Date:2008.1.20

MEASURING DISTANCE TYPE
Scanning laser range finder
UHG-08LX

INSTRUCTION MANUAL

△×						
					社	

Approved	Checked	Drawn	Designed	Title	Scanning laser range finder UHG-08LX Instruction Manual	
			Mori	Drawing No.		1/8

- NOTICE -

○Please keep this instruction manual on the side of operator and maintenance person.
○Be sure to read this instruction manual and relative documents carefully before installation, operation and maintenance. Operate correctly in accordance with the directions for use, information for safety and handling method of this device.
○Operate within the scope of specifications described on the specification manual and execute correct maintenance to prevent possible harm or malfunction.
○Don't remodel or dissemble the product. Dissembled products will not have the guarantee and may not be repaired.
○If you have incomprehensible items, questions and unclear points, please contact one of our branch offices referred on the last page.
○ The contents of this instruction manual have intellectual property right. It may not, in whole or part be revealed to any third party without prior written consent from the publisher.
○The contents in this instruction manual is subjected to change without prior notice for the purpose of improvement of the device.
○In case of malfunction, please contact the nearest branch office with the following information.
・The product name, model number, serial number, production date.
・Abnormal condition(details including condition before and after the malfunction)
○Sensor can not be repaired at the site. Please return it to our branch office nearest to you or head office.

Notice of safety

Be sure to read this instruction manual and relative documents carefully before installation, operation and maintenance of this device to operate correctly. Operate this device only after acquainting all the knowledge of device, safety notice and caution items. The caution items are rank as [Danger], [Caution], [Prohibition] and [Enforcement].

Results in a dangerous situation if misused leading to critical injury or death

Results in a dangerous situation if misused leading to minor or slight injury or cause physical damage.

May cause a dangerous situation if misused. Device informs an action prohibited.

May cause a dangerous situation if misused. Device informs an action enforced.

Note:
If the product bears the mark ⚠CAUTION, it is possible to cause more serious result according to situation . Keep the above mentioned notice without fail since these are very important.

1. Outline

UHG-08LX is a laser sensor for area scanning. The sensor's light source is infrared laser of wavelength 785nm. Scan area is 240° semicircle with pitch angle 0.36° . Sensor outputs the distance measured at every point. The sensor's maximum measurement is 8000mm with white Kent sheet of 250×250 mm. Laser beam divergence is 80mm at 8m.

The principle of the 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 surface gloss.

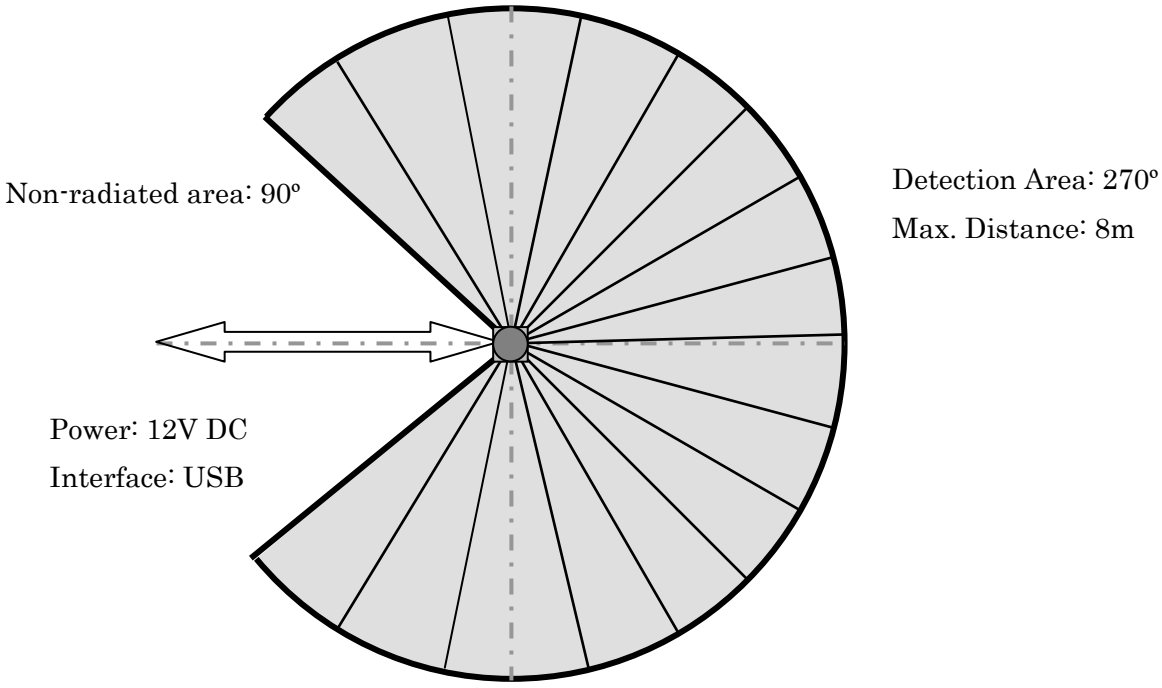


Figure 1

Attention:

The above figure shows the detectable area by the sensor for white Kent sheet. Detection distance may vary with objects.

