

RANGE-FINDER TYPE
LASER SCANNER
URG-04LX

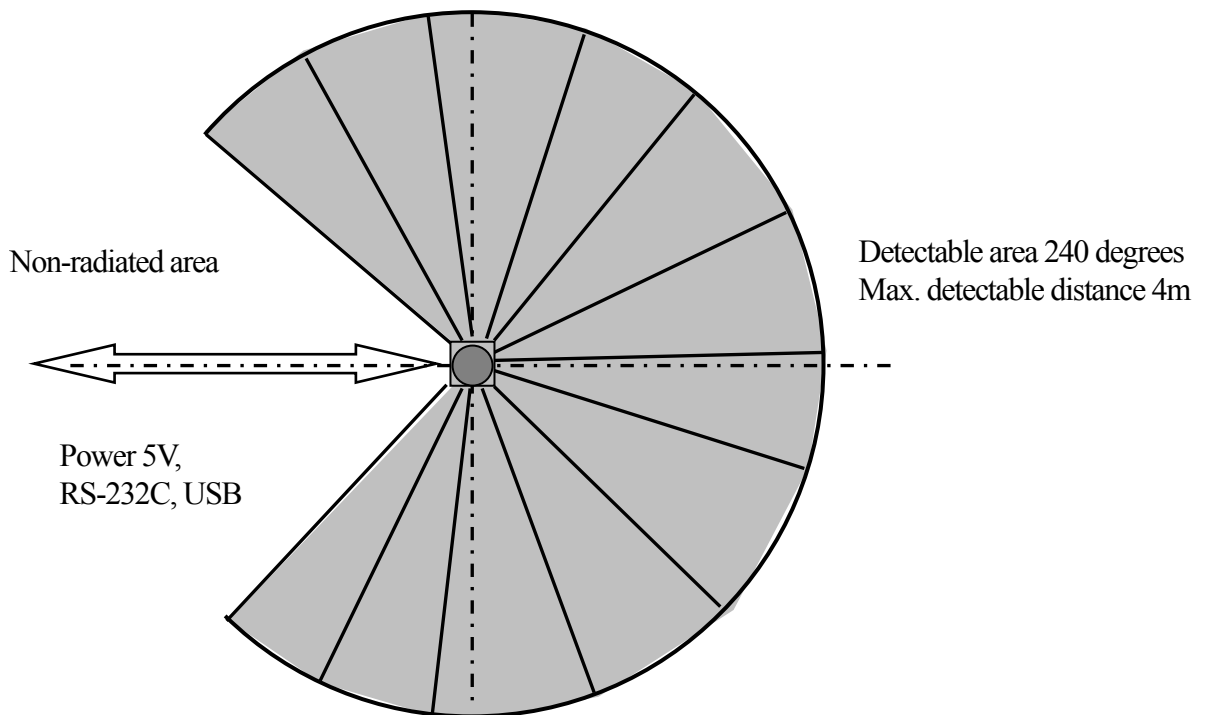
SPECIFICATIONS

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| Symbol | Amended reason | | | Pages | Date | Corrector | Amended No. |
| Approved by | Checked by | Drawn by | Designed by | Title | Range-Finder Type Laser Scanner URG-04LX Specifications | | |
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1. General

URG-04LX is a range-finder type laser scanner. The light source of the sensor is infrared laser with wavelength 785nm. Scanning area is 270 degrees with 0.36 degrees/pitch and it can detect the distance and direction to the objects. Max. detectable distance is 4m(objects is white kent paper with 70mm×70mm) and the diameter of the laser beam is 40mm at 4m distance. URG-04LX is suitable for recognizing the environment around this sensor because it executes the distance data per each step as detected result.

It is not influenced so much against the color of objects or surface gloss and it makes stable measurement because phase-difference system with time of flight is applied as measuring principle. URG-04LX is designed with JISC8201-5-2 and IEC60947-5-2 standards as well as obstacle detecting sensor for the industrial use.



Note) The above figure shows the detectable area by detecting object with 70mm x 70mm. Max. detecting distance is changed depending on a kind of detecting objects.

2. Exemption clause

- * This sensor is not a safety instrument/tool.
- * This sensor is designed for indoor use only.
- * This sensor is not for use in military application
- * Read this specifications sheet before using.

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3. Specifications

| | |
|---------------------------------|--|
| Products | Range-finder type laser scanner |
| Model No. | URG-04LX |
| Light source | Semiconductor laser $\lambda=785\text{nm}$, Laser safety class 1(IEC60825-1) |
| Power source | 5VDC, +/- 5% |
| Current consumption | 500mA or less(800mA just after putting power source in) |
| Detectable distance and objects | 0.02 to 4m, white kent paper with 70mm x 70mm* |
| Accuracy | Refer to the attached sheet with products(Official 0.02 to 1m : +/- 10mm*, 1 to 4m : 1%* of distance)(Detecting object is white kent paper with 70mm x 70mm) |
| Resolution | 1mm |
| Scanning angle | 240 degrees |
| Angle resolution | Approx. 0.36 degrees(360 degrees/1024 partition) |
| Scanning time | 100msec/scan |
| Interface | RS-232C(19.2k, 57.6k, 115.2k, 500k, 750kbps), USB : Ver.2.0 FS mode(12Mbps) |
| Ambient temperature/humidity | -10 to +50 degrees C, 85%RH or less(Not condensing, not icing) |
| Temperature in stored | -25 to +75 degrees C |
| Disturbance light | 10,000lux or less(sun light) |
| Vibration resistance | 10 to 55Hz, double amplitude 1.5mm, each 2 hour in X, Y and Z directions 55 to 200Hz, 98m/s ² , sweep 2 min., each 1 hour in X, Y and Z directions |
| Impact resistance | 196m/s ² , each 10 time in X, Y and Z directions |
| Protective structure | IP64 for lens surface, IP40 for case |
| Insulation resistance | 10Mohm 500VDC megger |
| Weight | Approx. 160g |
| Material | Polycarbonate |
| External dimension | 50mm(W)×50mm(D)×70mm(H), external dimension No.C-40-3362 |

