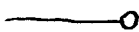
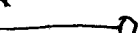
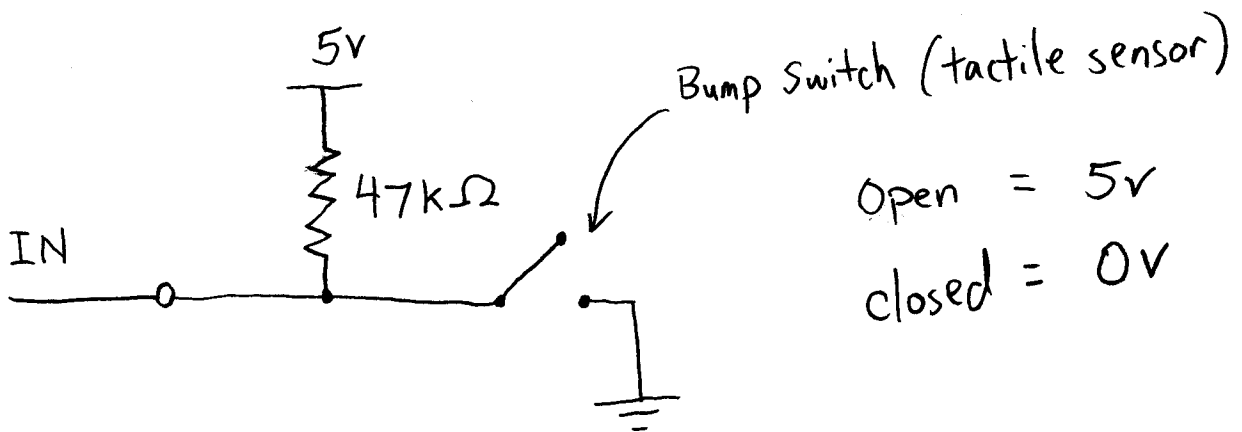


Digital / Analog Sensing

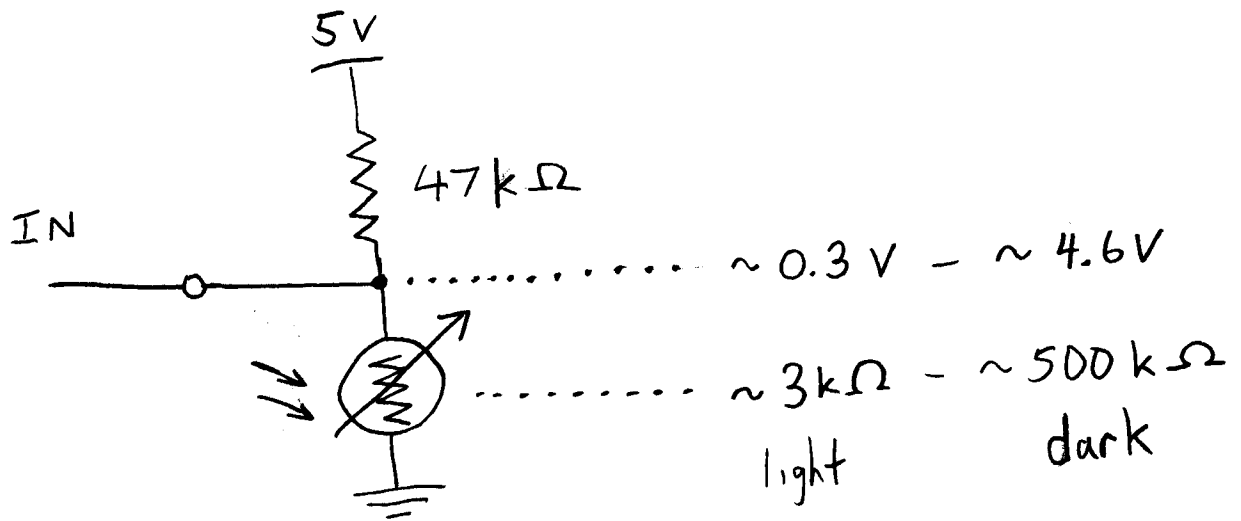
IN  0v = logic 0 or logic 1
5v = logic 1 = logic 0

