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Scanning Laser Range Finder UHG-08LX Specifications

△×5	Minor Correction, Malfunction Added		2,3,4,5	08.03.05	Hamako	PR5420
△×2	Minor Correction, Output Circuit Added		4, 5	08.01.10	Hamako	PR5391
Symbol	Amended Reason		Pages	Date	Corrector	Amendment No
Approved by	Checked by	Drawn by	Designed by	Title	<u>Scanning Laser Range Finder</u> <u>UHG-08LX</u> Specifications	
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1. General

UHG-08LX is a range sensor that scans 270° horizontal plane with 0.36° pitch using infrared laser (wavelength 785nm) and outputs the distance and position of objects in its range. Maximum range of the sensor with square Kent sheet (250x250mm) is 8m. Laser divergence is 80mm at 8m. Sensor can be used for environment detection as it outputs the data measured at each step producing the 2-dimensional map of the surroundings.

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.

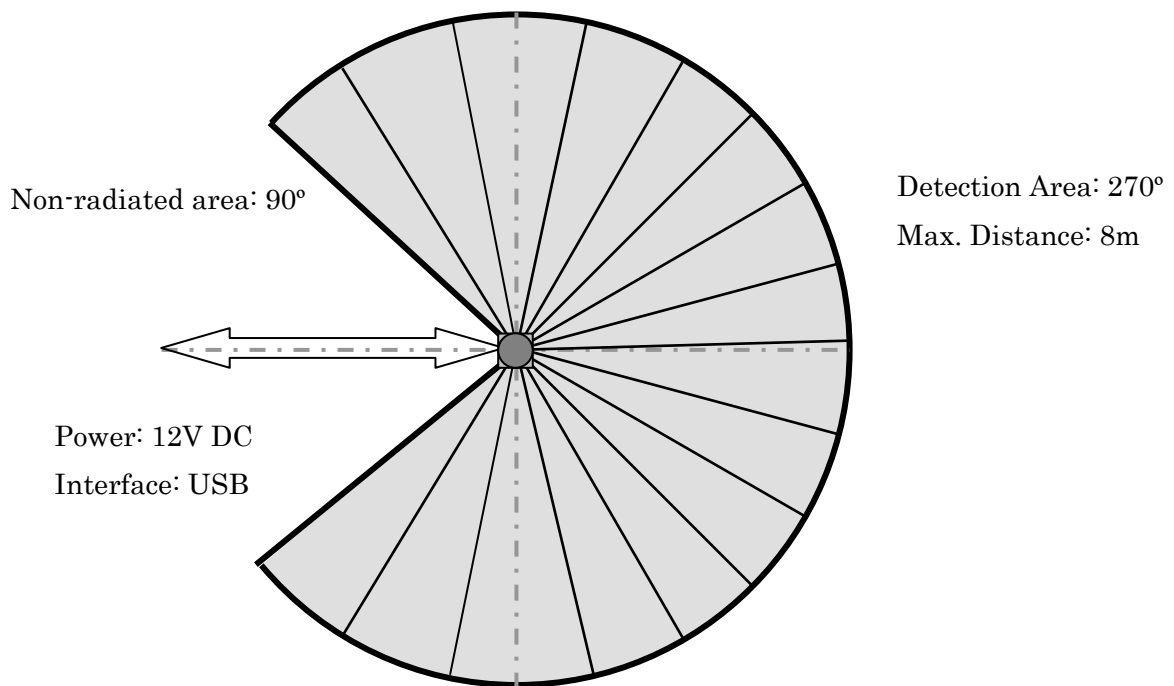


Figure 1

Note

Figure 1 shows the detectable area for white Kent sheet (250mm×250mm). Detection distance may vary with size and object.

