InfraRed Sensor

Overview

Infrared (IR) sensors detect infrared radiation emitted by objects. These sensors are versatile and are used in a variety of applications including motion detection, temperature measurement, and remote-control systems

Key Features

- Detects infrared radiation for motion, temperature, and remote-control applications.
- Wide detection range adaptable from centimeters to several meters.
- Multiple output modes (analog, digital, PWM) for flexible system integration.
- Fast response time suitable for both real-time control and monitoring.
- Wide field of view for broader coverage or narrow FOV for precision sensing.
- Operates across industrial temperature ranges for robust applications.
- Compact package options for easy integration in various devices.

Technical Specification

- Operating Voltage: 3.3 V to 5 V (higher for some variants).
- Current Consumption: Few mA to tens of mA.
- Detection Range: Few cm to several meters (depends on sensor type).
- Field of View (FOV): 30° – 180°.
- Wavelength Range:
  Near-IR: 700 nm – 1400 nm
  Thermal IR: 8 µm – 14 µm
- Response Time: Microseconds to milliseconds.
- Output Types: Analog, Digital, PWM.
- Operating Temperature: –40 °C to +85 °C.
- Package Types: Through-hole, SMD, TO-5, TO-18, etc.

Applications

- Motion Detection – Security systems, automatic lighting, robotics.
- Temperature Measurement – Contactless thermometers, industrial monitoring.
- Remote Controls – TVs, AC units, and consumer electronics.
- Gesture Recognition – Smart devices, interactive displays.
- Proximity Sensing – Smartphones, touchless switches.
- Flame Detection – Fire alarms and safety systems.
- Medical Devices – Thermal imaging, patient monitoring.
- Industrial Automation – Object counting, positioning systems.
- Environmental Monitoring – Gas/flame sensing with thermal IR.
- Automotive – Night vision systems, driver assistance sensors.