

ACS712-5A AC/DC Current Sensor Module

The **ACS712-5A AC/DC Current Sensor Module** is a highly reliable and precise sensor designed to measure **electric current in both AC and DC circuits**. Featuring the **ACS712 Hall-effect sensor chip**, this module provides **analog voltage output proportional to the current flowing through it**, making it an essential component for **power monitoring, energy management, and electronics projects**.

This module is widely used in **Arduino, Raspberry Pi, ESP32, ESP8266, and other microcontroller-based projects**, enabling accurate current measurement for **motors, batteries, power supplies, and various electrical devices**. Its compact design, ease of use, and wide operating range make it suitable for both **hobbyists and professional engineers**.

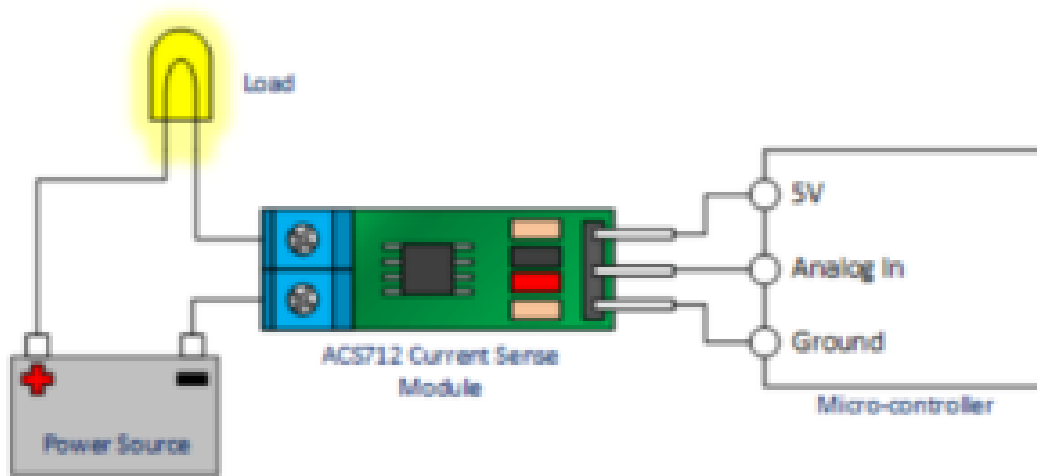


Key Features of ACS712-5A Current Sensor Module

- **Current Range:** $\pm 5\text{A}$ for both AC and DC currents.
- **High Accuracy:** Provides precise measurement with minimal error.
- **Analog Output:** Voltage output proportional to the current, ideal for ADC measurement.
- **Hall-Effect Technology:** Ensures electrical isolation between the sensing circuit and microcontroller.
- **Low Noise:** Stable and reliable readings with minimal signal interference.
- **Easy Integration:** Works seamlessly with Arduino, Raspberry Pi, and other microcontrollers.
- **Compact Design:** Lightweight and small form factor suitable for embedded projects.
- **Wide Voltage Range:** Operates with 5V supply voltage, compatible with most microcontrollers.

Technical Specifications

- **Sensor Chip:** ACS712
- **Current Measurement Range:** $\pm 5\text{A}$
- **Operating Voltage:** 5V DC
- **Analog Output:** 185 mV/A (for 5A module)
- **Response Time:** $< 5 \mu\text{s}$
- **Isolation:** Hall-effect based electrical isolation
- **Operating Temperature:** -40°C to $+85^{\circ}\text{C}$
- **Dimensions:** Compact PCB for easy mounting



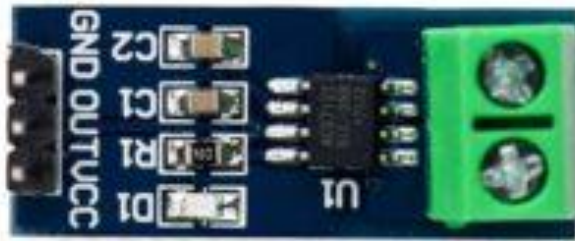
Why Choose ACS712-5A Current Sensor Module?

1. **Reliable Current Measurement** – The Hall-effect sensor ensures accurate readings for both **AC and DC currents** without direct electrical contact.
2. **Safe Operation** – Electrical isolation protects your microcontroller and sensitive electronics from high currents.
3. **Easy to Use** – Simple wiring with **VCC, GND, and Analog Output pins** allows quick integration into any project.
4. **Versatile Applications** – Works for **motors, batteries, power supplies, energy monitoring, and automation systems**.
5. **Arduino and Microcontroller Friendly** – Perfect for beginners and professionals using Arduino IDE, ESP32, or Raspberry Pi.

Applications of ACS712-5A Current Sensor Module

- **Current Monitoring:** Measure current flowing through DC or AC loads.
- **Power Management:** Monitor energy usage in DIY projects, smart homes, and industrial applications.
- **Battery Management Systems:** Track charging and discharging currents for lithium batteries.
- **Motor Control Projects:** Measure current drawn by motors to prevent overload or damage.
- **Overcurrent Protection:** Integrate with microcontrollers to trigger alarms or cut-offs.
- **IoT Projects:** Real-time current monitoring and logging for smart devices.





How to Use the ACS712-5A Module

1. **Connect the Module** – Use **VCC to 5V**, **GND to ground**, and **OUT to analog input** of your microcontroller.
2. **Supply Current to Measure** – Pass the current-carrying wire through the module's current path.
3. **Read Analog Output** – Use ADC of microcontroller to measure the voltage output.
4. **Calculate Current** – Convert the analog voltage to current using the sensor's sensitivity (185 mV/A for 5A module).
5. **Integrate with Project** – Use measured current for monitoring, control, or data logging applications.

This simple setup allows users to **monitor and control electrical devices** safely and efficiently.

Package Includes

- 1 × ACS712-5A AC/DC Current Sensor Module

Conclusion

The **ACS712-5A AC/DC Current Sensor Module** is a highly accurate, reliable, and easy-to-use solution for measuring electrical currents in **DIY projects, industrial applications, and smart home systems**. Its **Hall-effect technology, analog output, and wide compatibility** make it a must-have tool for **engineers, hobbyists, and electronics enthusiasts**.

Whether you are building **battery monitoring systems, motor controllers, energy meters, or IoT devices**, the ACS712-5A provides precise and safe current measurement, enabling smarter and more efficient electronics projects.