Date : Jun.1, 2009

Scanning Laser Range Finder
URG-04LX-UG01

Specifications

Symbol	Amended Reason	Pages	Date	Corrector	Amendment No
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Approved by	Checked by	Drawn by	Designed by	Title	Scanning Laser Range Finder URG-04LX Specifications	
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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.

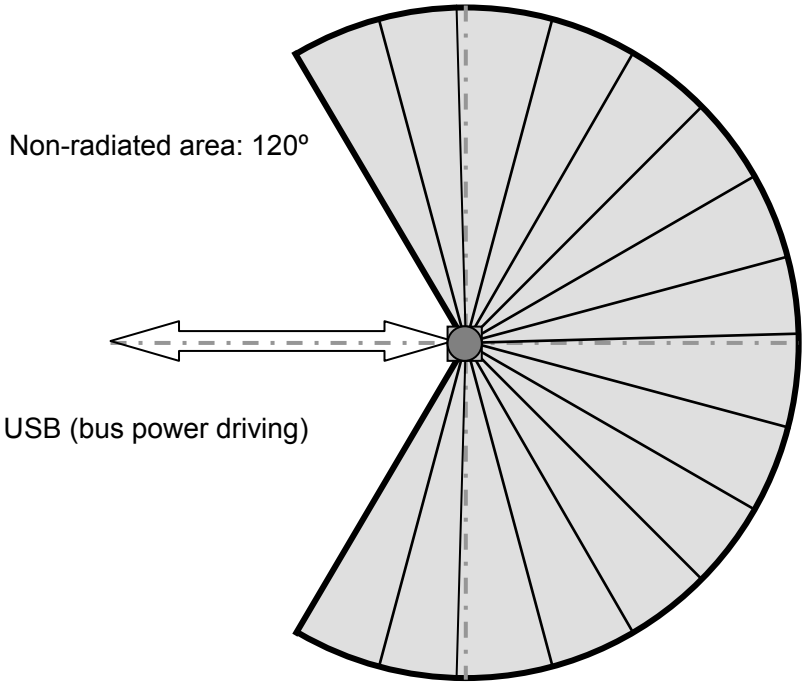

Figure 1

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-UG01
Light source	Semiconductor laser diode (λ=785nm), Laser safety Class 1 (21 CFR part 1040.10 and 1040.11) Laser power: 0.8mW or less (Class 1 compliant by scanning)
Power source	5V DC ±5% (Supplied by USB bus power)
Current consumption	500mA or less (Rush current 800mA)
Detection distance and standard object	Accuracy:60-4,095mm (white paper 70mm x 70mm or bigger)* Detectable range: 20-5,600mm
Accuracy	Described in the data sheet attached to each unit Guaranteed accuracy: 0.06-1m: ±30mm* , 1-4m: 3% of the detected distance* (Standard object: white paper 70mm x 70mm)
Resolution	1 mm
Scan Angle	240°
Angular Resolution	Approx.0.36° （360°/1024）
Scan Time	100msec/scan
Interface	USB Version 2.0 FS mode (12Mbps) SCIP2.0
Ambient (Temperature/Humidity)	-10 ~ 50ºC / 85% or less (without dew and frost)
Preservation temperature	-25 ~ 75ºC
Ambient Light Resistance	10000Lx or less （Sunlight）
Vibration Resistance	Double amplitude 1.5mm 10 ~ 55Hz, 2 hours each in X, Y and Z direction, and 98m/s^2 55Hz ~ 150Hz in 2 minutes sweep, 1 hours each in X, Y and Z direction
Impact Resistance	196 m/s^2, 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/s^2, 10Hz ~ 150Hz with 2 minutes sweep, 0.5 hours each in X, Y and Z direction
Operating Impact resistance	49 m/s^2, 10 times each in X, Y and Z direction
Angular Speed	360 deg/s
Angular Acceleration	π/2 rad/s^2
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

5. Interface

●CN1 USB-mini (5 Pin)
Cable is not included. Use commercially available compatible unit.

●Communication protocol: SCIP2.0 (please refer to document C-42-3320B)

6. Notice:

The sensor's bottom board is used as frame ground. The 5V USB power and ground is connected by capacitors.

Rarely URG-04LX-UG01 can not be powered on by USB power with some computers. Please purchase the optional USB cable if this happens.

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.

Scanning direction: counterclockwise from Top view

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.
When detect objects in far distance with strong reflectivity (such as reflector), the sensor could possibly recognize the objects as in the close range.

8. Firmware update history

Firmware version	Remarks
Ver.3.3.00	Same firmware of "URG-04LX"