

GP2D05

Distance Measuring Sensor of 1-bit Output

■ Features

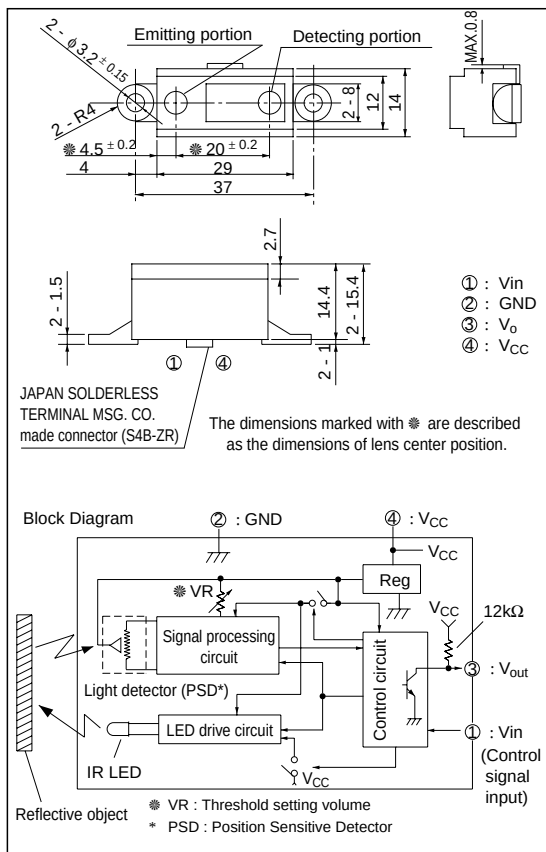
- Distance measuring type object sensor
(Distance measuring range : Optional distance can be set as threshold level by means of built-in VR)
- Impervious to color and reflectivity of reflective object
- High precision distance measurement through output of continuous measurement average value
- Low dissipation current at OFF-state
(dissipation current at OFF-state : TYP. 3 μ A)

■ Applications

- Sanitary sensors (human body detection)
- OA equipment (paper detection)
- Game equipment
- For consumer products (human body detection)

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

(Ta=25°C, V_{CC}=5V)

Parameter	Symbol	Rating	Unit	Remarks
Supply voltage	V _{CC}	- 0.3 to + 10	V	
Input terminal voltage	V _{in}	- 0.3 to + 3	V	Open drain operation input
Output terminal voltage	BV _O	- 0.3 to + 10	V	
Operating temperature	T _{opr}	- 10 to + 60	°C	
Storage temperature	T _{stg}	- 20 to + 70	°C	

■ Operating Supply Voltage

Parameter	Rating	Unit
Operating supply voltage (V _{CC})	4.4 to 7	V

■ Electro-optical Characteristics

(Ta=25°C,Vcc=5V)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Distance measuring range	ΔL	*1,*3	10	-	80	cm
Output terminal voltage	V_{OH}	Output voltage at High, *1	$V_{CC}-0.3$	-	-	V
	V_{OL}	Output voltage at Low, *1	-	-	0.3	V
Distance characteristics of output	V_o	*1,*2	-	24	-	cm
Average dissipation current	I_{CC}	*4	-	10	22	mA
Dissipation current at OFF-state	I_{ccoff}	*5	-	3	8	μA
V_{in} terminal current	I_{vin}	$V_{in} = 0V$	-	- 160	- 270	μA

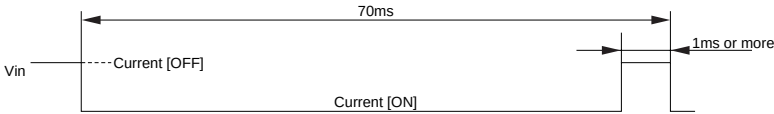
L : Distance to reflective object

*1 Reflective object : White paper (reflectivity : 90%)

*2 Adjustment shall be available with the VR built in the sensor so that the output switching distance may be L=24 cm.

*3 Distance measuring range on conditions after adjustment of the output switching distance to L=24

*4 Average dissipation current measured on the conditions shown below



*5 Dissipation current when V_{in} terminal is in High (current OFF) state.

*6 V_{in} terminal : Open drain drive input.

