

LASER RANGE FINDER  
UXM-30LN  
SPECIFICATIONS



**Europe's Official HOKUYO Distributor**

1010 Cambourne Business Park, Cambridge, CB23 6DP UK.

Tel +44 (1223) 923 930 : Fax +44 (1223) 923 940  
info@sentekeurope.com : www.sentekeurope.com

| Symbol      | Amended reason |          |             | Pages | Date  | Corrector | Amended No. |
|-------------|----------------|----------|-------------|-------|---|-----------|-------------|
| Approved by | Checked by     | Drawn by | Designed by | Title | Laser Range Finder<br>UXM-30LN Specifications |           |             |
| KAMITANI    | KAMITANI       | KAMON    | KAMON       |       |   |           |             |

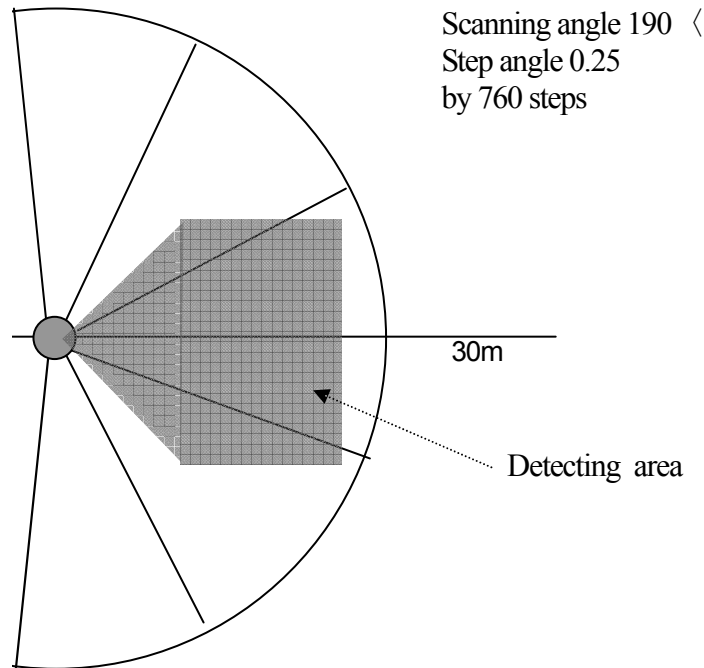
## 1. General

Operating principle

\*This device uses laser source ( $\lambda = 905\text{nm}$ ) to scan semicircular field. It measures distance to objects in the range and co-ordinates of those point calculated using the step angle and it detects an object in the setting area.

\*Laser is Class 1.

## 2. Structure(Light scanning image)



## 3. Disclaimer

\*This is not a safety device/tool

\*This is not for use in military or relative applications.

\*Make sure to read this specifications carefully before use.

## 4. Specifications

|                            |   |
|----------------------------|---|
| Kind                       | Laser Range Finder  |
| Model No.                  | UXM-30LN  |
| Light source               | Semiconductor laser( $\lambda=905\text{nm}$ ), Laser safety class 1(FDA)  |
| Supply voltage             | 24VDC $\pm$ 10%   |
| Supply current             | Max.0.8A, normal : 0.3A or less   |
| Power consumption          | 15W or less   |
| Detection Range and object | Guaranteed range : 0.1 $\times$ 30m <sup>*2</sup> (Black objects with 10% reflectance)<br>Min. objects : Z 10mm(at 6m), Z 20mm(at 10m), Z 130mm(at 30m)   |
| Accuracy                   | 3,000lux or less : $\pm$ 50mm <sup>*1</sup> : black objects with 10% reflectance(at 10m)<br>100,000lux or less <sup>*2</sup> : $\pm$ 100mm <sup>*1</sup> : black objects with 10% reflectance(at 10m) |
| Resolution/repeatability   | 1mm unit<br>3,000lux or less : $\sigma = 10\text{mm}$ (white paper up to 10m)<br>100,000lux or less : $\sigma = 30\text{mm}$ (white paper up to 10m)  |
| Scanning angle             | 190 $\angle$  |
| Angular resolution         | Approx.0.25 $\angle$ (360 $\angle$ /1,440)  |

Title

Laser Range Finder  
 UXM-30LN Specifications

Drawing  
 No.

C-42-3686

2/4

#### 4. Specifications

|                              |   |
|------------------------------|---|
| Scanning speed               | 50msec(Motor rotating number 1200rpm)   |
| Interface                    | USB Ver2.0 FSmode(12Mbps)   |
| Output                       | 2 pcs : Detection output, malfunction output<br>LED : power(green), detection/warning(orange), lights up when detecting, blinks when malfunctioning                                   |
| Ambient temperature/humidity | -10 to +50 <sup>mm</sup> , 85%RH or less(Not condensing and icing)  |
| Temperature when storing     | -25 to +75 <sup>mm</sup> ,  |
| Environmental effect         | Measured distance will be shorter than the actual distance under rain, snow and sunlight*2.   |
| Vibration resistance         | 10 <sup>mm</sup> 55Hz, double amplitude 1.5mm Each 2 hour in X, Y and Z directions<br>55 <sup>mm</sup> 200Hz, 98m/s <sup>2</sup> , sweep 2 min., Each 1 hour in X, Y and Z directions |
| Impact resistance            | 196m/s <sup>2</sup> (10G) Each 10 time in X, Y and Z directions   |
| Protective structure         | IP64  |
| Insulation resistance        | 10M <sub>Ω</sub> , 500VDC megger  |
| Weight                       | 800g  |
| Material                     | Front case : Polycarbonate, rear case : Aluminum  |
| External dimension           | 120mm <sup>mm</sup> 125mm <sup>mm</sup> 146mm(MC-40-3176)   |

