



RoboMicro

IR Sensor

RoboMicro: Connecting To Infrared Sensors

Description

This document will help you to connect a KTIR 0821 or a P5587 Infrared Photo Sensor to RoboMicro.

The KTIR0821 and P5587 are very popular infrared photo sensors. RoboMicro input circuits have been designed to allow easy connections with these sensors.

Connection Overview

There are two separate function blocks within the KTIR0821 & P7787. One function block generates the IR light and the other function block detects IR light. When used together it is possible to get the sensor to detect walls, edges, colours, surface textures and limited distances.

Both sensors use an infrared LED as the IR light source. However the two types of sensors differ in their output signals.

The KTIR0821 Detector Circuit: This sensor uses a phototransistor to detect the IR light generated by the IR LED. The output of the detector is analogue. This type of sensor is used where the application requires an analogue representation of the reflected IR Light (where a change in the IR intensity will cause a change in the detector output.). This sensor can also be used to detect lines, bright or light coloured objects. It is possible to connect the output of this sensor directly to RoboMicro.

If you want "On/Off" or "Black/White" signalling – connect the sensor to a digital input. If you want to know the analogue value of the sensor output – connect the sensor to an analogue input.

The P7787 Detector Circuit: The P7787, unlike the KTIR0821, contains additional digital processing circuits within the IR

detector. The resultant signal is a Yes/No logical signal. This sensor is designed for use in determining edges, counting wheel encoders/rotations, etc

Connection To RoboMicro:

P7787 Connections: This sensor has a logical output, so needs to be connected to a digital input of RoboMicro. It is possible to connect the output to an analogue input, where a logical 1 will have an analogue value > 900 and logical 0 will have a logical value of < 300.

KTIR0821 Connections: This sensor has an analogue output, and should be connected to an analogue input of RoboMicro. It is possible to connect the output of the sensor to a logical input of RoboMicro, where the resultant signals will be logical On or Off. It is also possible to connect this sensor output to both a digital input and analogue input at the same time. Doing this gives you the best of both systems analogue measurements with logical levels.

Applications

Both sensors work on the principle of IR light being reflected from an object and then being detected by the sensor. The resultant intensity of the reflected light will cause a signal change in the output of the sensor.

In the case of the P7787 sensor, this signal change will be logical, and is ideal for use where definite lines, edges or flat surfaces are used.

In the case of the KTIR0821 sensor, the output signal is analogue, and is ideal for use where colours, textures, distances, etc are used. This sensor can also detect lines, edges, flat surfaces, etc.

Application Circuit Diagram: RoboMicro Connections