IN  range 0v-5v → 8-bit resolution
byte representation
0 - 255

Contact / Bump Sensing



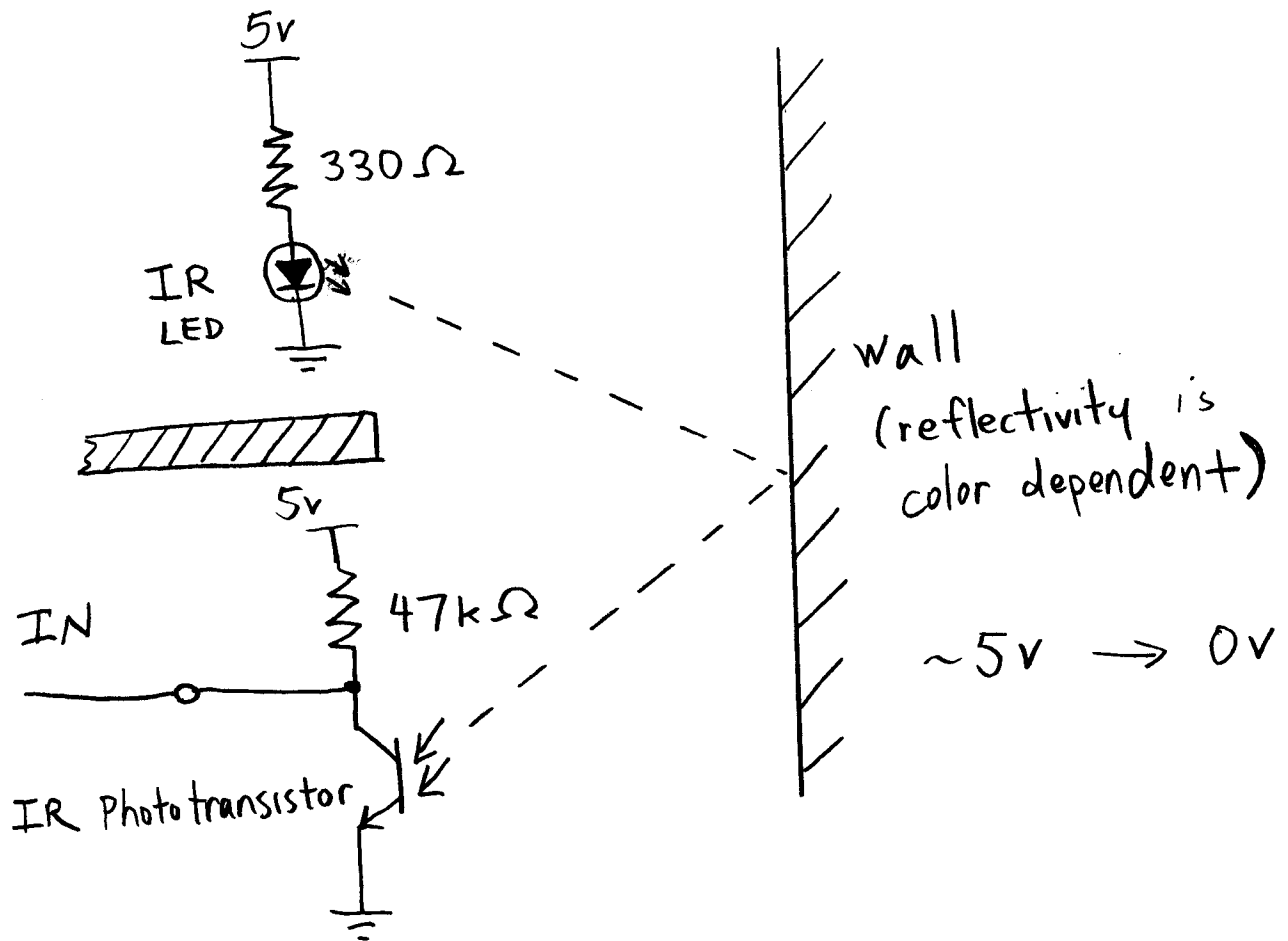
Light Sensor (Cds Photocell)