2. Important Notice

Do not use as a safety device.
Do not use in military applications or military related research.
UHG-08LX is for indoor use only.
Read this instruction carefully before use.

3. Specifications

Product Name	Laser sensor for area scanning (Research Prototype)
Model	UHG-08LX
Light source	Semiconductor laser diode (λ=785nm), Laser safety Class 1 (FDA)
Power source	12V DC ±10%
Current consumption	300mA or less (Rush current 800mA)
Detection distance	50mm ~ 8000mm* (White sheet of 250mm width or more) (Refer the data provided with the sensor for the max. detection distance.)
Accuracy	Distance 100 ~ 1000mm: ±30mm* Distance 1000 ~ 8000mm: ±3% of measurement* (White sheet of 100mm width or more)
Precision	1 mm
Scan Angle	270°
Angular Resolution	0.36°
Scan Time	67msec/scan
Interface	USB Version 2.0 FS mode (12Mbps) SYNCHRONOUS OUTPUT ERROR OUTPUT
Ambient Conditions Temperature: Humidity:	-10 ~ 45°C 85% or less (without dew and frost)
Preservation temperature	-25 ~ 75°C
Ambient Light Resistance	Halogen, Mercury : Less than 10,000 Lx Fluorescent lamp : Less than 6,000 Lx Note: Measurement error may occur under direct 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	Case : IP40
Insulation Resistance	10MΩ for DC 500Vmegger
Weight	Approx. 500 g
Case	Polycarbonate
External dimension	88×83×83mm (OPTICAL BLOCK φ66MAX) C-40-3362

*Under standard test conditions.

4. Quality reference value

Vibration resistance at the time of use	19.6m/s^2 10Hz ~ 150Hz in 2 minutes sweep, 0.5 hours each for X, Y and Z direction
Impact resistance at the time of use	49 m/s^2, 10 times each for X, Y and Z direction
Turn corner speed	360 deg/s
Turn 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 Flying lead cable (2m)

SIGNAL	Lead Color
POWER 12V	BROWN
POWER 0V	BLUE
OUTPUT (SYNCHRONOUS)	PURPLE
OUTPUT COM+	BLACK
N.C.	GRAY
N.C.	PINK
N.C.	WHITE
N.C.	RED
N.C.	GREEN
N.C.	YELLOW

Note
1. Com+ and +V are connected inside the device (12V).
   Try to separate the power source as far as possible that may cause noise in the system.
2. Do not connect NC pins as it may cause damage to the device.

CN2 USB TYPEA (Flying lead cable 2m)

Note:
Refer specifications number C-42-3320B for communication protocol.

6. Control Signal

(1) Synchronous output

Synchronous output will supply one pulse/scan for 10msec (Figure 2).

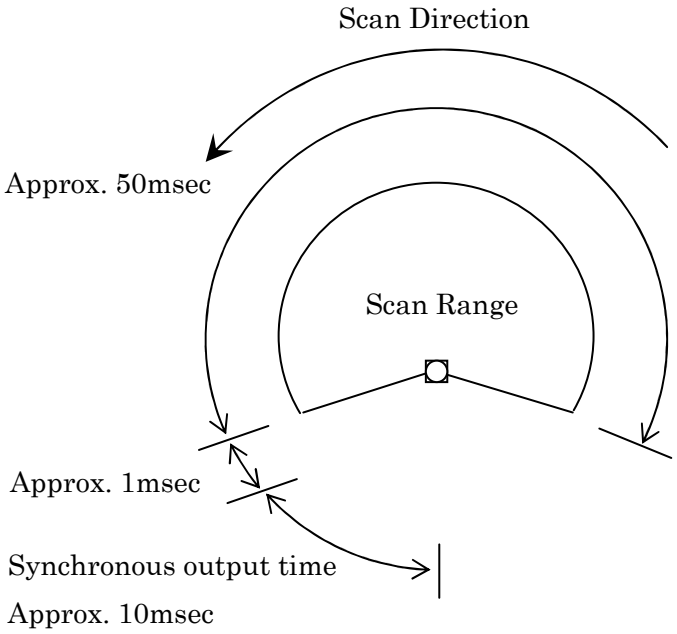
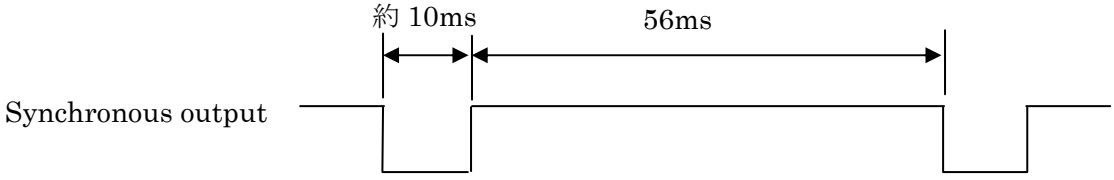


