Date: Feb. 05, 2013

Scanning Laser Range Finder
Smart-URG mini
UST-10LX
Specification

| Symbol	Amended Reason				Pages	Date	Amended by	Ref.No
Approved by	Checked by	Drawn by	Designed by	Title	UST-10LX Specification			
Kamitani	Utsugi	Kamon	Yamamoto	Drawing No.	C-42-04045			1/6

1. General

This sensor uses a laser source to scan 270° field of view. Positions of objects in the range are calculated with step angle and distance. Sensor outputs these data through communication channel.

2. Structure
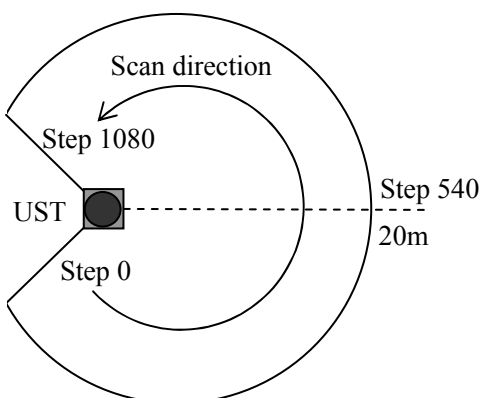
2-1.Strucure diagram
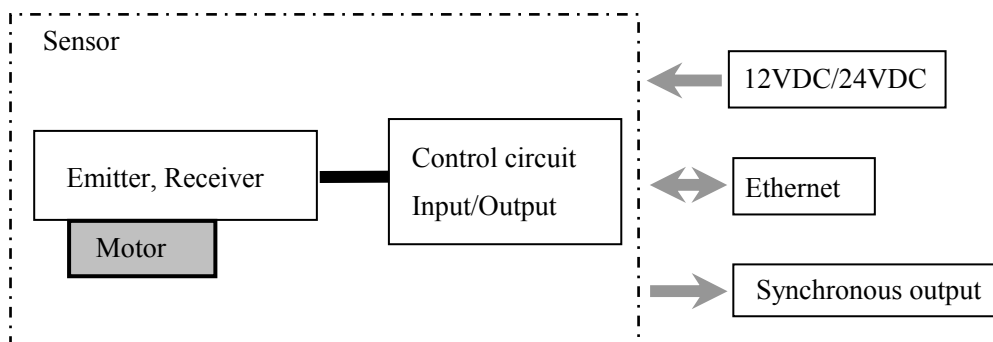
2-2. Laser scanning image

Measurement steps 1081

Detection angle 270°

Angular resolution 0.25°

3. Important notes

(1) This sensor is not a safety device/tool.

(2) This sensor is not for use in human detection.

(3) Hokuyo products are not developed and manufactured for the use in weapons, equipments or related technologies intended for destroying human lives or causing mass destruction. If such possibilities or usages are revealed, the sales of Hokuyo products to those customers might be halted by the laws of Japan such as Foreign Exchange Law, Foreign Trade Law or Export Trade control order. In addition, Hokuyo products are for the purpose of maintaining the global peace and security in accordance with the above law of Japan.

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4. Specifications

Product name	Scanning Laser Range Finder
Model	UST-10LX
Supply voltage	12VDC/24VDC (Operation range 10 to 30V ripple within 10% or less)
Supply current	Max. 150mA (Max. 300mA during startup)
Light source	Laser semiconductor (905nm) Laser class 1
Detection range	Guaranteed value : 0.06m to 10m (White Kent sheet) 0.06m to 4m (10% reflectance) Max. detection distance : 30m
Accuracy	±40mm (*1)
Repeated accuracy	$\sigma < 30mm$ (*1)
Scan angle	270°
Scan speed	25msec (Motor speed 2400rpm)
Angular resolution	0.25°
Start up time	Within 10sec or less from power on (However, the start time of the sensor varies according to the start state (malfunction state) of the sensor.)
Input	IP reset input, photo-coupler input (current 4mA at ON)
Output	Synchronous Output, Photo coupler open collector output 30VDC 50mA MAX.
Interface	Ethernet 100BASE-TX
LED display	Power supply LED display (Blue): Blinks during start up and malfunction state.
Ambient temperature and humidity	-10ºC to +50ºC 85%RH or less (Without dew and frost)
Storage temperature and humidity	-30ºC to +70ºC 85%RH or less (Without dew and frost)
Vibration resistance	10 to 55Hz Double-amplitude 1.5mm 2 hours each in X, Y and Z direction 50 to 200Hz 98m/s^2 (20G) each 2 minutes sweep, 1 hour in X, Y and Z direction
Protective Structure	IP65
Weight	130g (Without cable)
Dimensions (W×D×H)	50×50×70mm (sensor only)

(*1) Under the factory standard testing conditions using white Kent sheet.