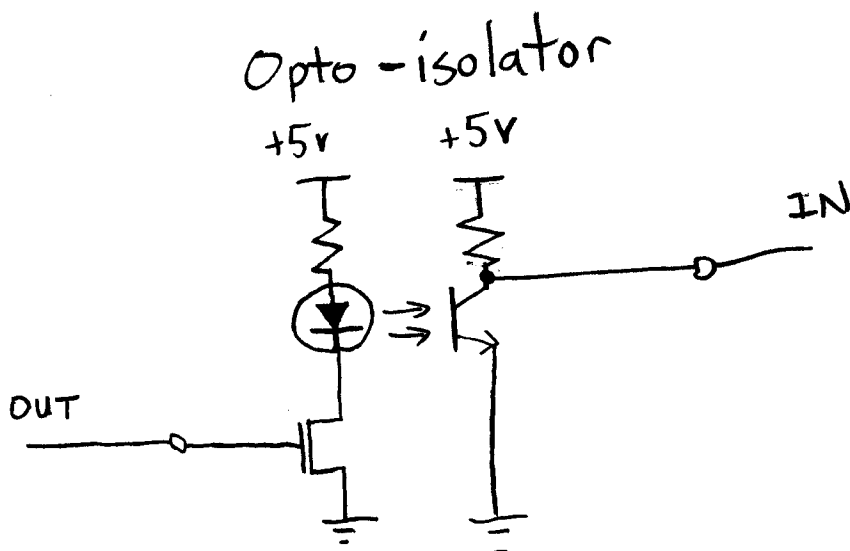
Cadmium Sulfide (CdS)