2. Important Notice

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

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3. Specifications

Product Name	Scanning Laser Range Finder
Model	UHG-08LX
Light source	Semiconductor laser diode ($\lambda = 785\text{nm}$), Laser safety Class 1 (FDA)
Power source	12V DC $\pm 10\%$
Current consumption	0.3A (Rush current 0.8A)
Detection Distance	Detection Range: 0.03~11m (Accuracy not guaranteed beyond 8m)
Accuracy	Accuracy Range : 0.1~8m (White square Kent Sheet 250mm) 0.1~1m : $\pm 30\text{mm}^*$, 1~8m : 3% of Distance)* (Refer Attached Data Sheet with the Product)
Resolution	1 mm
Scan Angle	270°
Angular Resolution	0.36° (360°/1024 steps) \hat{z}
Scan Time	67msec/scan
Interface	USB 2.0 (Full Speed) Synchronous Output (Open Collector)
Ambient (Temperature/Humidity)	- 10 ~ +45°C, 85% RH or less (without dew and frost)
Preservation temperature	-25 ~ +75°C
Ambient Light Resistance	Halogen/Mercury : 10000Lx or less Florescent : 6000 Lx or Less [May cause measurement errors under strong light eg. sunlight]
Vibration Resistance	Double amplitude 1.5mm 10 ~ 55Hz, 2 hours each in X, Y and Z direction, and 49m/s ² 55Hz ~ 200Hz 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	IP40
Insulation Resistance	10M Ω for 500VDC megger
Weight	Approx. 500g (with cable attachment)
Case	Polycarbonate
External dimension (W×D×H)	88×83×83mm (Optics ϕ 66mm)

*Under standard test conditions

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	2 π /s (1Hz)
Angular Acceleration	$\pi/2$ rad/s ²
Life	5 years (May change depending upon using conditions)
Sound level	25dB or less (at 300mm)
FDA	21 CFR parts 1040.10 and 1040.11

5. Interface

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CN1 : Flying lead 2m

	Lead Color	Signal
1	BROWN	Supply +V
2	BLUE	Supply -V
3	PURPLE	OUTPUT (SYNCHRONOUS)
4	Black	COM+
5	GRAY	OUTPUT (ERROR/MALFUNCTION)
6	PINK	NC
7	WHITE	NC
8	RED	NC
9	GREEN	NC
10	YELLOW	NC

Note

1. SG and COM- are connected inside the sensor (0V).
Supply +V and COM+ are connected inside the sensor(12V).
Keep away from wiring that may generate noise.
2. Do not connect NC pins as it may cause damage to the device.

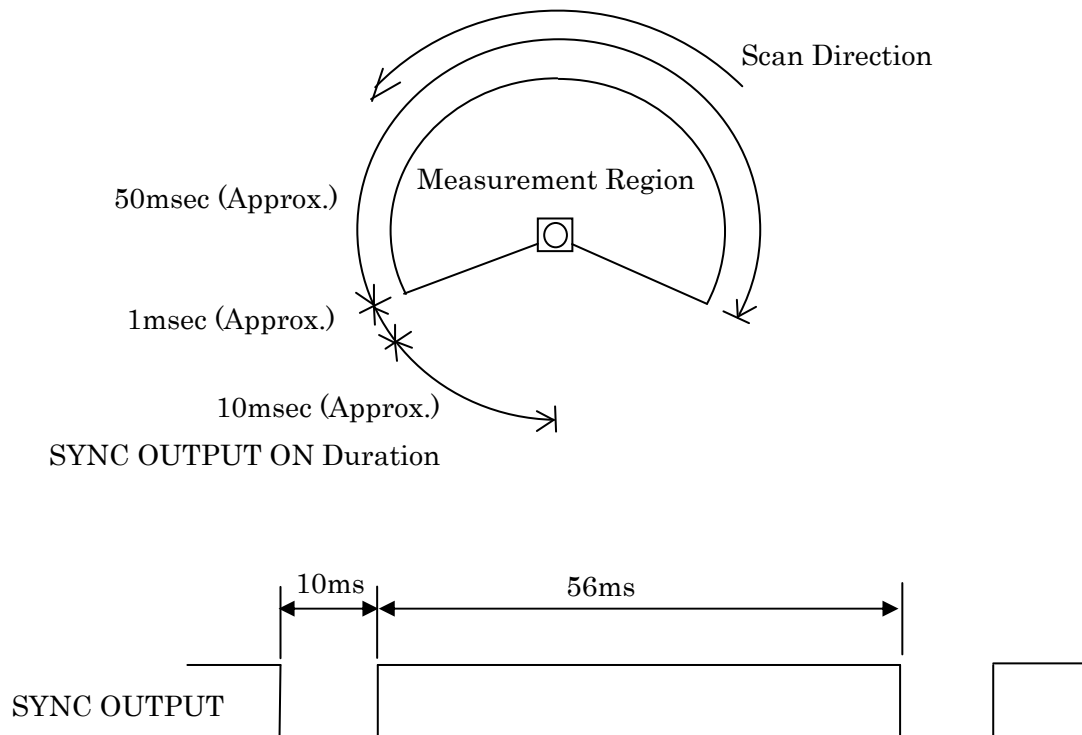
CN2 : USB TYPEA (Flying lead 2m)

Note: Refer Communication Protocol document C-42-3320B

6. Control Signals Δ

1. Synchronous Output:

Output one pulse in every scan for 10msec. See the figure below for the output timing.

