy integration into electronics projects.
- **Wide Operating Voltage:** 3.3V – 5V DC, suitable for most microcontroller systems.
- **High Sensitivity:** Reliable reception of IR signals from standard remote controls.
- **Fast Response:** Immediate detection of IR signals for accurate control.
- **Versatile Applications:** Suitable for remote-controlled robots, home automation, and DIY electronics.
- **Durable & Stable:** Long-lasting performance for continuous operation.

Applications

The **KY-22 HX1838B Infrared Sensor Module** is ideal for a wide variety of projects and applications:

1. Remote Control Projects

- Receive signals from standard IR remote controls
- Control LEDs, motors, and appliances remotely
- Build custom IR-controlled devices for home or educational purposes

2. Robotics and Automation

- Remote-controlled robots and vehicles
- IR-based navigation and obstacle detection
- Automated control of devices using IR signals

3. Home Automation & IoT

- IR-controlled smart home appliances
- Automated light, fan, or entertainment system control
- Integration into IoT platforms for remote monitoring and control

4. Educational & DIY Electronics

- Learn about IR communication protocols with Arduino and Raspberry Pi
- Develop interactive electronics projects using IR remote control
- Suitable for hobbyists and students exploring electronics and automation

Technical Specifications

- **Model:** KY-22 HX1838B IR Sensor Module
- **Receiving Frequency:** 38kHz
- **Operating Voltage:** 3.3V – 5V DC
- **Output:** Digital (DO)
- **Current Consumption:** Low power consumption, suitable for battery-powered projects
- **Dimensions:** Compact module, ideal for breadboards and embedded designs
- **Compatible Microcontrollers:** Arduino, ESP32, ESP8266, Raspberry Pi, STM32, and similar platforms
- **Operating Temperature:** -10°C to 50°C
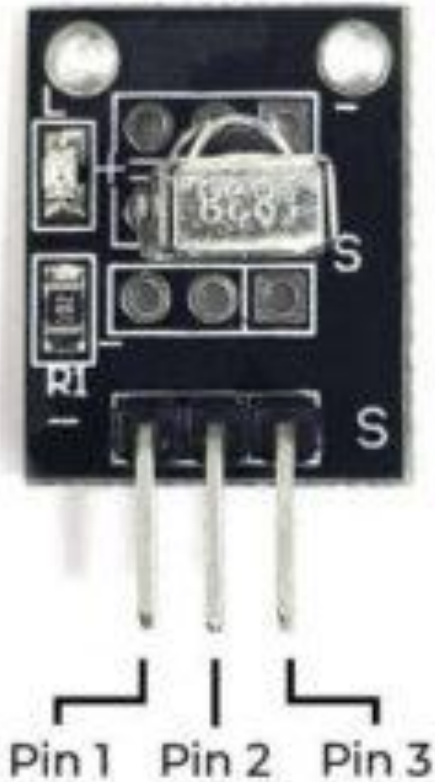
Pin 1	GND
Pin 2	5V
Pin 3	DATA

How It Works

The **KY-22 HX1838B IR sensor module** contains an IR receiver IC capable of detecting **modulated 38kHz infrared signals**. When an IR signal from a remote control or transmitter is received, the module processes the signal and outputs a digital HIGH or LOW signal to the connected microcontroller.

This digital output can be used to **trigger actions, control devices, or communicate with microcontroller-based systems**. The module filters out ambient light and only responds to signals modulated at 38kHz, ensuring reliable operation even under bright lighting conditions.

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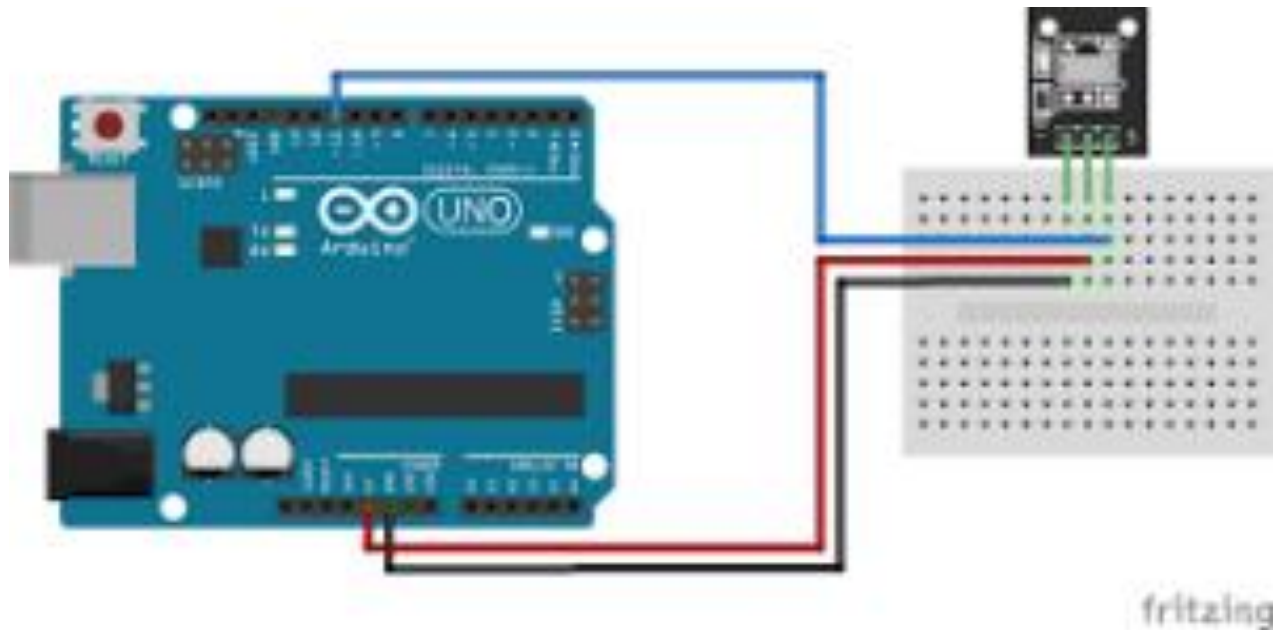
Advantages

1. **Reliable IR Reception:** Detects 38kHz IR signals accurately and consistently.
2. **Easy Integration:** Digital output simplifies connections with Arduino and other microcontrollers.
3. **Low Power Consumption:** Ideal for battery-operated projects.
4. **Compact & Lightweight:** Easily fits into various electronics and robotics projects.
5. **Versatile Applications:** Works in home automation, robotics, DIY electronics, and IoT systems.
6. **Durable Performance:** Long-lasting sensor suitable for continuous use.

Example Use Case

Imagine building a **DIY IR-controlled robot**. By connecting the **KY-22 HX1838B IR sensor module** to an Arduino, the robot can receive commands from a standard IR remote control. The digital output allows the Arduino to interpret the signal and perform actions such as moving forward, backward, or turning. Similarly, the module can be used in home automation projects to **control lights, fans, or other appliances** remotely, creating a smart and interactive environment.

Conclusion

The **KY-22 HX1838B Infrared Sensor Receiving Module (IR 38kHz Receiver)** is a versatile and reliable module for **receiving IR signals in DIY electronics, robotics, home automation, and IoT projects**. Its **digital output, high sensitivity, and compatibility with popular microcontrollers** make it an essential component for anyone working on remote-controlled or interactive projects.

Whether you are building **IR-controlled robots, smart home systems, or educational electronics projects**, this sensor module provides **fast, accurate, and reliable infrared signal detection** in a compact and easy-to-use package.