spectral response ~ human eye

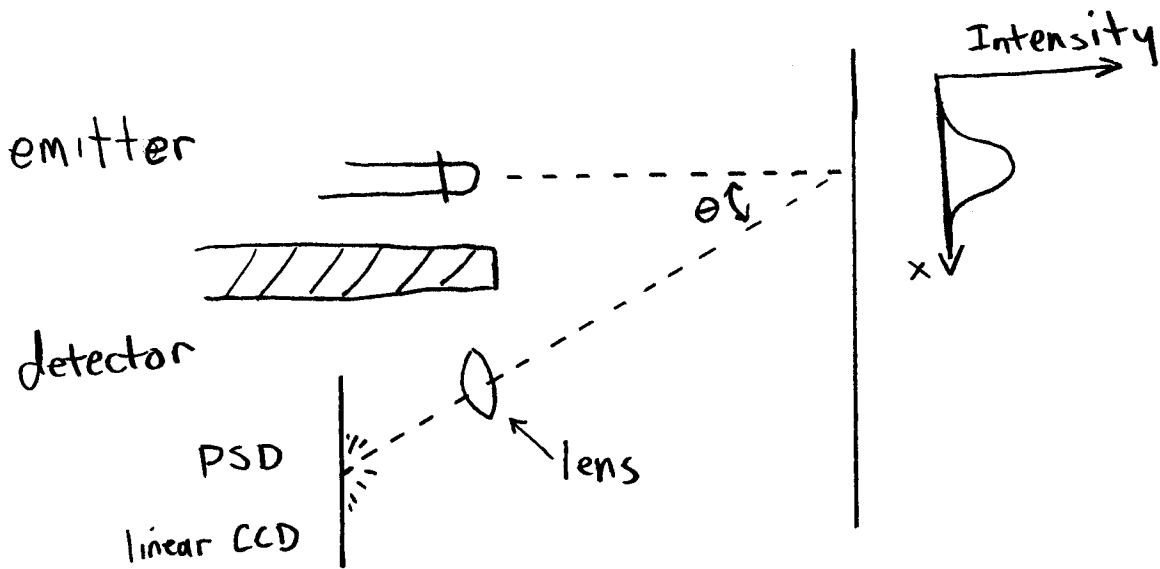
Reflective Photo sensor



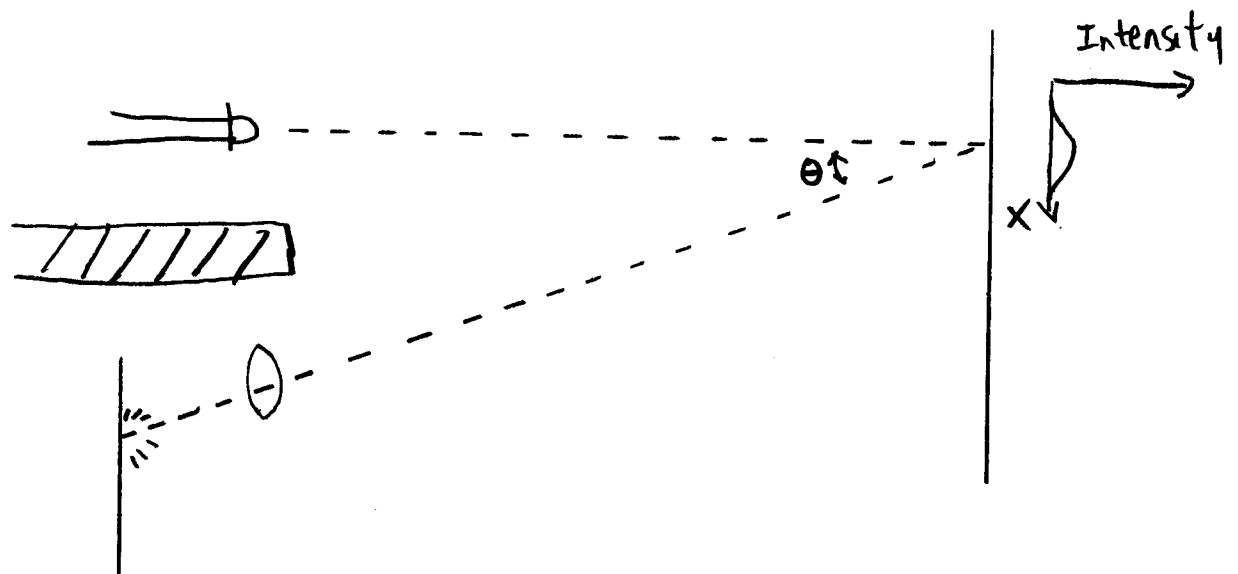
*** Related Device



Sharp IR Range Finder



Position - sensitive detector



GP2D 120 \rightarrow 1.5" - 12"

GP2D 12 \rightarrow 4" - 30"