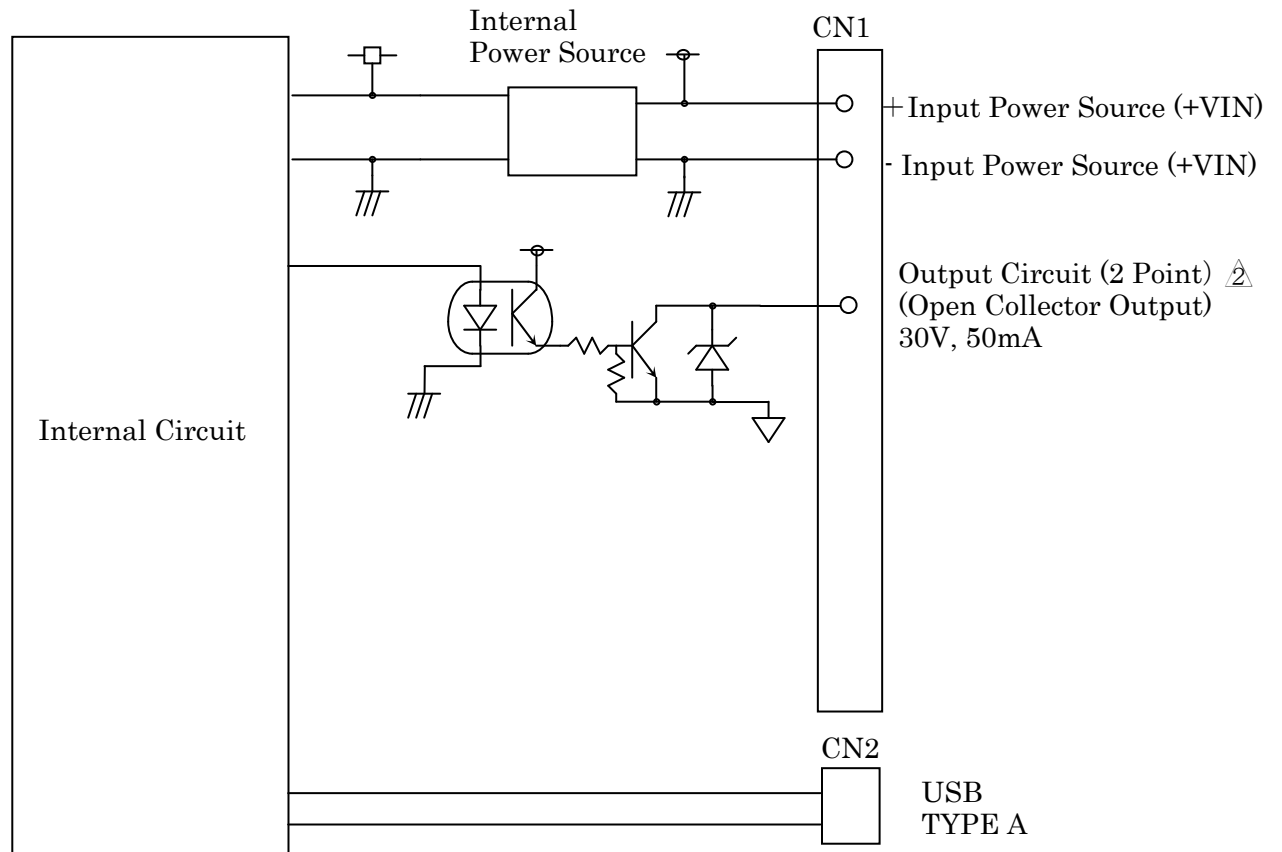


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2. Error Signal: ⚠

All output signals are switched off in case of malfunction. Please check the malfunction with LED light. Malfunction details can be checked by communication.

6. Output Circuit: ⚠



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8. Notice:

- Angular range and resolution can be specified from the host. Read communication protocol specification for details.
- Sensor scans anticlockwise from top view.
- USB driver is communication device class (CDC) supported by standard operating system. The device is connected as a RS232C port with the same utility.
- Plug and Play for USB is not supported.

8. Firmware Update History

Firmware Version	Details

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