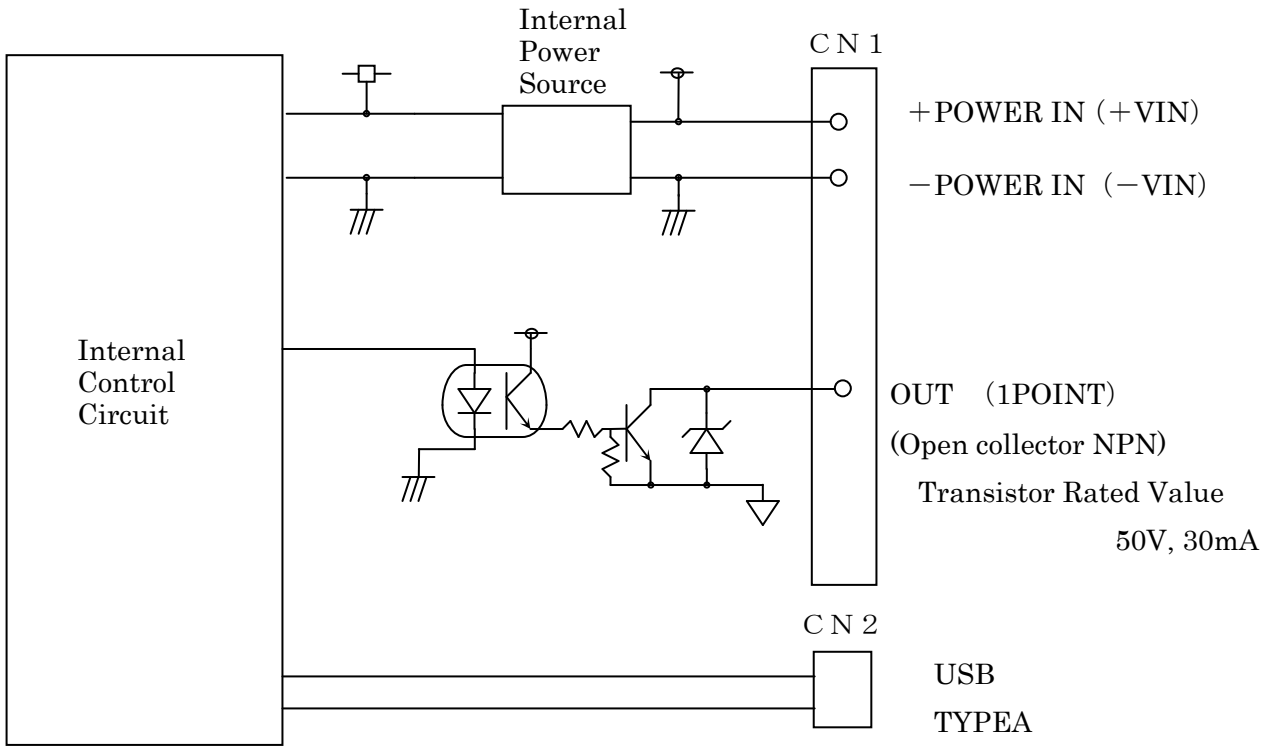
Figure 2



(2) Malfunction Output

All the outputs will be turned off during malfunction.
Confirm the malfunction by viewing the malfunction LED.
Malfunction can also confirmed using communication commands.

7. Output Circuit:



8. Notice:

Supply voltage is DC 12Volts. Sensor will damage if high voltage is supplied.

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-42-3320B) for details.

Direction of motor rotation is counter clockwise viewed from top

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.

9.External Design and Sensor Dimension

⚠	**CAUTION**
Use of controls, adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.