current \sim 30 mA

1999年 9月17日 17時17分

オプティクス事業部 企画部

NO. 5431 P. 9

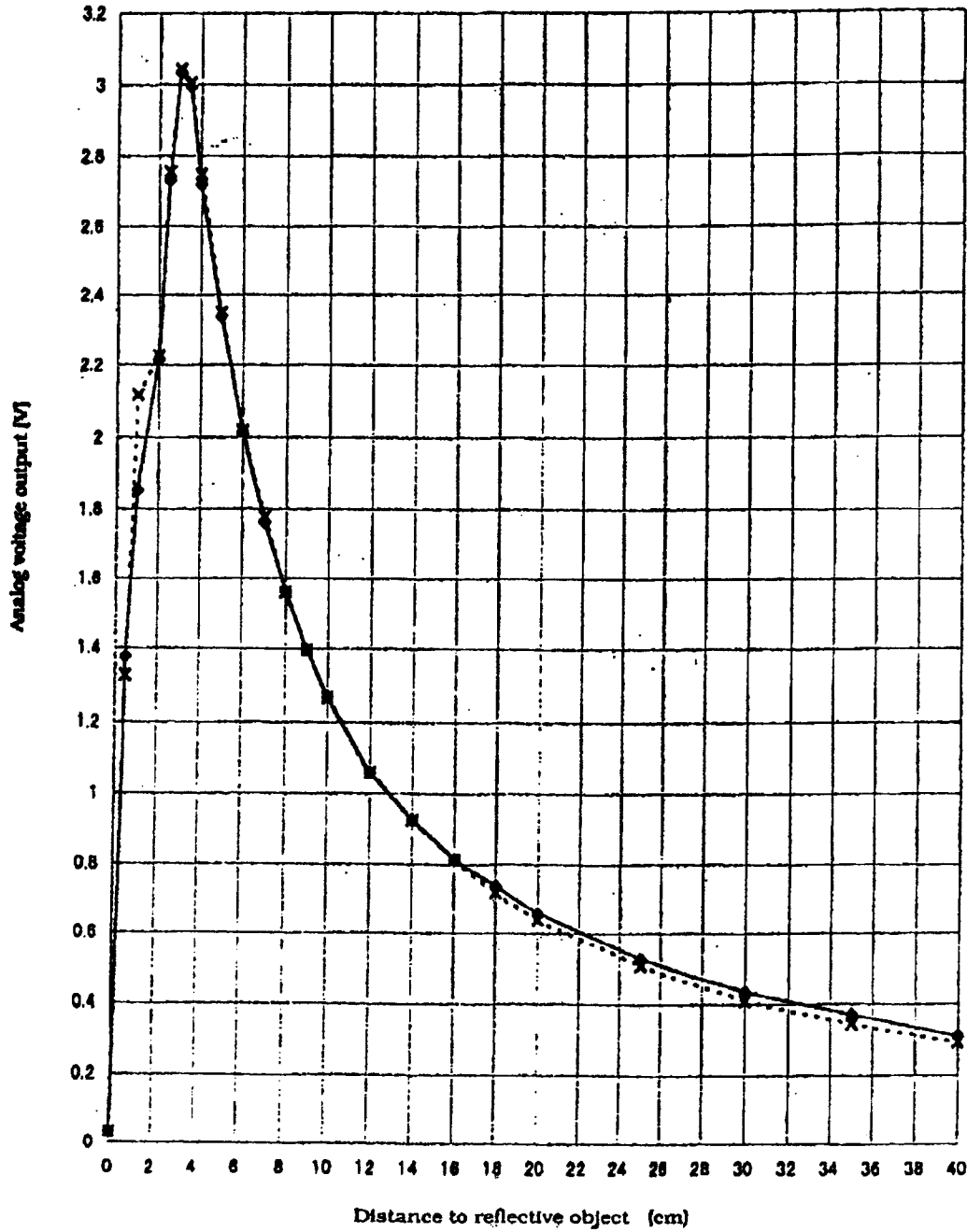
SHARP CORPORATION

ED-99170	August 30, 1999
MODEL No. GP2D120	PAGE 8/9

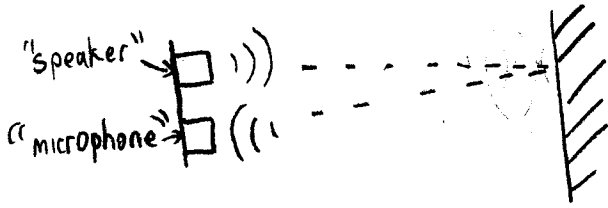
REFERENCE

6-1 GP2D120 Example of Output distance characteristics

—●— White paper (Reflectance ratio 90%) - - * - - Gray paper (Reflectance ratio 19%)



