

# Scanning Laser Range Finder

## UBG-04LX-F01 FDA approval

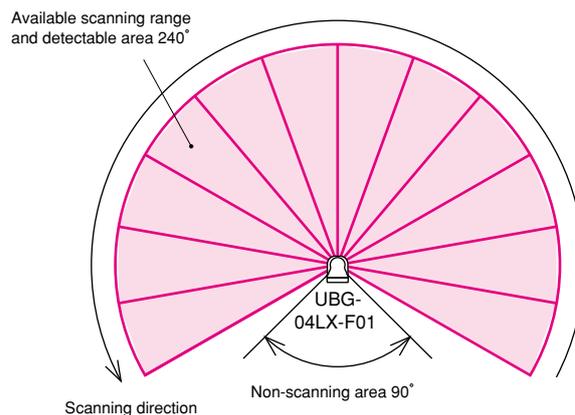
### Scanning speed is 3 times faster than URG-04LX!

UBG-04LX-F01 is a 2-dimensional laser sensor for measuring the distance to the objects.

- 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.
- Scanning speed (28msec) is 3 times faster than conventional models.



### System structure



note) The above figure shows the detectable area for white Kent sheet (80mm×80mm) and max. distance is 4m. Detection distance may vary with size and object.

### Specifications

Kinds	Data output type (serial type)
Model No.	UBG-04LX-F01
Power source	12VDC $\pm$ 10%
Current consumption	370mA or less (rush current approx.700mA)
Light source	Semiconductor laser diode $\lambda$ =785nm (FDA approval, Laser safety class 1)
Detectable object	80×80mm white sheet
Scanning range	0.06 to 4m
Scanning accuracy*	0.06 to 1m: $\pm$ 10mm, 1 to 4m: 1% of measuring distance
Scanning angle	240°
Resolution	Approx.1mm
Angular Resolution	Step angle: approx.0.36° (360° /1,024 steps)
Beam diameter	Approx. $\phi$ 40mm (at 4m)
Scanning time	28msec/scan
Interface	USB2.0 (Full Speed) RS-232C (19.2k, 57.6k, 115.2k, 250k, 500k, 750kbps)
Communicating specifications	Exclusive command (SCIP Ver.Ver.2.0)
Output	Photo-coupler/NPN open-collector output (30VDC 50mA or less) Synchronous output and malfunction output
Indication lamps	Power lamp (green): Blinking when starting up or malfunction Operation lamp (red): Blinking when normal operation
Connection	USB connector mini 5 pins, cable 1m

<b>Ambient illuminance</b> <small>note)</small>	Sunlight/Halogen/mercury lamp: 10,000lux or less, incandescent lamp: 6,000lux or less
<b>Ambient temperature</b>	-10 to +50°C (-25 to +75°C when stored)
<b>Ambient humidity</b>	85%RH or less, not icing, not condensing
<b>Insulation resistance</b>	10MΩ 500VDC megger
<b>Vibration resistance</b>	Double amplitude 1.5mm, 10 to 55Hz, each 2 hour in X, Y and Z directions
<b>Impact resistance</b>	196m/s <sup>2</sup> , each 3 time in X, Y and Z directions
<b>Protective structure</b>	IP40 (IEC standard)
<b>Life</b>	5 years (motor life, vary depending on use conditions)
<b>Noise</b>	25dB or less (at 300mm)
<b>Case materials</b>	Front of case: Polycarbonate, back of case: ABS resin
<b>Weight</b>	185g (260g including cable 1m)

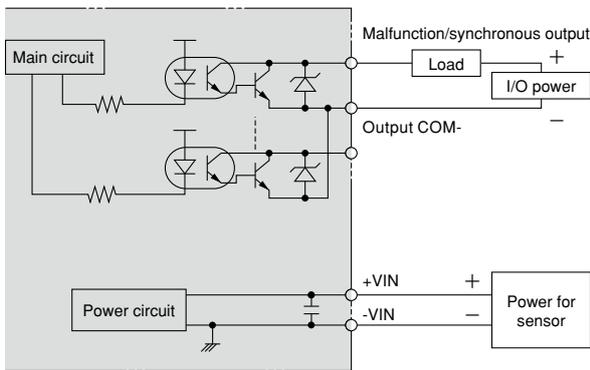
\*Accuracy is a value when shipment.

Note) It may malfunction when receiving strong light like sunlight etc. directly.

- Note** This sensor is not a safety device/tool.
- Note** This sensor is designed for indoor use only.
- Note** This sensor is not for use in military applications.

## Connection

### Output circuit



### Wiring table

#### ● Power/interface cable

Cable colors	Signals
Red	Output common -
White	Malfunction output
Black	Synchronous output
Purple	GND (5P of 9-pin D-sub connector)
Yellow	RxD (3P of 9-pin D-sub connector)
Green	TxD (2P of 9-pin D-sub connector)
Blue	-VIN 0V
Brown	+VIN (12VDC)

Note) GND and 0V are connected inside the sensor.