Note) *Under standard condition

4. Quality reference value

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|-------------------------------------|---|
| Vibration resistance when operating | 10 to 150Hz, 19.6m/s ² , sweep 2 min., each 30 min. in X, Y and Z directions |
| Impact resistance when operating | 49m/s ² , each 10 time in X, Y and Z directions |
| Turn angular velocity | 360 deg/s |
| Turn acceleration | $\pi/2$ rad/s ² |
| Life | 5 years(It changes depending on operating condition) |
| Sound level | 25dB or less(at 300mm) |
| FDA | This product complies with 21 CFR part 1040.10 and 1040.11, Registration No.0521258 |

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5. Interface

* CN1(8 pins)

| | URG-04LX | Cable colors |
|---|------------------------------------|--------------|
| 1 | NC | |
| 2 | NC | |
| 3 | OUTPUT(Synchronous output) | Black |
| 4 | GND(9-pin, D-sub connector 5 pins) | |
| 5 | RxD(9-pin, D-sub connector 3 pins) | |
| 6 | TxD(9-pin, D-sub connector 2 pins) | |
| 7 | 0V | Blue |
| 8 | 5VDC | Brown |

Note) GND for communication is short-circuited with 0V inside. Cable for power source including the connector for communication of D-sub 9-pin is attached.

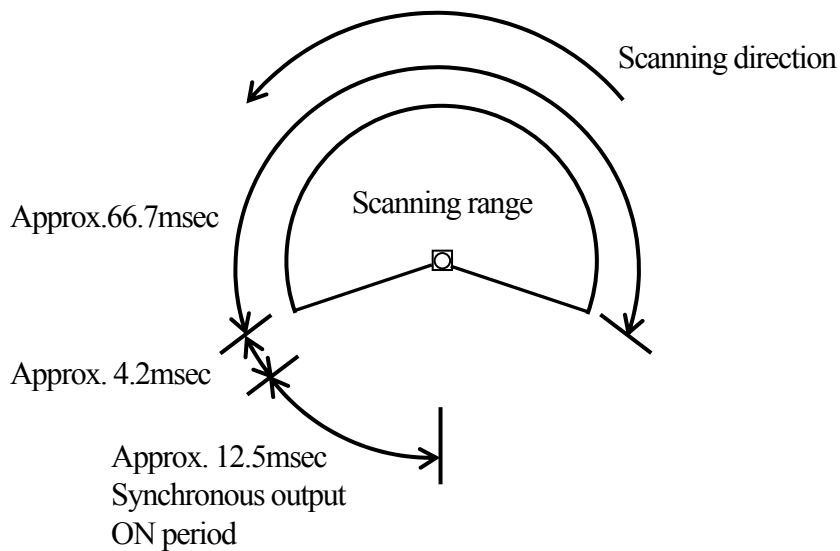
* CN2 : USB-min(5-pin)

USB cable isn't attached. Use the cable that is adapted with the standard.

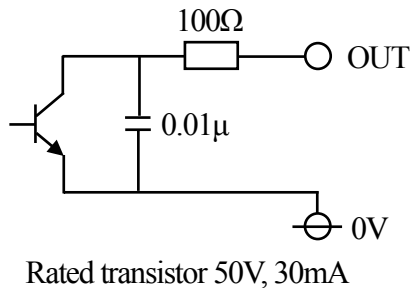
* Refer to specifications No.C-42-3320 about communication protocol.

* Synchronous output : This output is synchronized with scanning, 1 scan/1 pulse(approx. 12.5msec)

Output timing against scanning is as follows:-



6. Output circuit



7. Supplementary explanation

- * Power source is 5VDC. Be sure not to make a wrong wiring or to put high voltage on because it may be broken.
- * It isn't operated by USB bus-power. Use stable power source with 1.5A or more.
- * Numbers of scanning step is 683 steps max. Angle resolution is 360/1024. Scanning angle range is (638-1) 360/1024 degrees.
- * Scanning angle range and angle resolution can be specified from host. Refer to specifications No.C-42-3320 about communication protocol.
- * Scanning direction is counterclockwise from top view.
- * In case of baud rate with 500kbps on RS-232C connection, it may not communicate correctly because of wiring or compatibility with host.
- * USB driver uses CDC(Communication Device Class) as OS standard and is connected as software COM port and so it is possible to handle as well as COM port on application program of host. However, note that Plug & Play function doesn't provide.

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