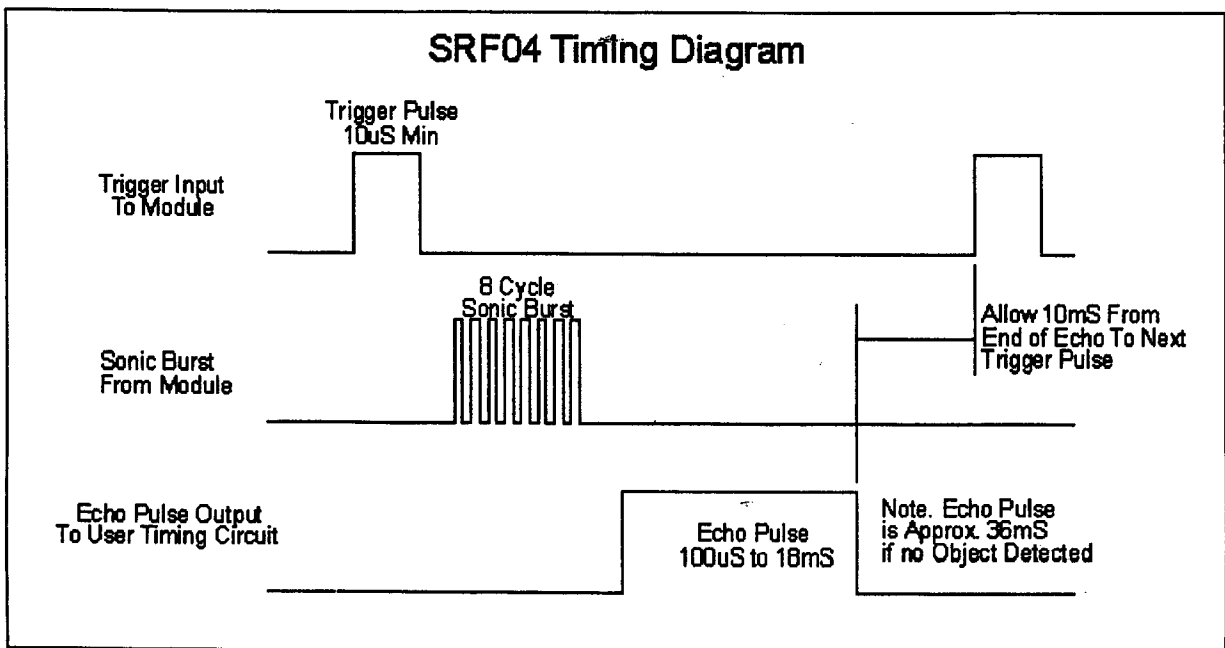
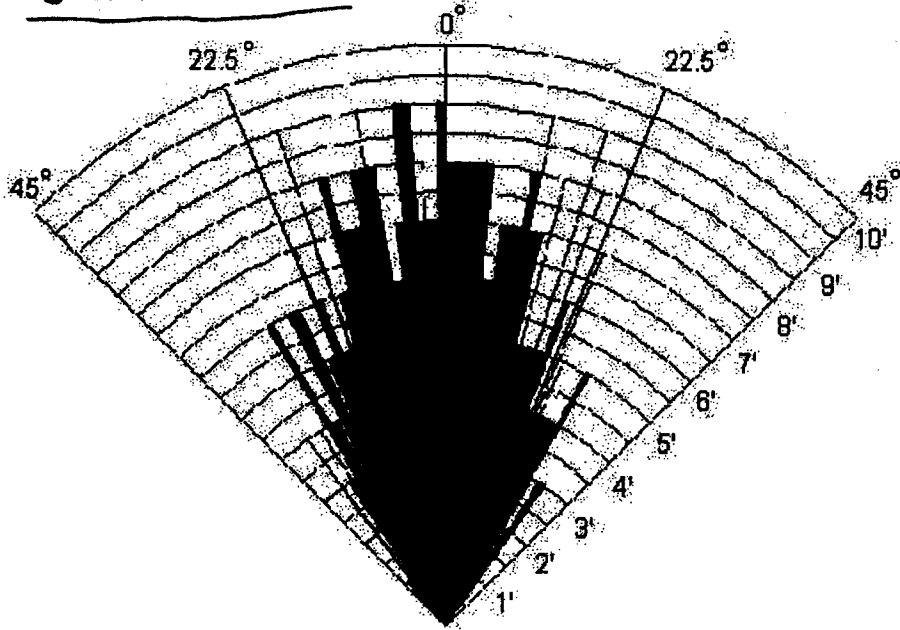
Sonar (Devantec Range Finder)