5. Measurement Data

Distance Value (x)	Meaning
x < 21	Output numerical number "4" as Measurement error
21 ≦ x < 60000	Valid distance [mm]
x > 30000	Output numerical number "65533" as Measurement error (object does not exists or object has low reflectivity)

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6. Connection

6-1. Power source, I/O cable

Cable length: 1000mm Flying lead cable

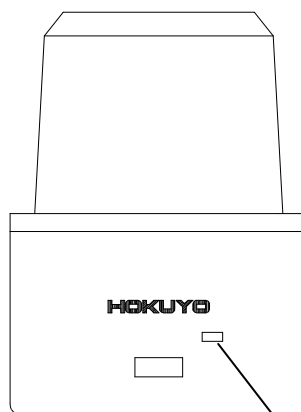| Color	Signal
Brown	+VIN (12VDC/24VDC)
Blue	-VIN
Orange	Synchronous Output
Gray	COM Output -
Light Blue	IP Reset Input
Red	COM Input +

Note: Direction of Inputs and Outputs are mentioned from the sensor's side.

6-2. Ethernet cable

Cable length: 300mm

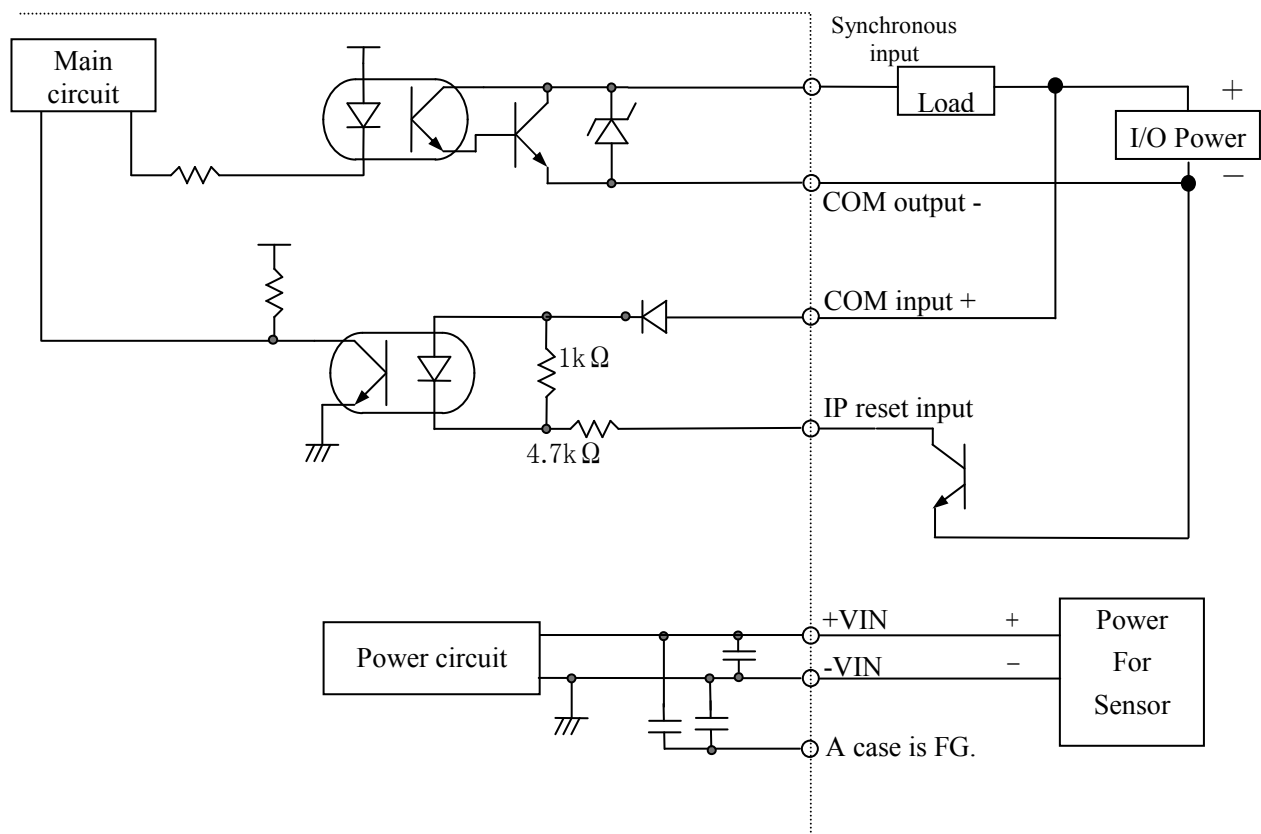| Color	Signal
Blue	TX+
White	TX-
Orange	RX+
Yellow	RX-

