

OPTICAL SYSTEM DEVICES FREQUENTLY ASKED QUESTIONS

1. What is the viewing angle of GP2Y0D340K?

In the 10-15cm range the detection angle is roughly + 40° and in the 15-40 cm range the detection angle is roughly + 2°. The lens angle is very similar to the GP2Y0A21YK.

2. What is the correct connector for the distance measuring sensors?

All of the current (single LED) SHARP DMS use the JST Trading Company connector PN S3B-PH. The corresponding JST connector needed is JST PN PHR-3 for the HOUSING and SPH-002T-P0.5S for the CONTACT.

- Wire to Board Crimp style connector with 2.0mm pitch.
- The PH series has several different types of connectors to choose from please see the JST specification sheet (<http://www.jst.com/home8.html>).
- The JST technical help number on the website may be helpful.

The Wide Angles Sensors use a slightly different connector (Molex 9-pin. PN 53047-0910)

There are several different JST & Molex distributors, but we have experience using:

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SHARP SENSOR	CABLE PN	SHARP SENSOR	CABLE PN
GP2D120XJ00F	PHR-3	GP2Y0A02YK0F	PHR-3
GP2D150AJ00F	PHR-3	GP2Y0D02YK0F	PHR-3
GP2D12J0000F	PHR-3	GP2Y3A001K0F	WAS Cable
GP2D15J0000F	PHR-3	GP2Y3A001K0F	WAS Cable
GP2Y0A21YK0F	PHR-3	GP2Y3A001K0F	WAS Cable
GP2Y0D21YK0F	PHR-3		

3. Concerning the GP2Y0A02YK, what is the smallest change in distance that will result in a measurable change in the voltage output?

FACTORY RESPONSE: This device's output voltage resolution is ± 20 mV. Thus the resolution become as follows:

L = 150 cm: ± 50 -60mm
L = 70 cm: ± 20 mm
L = 20 cm: ± 10 mm or less.

On the condition that temperature and reflective object are stable.

If the temperature and/or the color of reflective object changes, the actual performance is $\pm 10\%$, as follows:

L = 150 cm: around ± 150 mm
L = 70 cm: around ± 70 mm
L = 20 cm: around ± 20 mm

4. The datasheet says the DMS has an “open collector” output. How can these be considering it has an analog output?

Our distance measuring sensors with “Digital Functionality” H/L output (like. GP2Y0D02YK) have open collector type outputs. The external pull up resistor is shown in the block diagram. (Please refer to the specification, in this case GP2Y0D02YK)

The “Analog Functionality” distance measuring sensors (like GP2Y0A02YK) have Op-amp outputs and do not require the external pull up resistor. Please refer to the attached spec of GP2Y0A02YK.

