

Infrared Remote Control + IR Receiver Module Kit



The **Infrared Remote Control + IR Receiver Module Kit** is a simple yet powerful tool for learning and implementing wireless control in electronics projects. Designed for hobbyists, students, and developers, this kit allows you to control microcontrollers, robots, and DIY devices using a standard infrared remote control. By pairing an IR remote with a compatible IR receiver module, the kit provides an affordable and effective way to add remote control functionality to your projects.

Kit Components

1. Infrared Remote Control (Transmitter)

- Compact IR remote with multiple keys for sending coded infrared signals.
- Typically features **17 buttons** (including numbers, arrows, and function keys).
- Operates using a standard **infrared LED at 940 nm** wavelength.
- Powered by a button-cell battery (CR2025/CR2032).

2. Infrared Receiver Module

- High-sensitivity IR receiver (commonly 1838 or VS1838B sensor).
- Detects signals from the IR remote and outputs corresponding digital codes.
- Designed with **built-in demodulation** for 38 kHz frequency IR signals.
- Compact PCB board with 3-pin output interface (VCC, GND, Signal).

Together, these components form a plug-and-play solution for adding remote-control capability to microcontroller-based systems.

How It Works

Infrared remote communication works on the principle of transmitting modulated light signals. When you press a button on the remote, it sends out a specific sequence of **infrared pulses** encoded at a carrier frequency (usually 38 kHz).

The IR receiver module detects this modulated signal, filters it, and outputs a clean digital signal. This signal can then be read by a microcontroller such as **Arduino, ESP32, STM32, Raspberry Pi**, or any system capable of handling digital inputs. By decoding the received signal, the system can identify which button was pressed and perform the desired function.

Features

- **Complete Kit** – Includes both transmitter (remote) and receiver module.
 - **Standard Protocols** – Works with common IR protocols (e.g., NEC, RC5, Sony).
 - **High Sensitivity** – The IR receiver has excellent anti-interference capability.
 - **Long Range** – Remote control works reliably at distances up to **8–10 meters** in typical conditions.
 - **Low Power Consumption** – Remote uses a coin-cell battery for long-lasting operation.
 - **Easy Integration** – The receiver module outputs standard digital signals that can be directly read by microcontrollers.
 - **Educational Value** – Perfect for learning about wireless communication, encoding, and decoding signals.
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Technical Specifications

Infrared Remote Control (Transmitter):

- Number of Buttons: 17 (varies with model)
- Transmission Wavelength: ~940 nm (infrared LED)
- Transmission Distance: 8–10 meters (typical)

- Modulation Frequency: 38 kHz
- Power Supply: 3 V coin cell (CR2025/CR2032)

IR Receiver Module:

- Receiver Type: VS1838B or compatible IR receiver sensor
 - Operating Voltage: 3.3 V – 5 V
 - Carrier Frequency: 38 kHz
 - Output: Digital signal (active LOW)
 - Interface: 3-pin header (VCC, GND, Signal)
 - Operating Distance: Up to 10 meters
 - Module Dimensions: Approx. 30 × 15 mm
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Applications

The **IR Remote + Receiver Module Kit** is extremely versatile and can be used in many areas of electronics, robotics, and automation:

1. **Robotics**
 - Control the movement of a robot using directional buttons on the remote.
 - Assign custom functions like speed control or servo activation.
 2. **Home Automation**
 - Create DIY remote-controlled lights, fans, or appliances.
 - Integrate into a smart home system for wireless control.
 3. **Arduino Projects**
 - Learn IR signal decoding with simple libraries.
 - Control LEDs, motors, relays, and sensors wirelessly.
 4. **Media and Entertainment Systems**
 - Control audio or video systems with custom IR remotes.
 - Build your own media controller project.
 5. **Educational Kits**
 - Excellent for teaching wireless communication and signal processing.
 - Widely used in STEM learning environments.
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Advantages

- **Simple to Use** – Plug-and-play integration with most microcontrollers.
- **Reliable Communication** – Standard IR encoding ensures stable signal transmission.
- **Affordable** – Low-cost kit for wireless control projects.
- **Compact Design** – Easy to embed in robots, gadgets, and automation projects.
- **Customizable** – Each button on the remote can be programmed for unique functions.

Example Project Ideas

- **Remote-Controlled Robot** – Use the arrow keys on the remote to move a robot forward, backward, left, or right.
 - **DIY Remote-Controlled Lamp** – Switch LEDs or lamps on and off wirelessly.
 - **TV-Style Controller for Arduino** – Build your own entertainment remote system.
 - **Smart Fan Control** – Adjust fan speed or direction with IR commands.
 - **Pan-Tilt Camera** – Control servo motors for camera rotation.
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Conclusion

The **Infrared Remote Control + IR Receiver Module Kit** is a must-have for anyone interested in electronics, robotics, or DIY home automation. With its simple design, affordable price, and powerful functionality, it allows you to easily add wireless control to your projects.

Whether you are a beginner learning about IR communication or an advanced hobbyist developing remote-controlled systems, this kit provides everything you need to start building. Compact, reliable, and easy to integrate, it opens the door to countless creative applications in wireless control technology.



