Date 2005.10.26

Scanning Laser Range Finder
URG-04LX

Specifications

Symbol	Amended Reason			Pages	Date	Corrector	Amendment No
Approved by	Checked by	Drawn by	Designed by	Title	Scanning Laser Range Finder URG-04LX Specifications		
MORI	MAEJIMA	SANTOSH	MAEDA	Drawing No.	C-42-3319A		1/5

1. General

URG-04LX is a laser sensor for area scanning. The light source of the sensor is infrared laser of wavelength 785nm with laser class 1 safety. Scan area is 240º semicircle with maximum radius 4000mm. Pitch angle is 0.36º and sensor outputs the distance measured at every point (683 steps). Laser beam diameter is less than 20mm at 2000mm with maximum divergence 40mm at 4000mm.

Principle of distance measurement is based on calculation of the phase difference, due to which it is possible to obtain stable measurement with minimum influence from object's color and reflectance.

URG-04LX is designed under JISC8201-5-2 and IEC60947-5-2 standards for industrial applications.

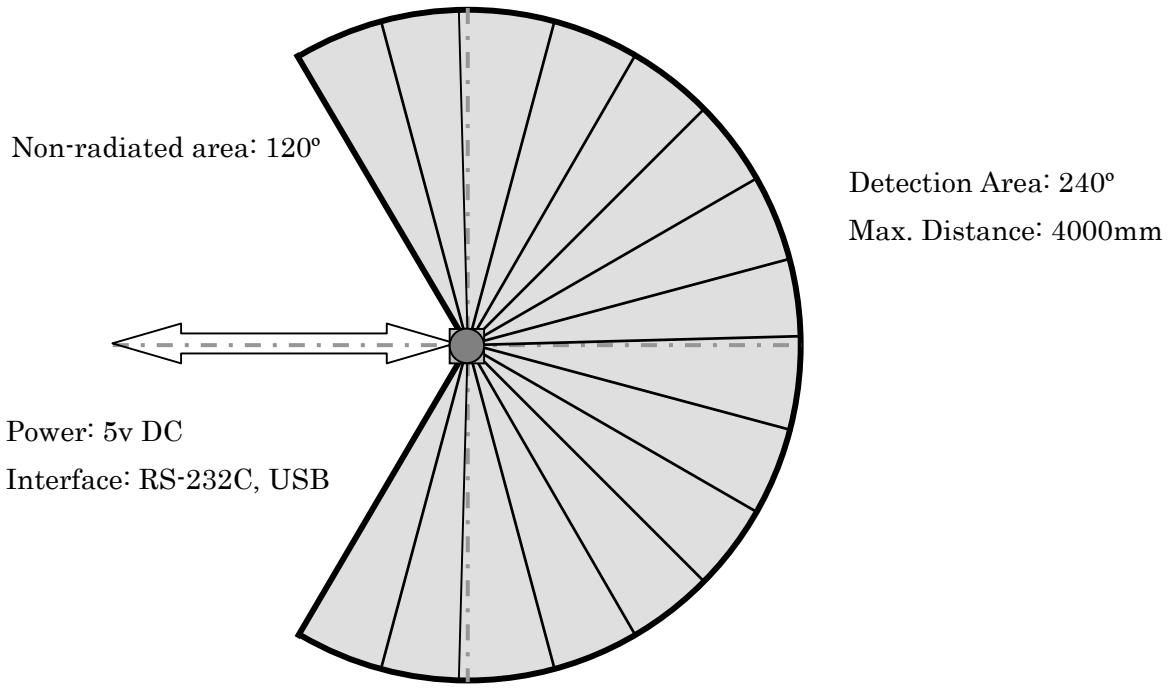


Figure 1

Note
Figure 1 shows the detectable area for white Kent sheet (70mm×70mm). Detection distance may vary with size and object.

2. Important Notice

This sensor is designed for indoor use only.
This sensor is not a safety device/tool
This sensor is not for use in military applications
Read specifications carefully before use.

3. Specifications

Product Name	Scanning Laser Range Finder
Model	URG-04LX
Light source	Semiconductor laser diode (λ=785nm), Laser safety Class 1 (IEC60825-1)
Power source	5V DC ±5%
Current consumption	500mA or less (Rush current 800mA)
Detection distance	20mm ~ 4000mm*
Accuracy	Distance 20 ~ 1000mm ±10mm* Distance 1000 ~ 4000mm ±1% of measurement*
Resolution	1 mm
Scan Angle	240
Angular Resolution	0.36
Scan Time	100msec/scan
Interface	RS-232C (19.2, 57.6, 115.2 kbps) USB Version 2.0 FS mode (12Mbps)
Ambient (Temperature/Humidity)	-10 ~ 50ºC / 85% or less (without dew and frost)
Preservation temperature	-25 ~ 75ºC
Ambient Light Resistance	10000Lx or less
Vibration Resistance	Double amplitude 1.5mm 10 ~ 55Hz, 2 hours each in X, Y and Z direction, and 98m/s² 55Hz ~ 150Hz in 2 minutes sweep, 1 hours each in X, Y and Z direction
Impact Resistance	196 m/s², 10 times each in X, Y and Z direction
Protective Structure	Optics : IP64 Case : IP40
Insulation Resistance	10MΩ for DC 500Vmegger
Weight	Approx. 160 g
Case	Polycarbonate
External dimension (W×D×H)	50×50×70mm (Reference design sheet No. C-40-3362)