Conditions : V_{in} terminal current at V_{in} OFF-state $\geq 2.6V$

V_{in} terminal current at V_{in} ON-state $\leq 0.2V$

■ Timing Chart

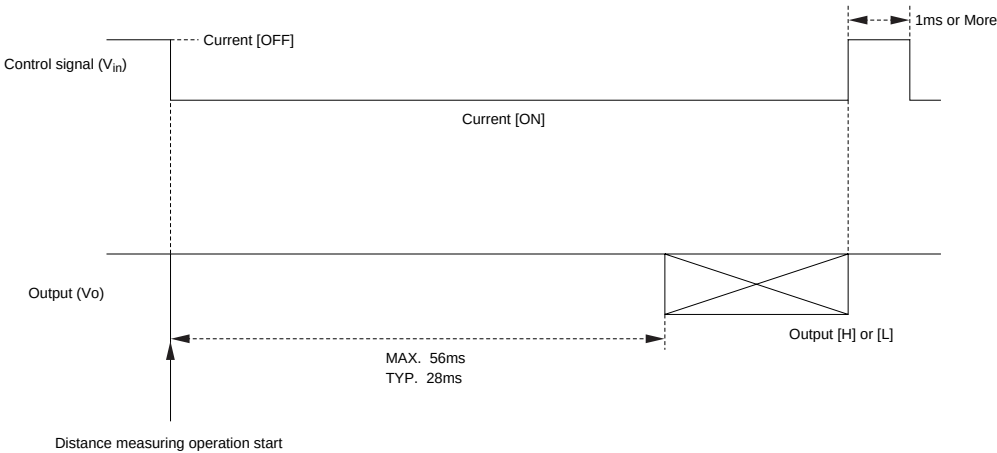


Fig. 1 Distance Measuring Output vs. Distance to Reflective Object

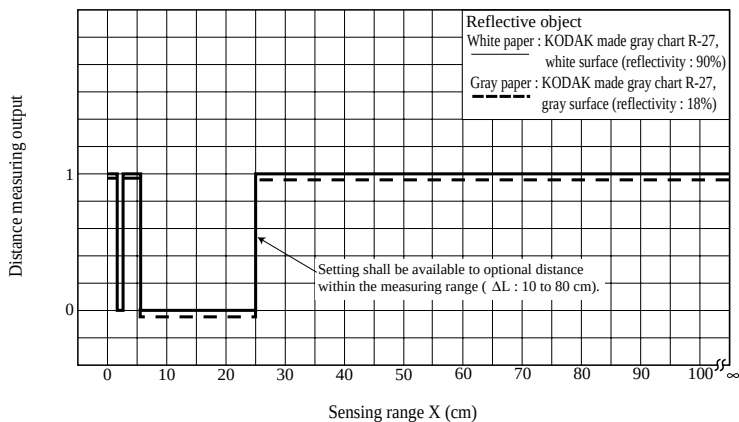
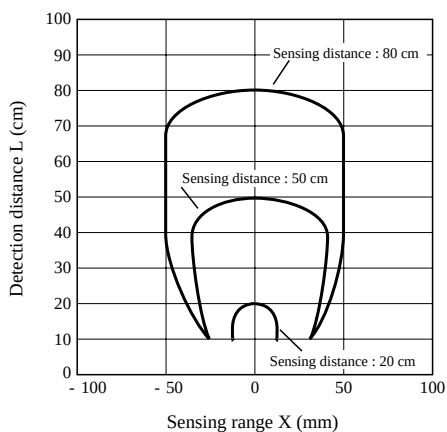


Fig. 2 Detection Distance vs. Sensing Range



Test Method for Sensing Range Characteristics

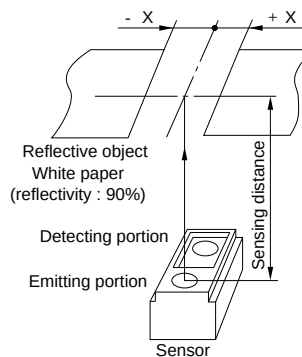
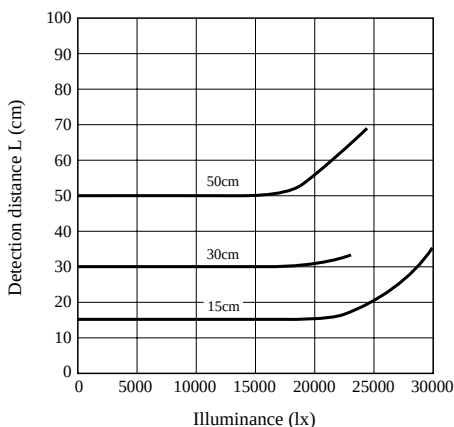


Fig. 3 Detection Distance vs. Illuminance



Test Method for Anti External Disturbing Light Characteristics