40 kHz sonic burst
"chirp"

SRF04 → range 3" - 10 ft.
current ~30mA

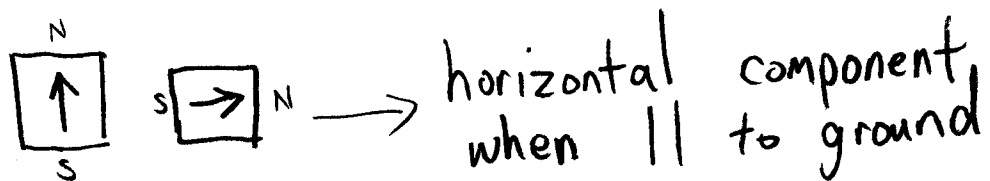
Beam Pattern



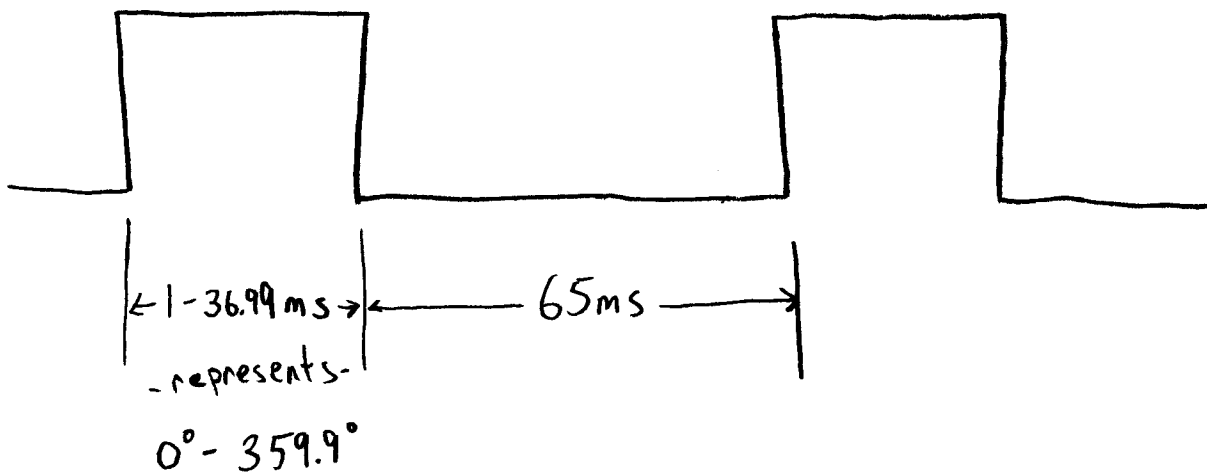
Devantec Compass

CMP503 ~ 20mA

magnetic field sensors → Philips KMZ51
sensitive enough to measure
Earth magnetic field



⇒ PWM Output (Pulse Width Modulation)

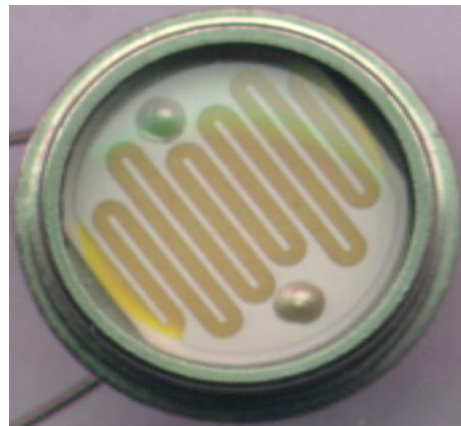
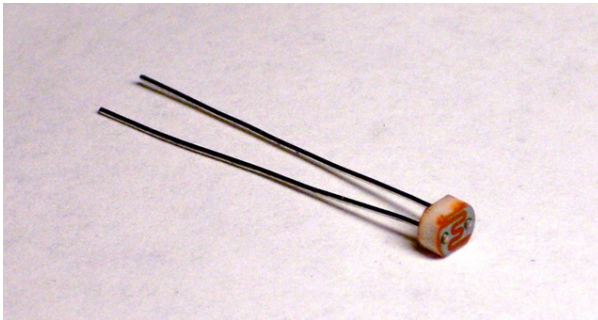