*Under standard test conditions with white Kent sheet 70mm×70mm

4. Quality reference value

Operating Vibration resistance	19.6m/s², 10Hz ~ 150Hz with 2 minutes sweep, 0.5 hours each in X, Y and Z direction
Operating Impact resistance	49 m/s², 10 times each in X, Y and Z direction
Angular Speed	360 deg/s
Angular Acceleration	π/2 rad/s²
Life	5 years (Varies depending upon the operating conditions)
Sound level	25db or less (at 300mm)
FDA	This product complies with 21 CFR parts 1040.10 and 1040.11. (Registration Number 0521258)

5. Interface

CN1 (8 Pins)

	URG-04LX	Lead Color
1	N.C.	WHITE
2	N.C.	RED
3	OUTPUT (SYNCHRONOUS)	BLACK
4	GND (9pin Dsub 5p)	PURPLE
5	RxD (9pin Dsub 3p)	YELLOW
6	TxD (9pin Dsub 2p)	GREEN
7	0V	BLUE
8	DC 5V	BROWN

Note

GND and 0V are connected inside the sensor

A standard unit consists of power supply cable and 9-pin D-sub communication connector

CN2 USB-mini (5 Pin)

Cable is not included. Use commercially available compatible unit.

Note:

Refer specifications number C-42-3320 for communication protocol.

Synchronous output will supply one pulse/scan for 12.5msec (Figure 2).

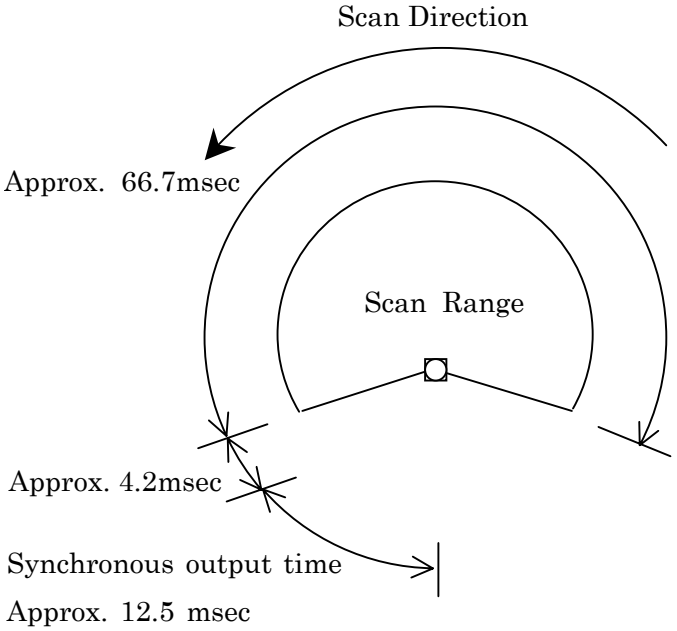
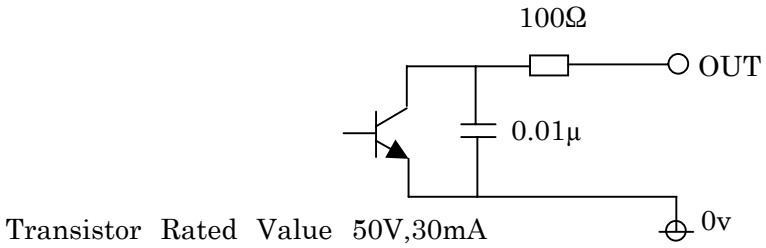


Figure 2

6. Output Circuit:



Transistor Rated Value 50V,30mA

Figure 3

7. Notice:

Supply voltage is DC 5Volts. Sensor will damage if high voltage is supplied.

Sensor will not operate with USB bus power. Use stable power supply with 1.5Amperes or more

The maximum data step is 683 points. Sensor's angular resolution is 0.3515625º (360º /1024 steps) and angular range is 239.765625º ((683-1) 360/1024)

Angular resolution can be specified form the host. Read communication protocol specification (No C-42-3320) for details.

When RS232S connection is used, communication may not establish due to circuit or host incompatibility if baud rate is setting is more than 500Kbps.

USB driver is communication device class (CDC) supported by standard operating system. The device is connected as a COM port with the same utility.

Plug and play function is not supported.