HVW Technologies
Infra-Red Object Detection System (IRODS)

Overview

IRODS is a low-cost, short-range Infra-Red (IR) alternative to ultrasonic detection systems. By setting a detection distance threshold via a tiny potentiometer, the user can reliably detect the presence of any object that comes within that distance. Usable detection range is 10 cm to 80 cm (approx. 4" to 31.5").

The IR Object Detection System consists of the Sharp GP2D05 Distance Measuring Sensor and a custom cable assembly. The GP2D05 is a compact, self-contained IR object detection system incorporating an IR transmitter, receiver, optics, filter, detection, and amplification circuitry. The unit is highly resistant to ambient light and impervious to variations in the surface reflectivity of the detected object.

Unlike many IR systems, IRODS has a fairly narrow field of view; making it ideal for sensing even small objects such as candlesticks. The field of view changes with the threshold distance (see the graph at the end of this document), but is no wider than 10 cm (5 cm either side of centre) when set at maximum range.

Specifications

ABSOLUTE MAXIMUM RATINGS (Ta=25 °C, Vcc= 5V)

Parameter	Symbol	Rating	Unit
Supply Voltage[1]	V_{cc}	-0.3 to + 10	V
Input Terminal Voltage[2]	V_{in}	-03. To + 3	V
Output Terminal Voltage	V_o	-0.3 to + 10	V
Operating Temperature	T_{opr}	-10 to + 60	°C
Storage Temperature	T_{stg}	-20 to + 70	°C

NOTES:

1. The *operating* voltage of the unit is 4.4 – 7 VDC and **should normally be run on 5 VDC**
2. The input terminals maximum voltage rating is **3 V**. Exceeding this level may cause **permanent damage**.

ELECTRO-OPTICAL CHARACTERISTICS (Ta=25 °C, Vcc=5V)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Distance Measuring Range	ΔL	-	10	-	80	cm
Output Terminal Voltage	V_{OH}	Note 1	Vcc-0.3	-	-	V
	V_{OL}	Note 2	-	-	0.3	
Average Supply Current	I_{cc}	Note 3	-	10	22	mA
Standby Supply Current	I_{ccoff}	Note 4	-	3	8	μA
Vin Terminal Current	I_{vin}	Vin=0V	-	-160	-270	μA

Notes: 1) Output HIGH
2) Output LOW
3) Average current during measurement period (56 ms MAX.)
4) Current consumption when Vin terminal is HIGH