$$T = \left\langle \text{66ms} - \sim 120\text{ms} \right\rangle$$

Snap Switches (Contact Sensor)



Visible Light Sensors (CdS Photocells)



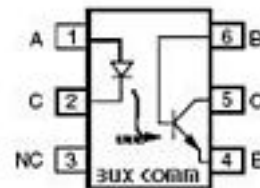
Reflective Photosensor

FEATURES

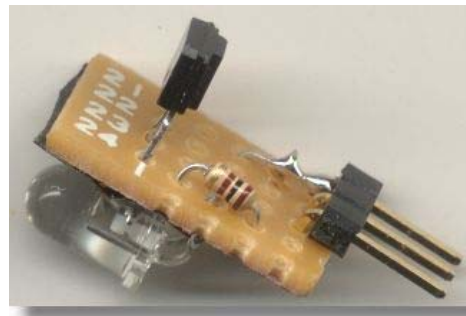
- Phototransistor Output
- No contact surface sensing
- Unfocused for sensing diffused surfaces
- Compact Package
- Daylight filter on sensor



Opto-isolator



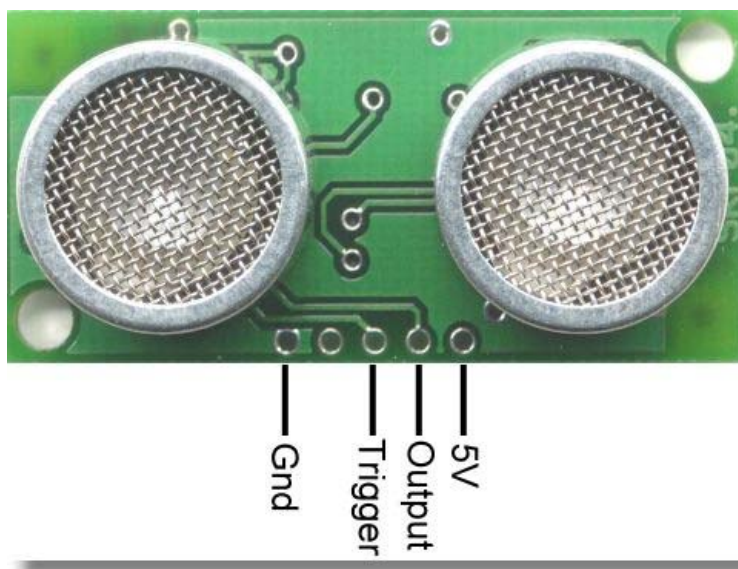
Modulated IR sensor (IS471F)



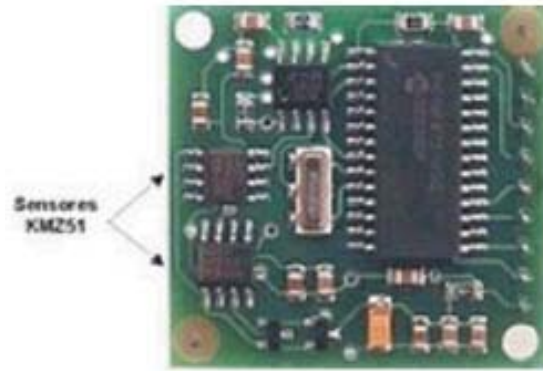
Sharp IR Range Finder (GP2D120)



Sonar (SRF04)



Devantec Compass (CMP03)



CMP03

Micro Piezo Gyro (PG2033)