5. Which emitter and detector are you using in GP2Y1001AU?

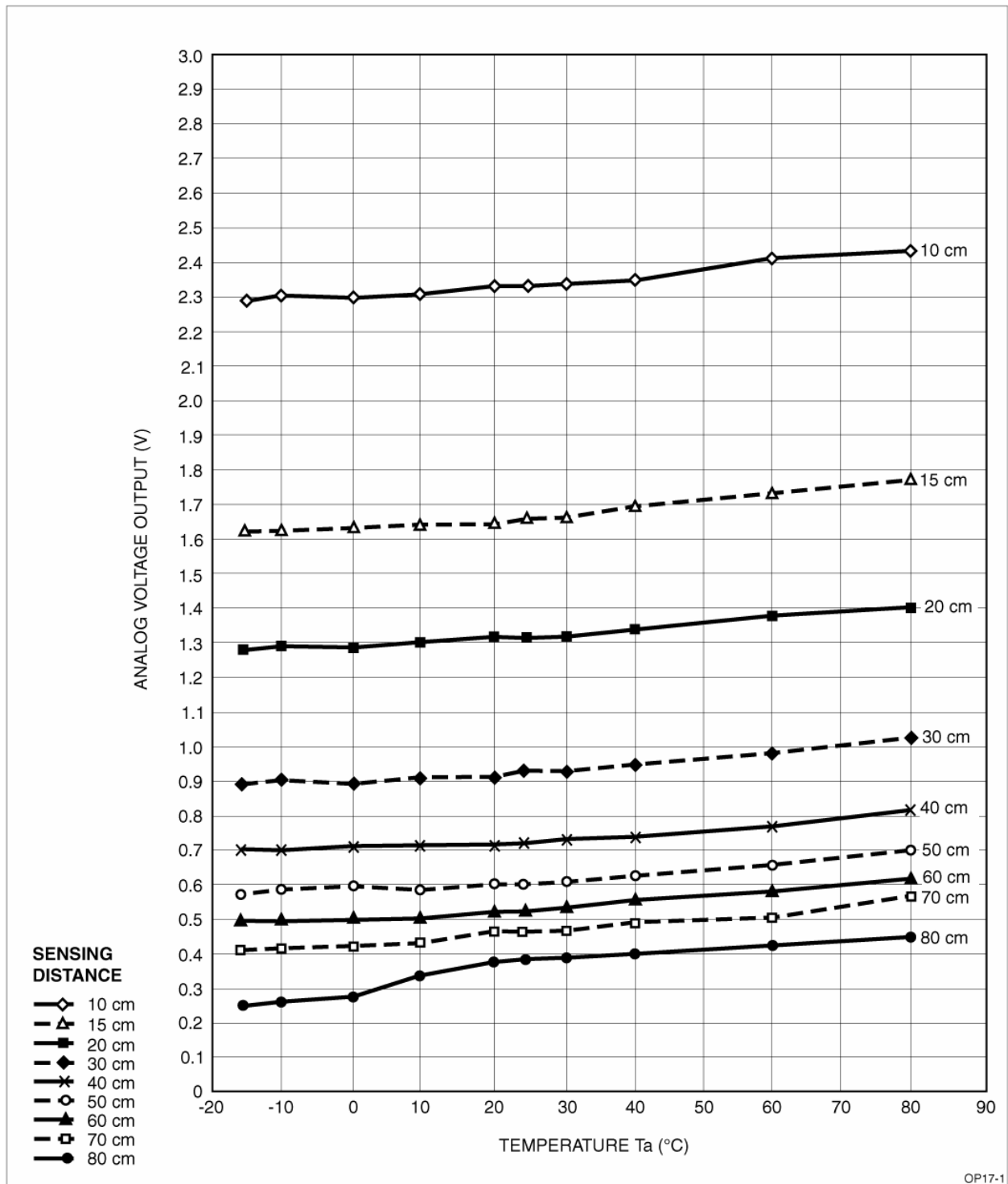
LED: GL4910G1
PD: PD481PI

6. What is the recommendation for using several sensors at the same time?

We strongly urge that we using several sensors in the same location that you pole them on one at a time. Otherwise, false readings will be a problem.

7. Does SHARP have any data on the trigger point variation at temperature extremes of -10 and +60?

Please see page 9 of 12 of the application note. We tested similar devices from -10 to 80°C and the variation due to temperature is 10% at most.



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8. What type of materials are suggested for a lens cover?

The lens should not alter the light path (please also see the application note). The color can either be see-through or visible light blocking (black). Materials: polycarbonate, acrylic or acrylonitrile-butadiene-styrene resin (ABS resin).