Note) 0V and output common - are isolated.

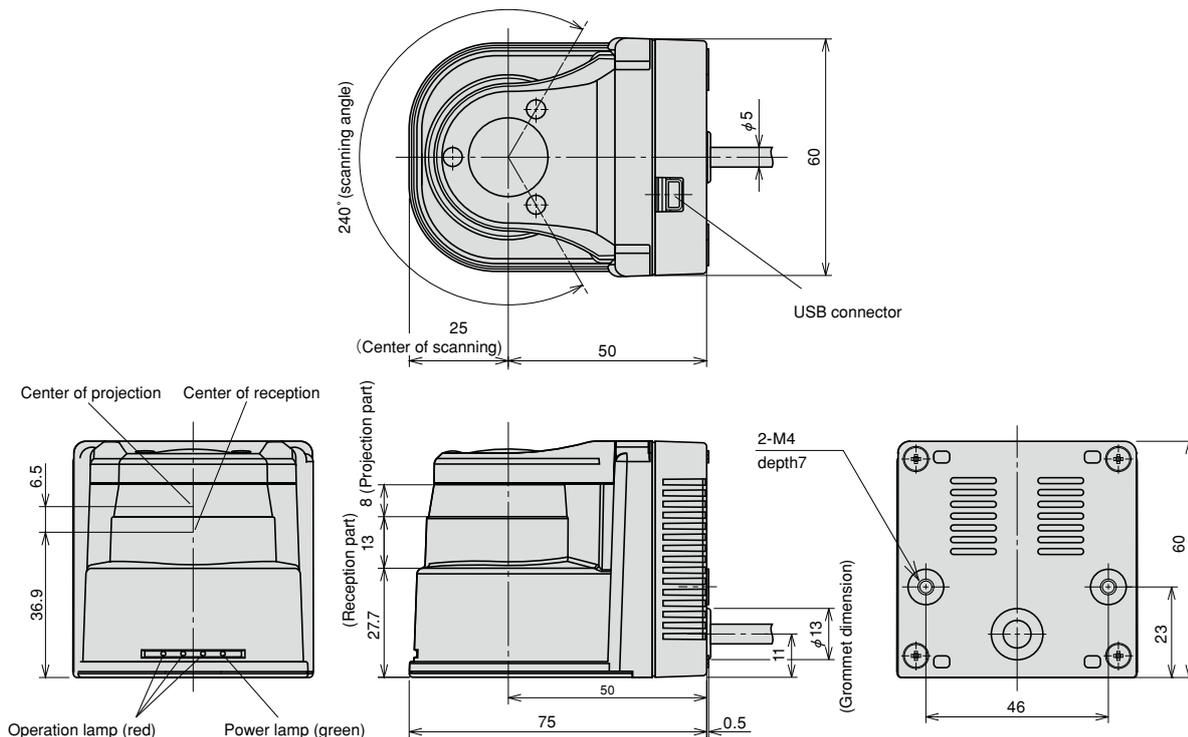
Note) Connector (PHR-8 JST made) is attached when shipment. Don't use only for operating check.

**Note** I/O direction is on the basis of URG.

#### ● CN USB-miniB (5P)

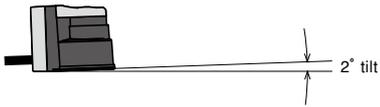
USB cable is not attached. Use on-specification products.

## External dimension

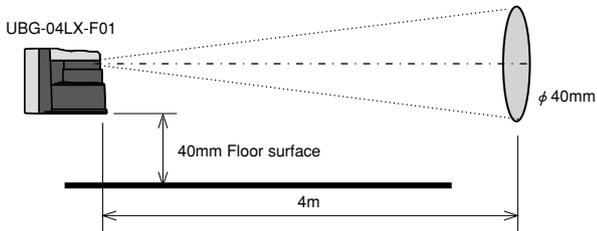


**Caution for installation**

(1) In case that mutual interference would occur, tilt it downward/ upward with 2° or more.



- (2) When installation, don't close light-projection/reception window or interrupt area.
- (3) Don't make a wiring with high-voltage line or load line because of avoiding noise or surge induction.
- (4) Install it 40mm or more away from floor. If 40mm or less, install it 1° upward. Spread of sensor beam is  $\phi 40\text{mm}$  (Reference value) at 4m.



**Supplement**

- Scanning direction is counterclockwise from topview.
- About RS-232C connection  
It may not communicate correctly if baud rate is 500kbps or more because of the compatibility between host and URG.
- About USB driver  
It is connected as software COM port through CDC (Communication Device Class). It can be handled as well as COM port from application program of host. But this doesn't provide plug & play function.