7. LED display

Power supply display

(Blinks during start up and malfunction state)

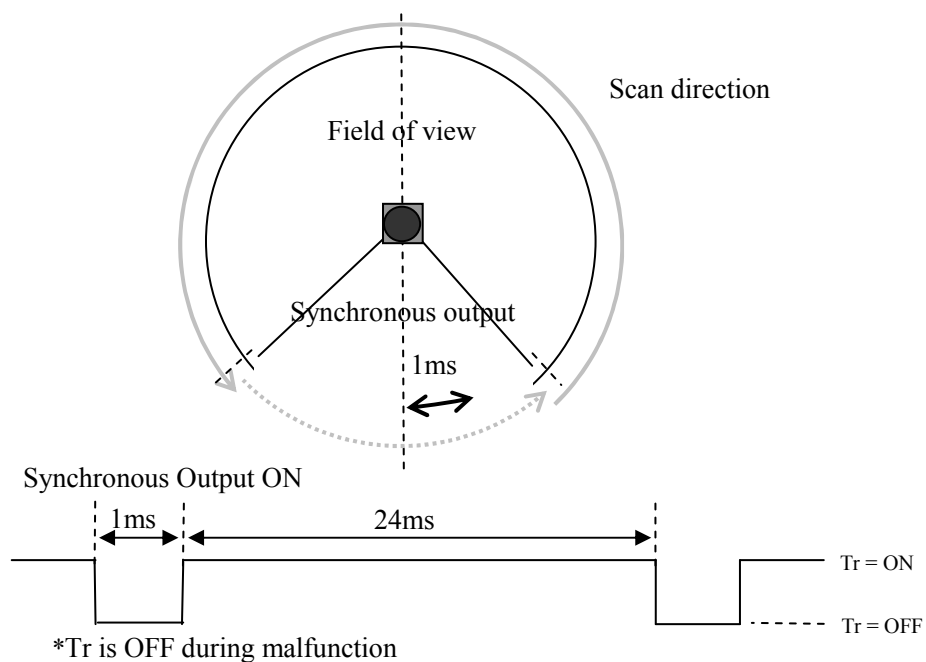| Title	UST-10LX Specification	Drawing No	C-42-04045	4／6

8. Output circuit

9. Control signal

9-1. Synchronous output

1 pulse is approximately 1ms. Output signal synchronization timing chart is shown as below.

10. Ethernet Setting

1. The setting value is as below.

   IP Initial value   :192.168.0.10

   Port number   :10940

2. About Initialization of IP address

   To reset IP address to the factory default value, connect IP RESET LINE to COM- for more than 2 sec.

   After IP RESET LINE disconnected from COM- or opened, the sensor LED blinks and the sensor start to reboot.

11. Cautions for operation

This sensor uses high speed processing components that generate heat during operation.

The heat is concentrated at the bottom of the unit. When mounting, please attach the bottom of the unit to a good heat sink. A 200mm x 200mm x 2mm aluminum plate is recommended as a heat sink.

If multiple sensors are installed side by side, a sensor might mistake the laser pulses of other units as its own and the detection error occurs. When it happens, usually the error lasts for one or two steps of measurement. Please use software filters to handle this type of error.

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