9. Can you advise the difference(s) between the GP2D120CJ00F and the GP2D120XJ00F?

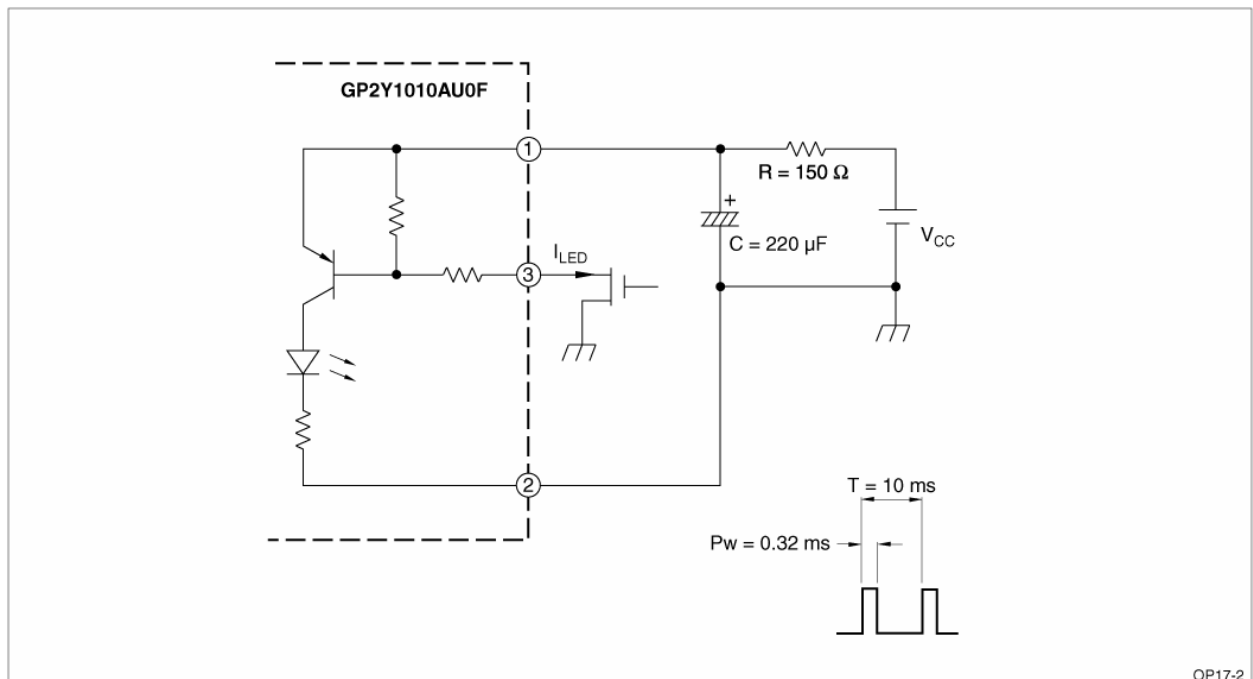
GP2D120XJ00F: JST Connector same as GP2D120
 GP2D120CJ00F: TycoAmp Connector.

10. Can the GP2YD3*0K SERIES DMS be mounted without attaching the shield posts to the circuit board without adversely affecting the function of the sensor?

These pins are for mechanical purposes and to ground the device. Pin #6 should be connected to GND in order to prevent the effect of ESD/EMS. The sensor must attach these shield posts to the PCB.

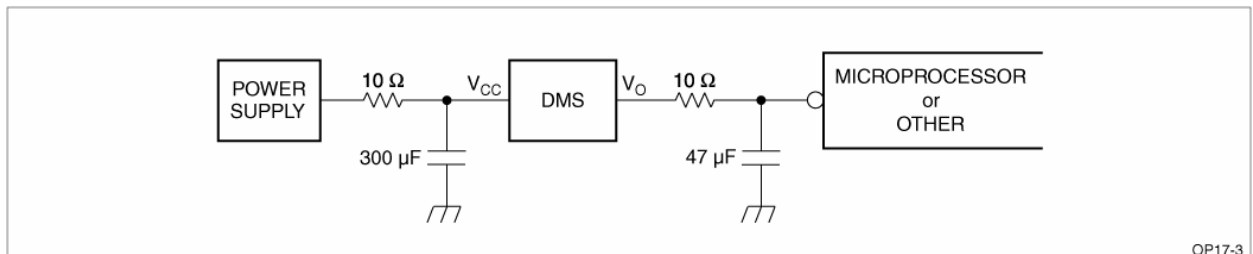
11. Is the signal described in the specification sheet for GP2Y1010AU0F (air quality sensor) required for the sensor to work?

Pin #3 is critical to the sensor, because it provides the signal timing for the LED. The duty ratio with a pulse width of 10 ms must be matched. The signal needs to be invented to using a MOSFET or similar shown in the diagram. If you don't do this the sensor will not work.



12. When I hook up GP2Y0A02YK0F I see a lot of noise on the line, how do I get rid of this?

SHARP recommends using RC filters on V_{CC} and V_O as called out below. The R and C values are recommended starting points you can adjust as needed for your application.



13. Do you know how much current, SHARP PN GP2Y3A002K0F uses? When I connect Vin (pin 9) to 5 V (activated all time) it creates a ripple on my power supply like if it is using a lot of current. Same ripple is shown in Vo (pin 6). I tested 2 sensors and both are working the same way.

Because the sensor pulses the LED to measure the distance the pulse you are seeing is normal. The DMS should draw 10 mA and have spikes of 230 mA. Typically the “Analog” sensors draw much more current than the “Digital” sensors.