\*1 Accuracy can not be guaranteed under direct sunlight.

\*2 Make sure to confirm the sensor functions under operating environment.

#### 5. Quality reference value

|                                     |  |
|-------------------------------------|--|
| Vibration resistance when operating | 10 <sup>mm</sup> 150Hz, 19.6m/s <sup>2</sup> , sweep 2 min., Each 30 min. in X, Y and Z directions |
| Impact resistance when operating    | 49m/s <sup>2</sup> (10G) Each 10 time in X, Y and Z directions                                     |
| Angular Speed                       | 2 <sup>mm</sup> /s(1Hz)  |
| Angular Acceleration                | <sup>mm</sup> /2rad/s <sup>2</sup>   |
| Life                                | 5 Years (Varies with operating conditions)   |
| Noise                               | 25dB or less(at 300mm)   |
| Certification                       | FDA Approval (21 CFR part 1040.10 and 1040.11)   |

#### 6. Interface

(1) 8 cores robot cable with 2m

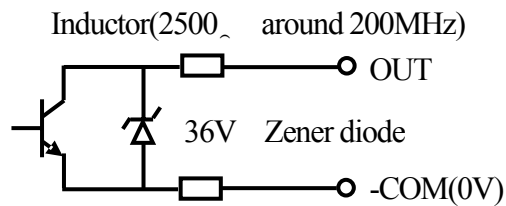
| Colors | Functions             |
|--------|-----------------------|
| Brown  | Power +24V            |
| Blue   | Power 0V              |
| Green  | Detecting output      |
| White  | Warning output        |
| Black  | For output 0V(common) |

(2) USB connector type A

SG for communication and GND are connected inside (Isolated with Input -VIN). Isolate the device from any connections which generate the electric noise. This sensor is compatible with SCIP2.0 protocol standard.

|       |   |                |           |     |
|-------|---|----------------|-----------|-----|
| Title | Laser Range Finder<br>UXM-30LN Specifications | Drawing<br>No. | C-42-3686 | 3/4 |
|-------|---|----------------|-----------|-----|

### (3) Output circuit



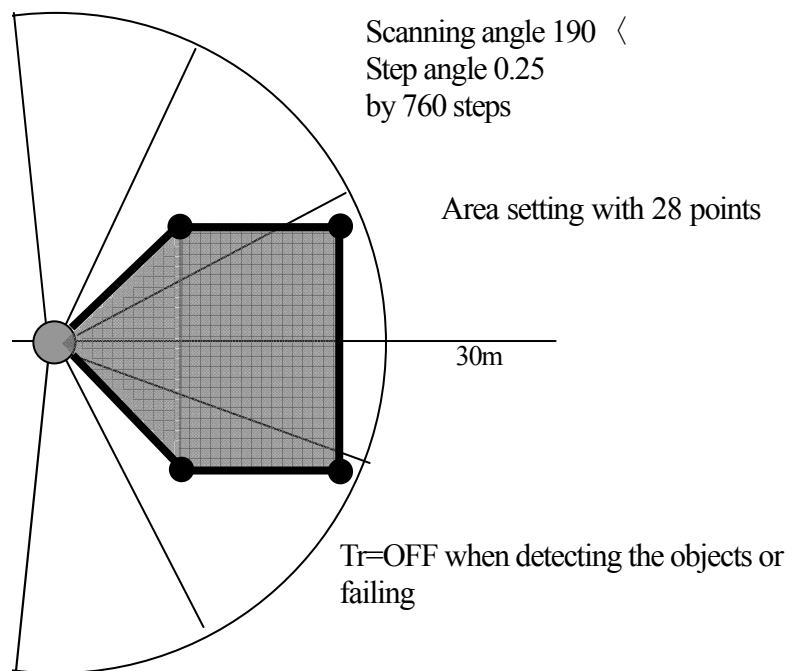
## 7. Control signal

### Detection output

- \* Output is switched off when any objects are detected inside the pre-set area (Output is ON when there are no objects).
- \* Setting area can be set with 28 points.
- \* Min. detection objects can be set from 10mm to 1,000mm.
- \* Dead-zone at near side can be set from 0 to 1,000mm.(under development)

Note) When lens surface is covered by dirt or water droplet, it can remove its signals by using this function.  
However, it may not detect them sometime because any objects in setting dead-zone become shadow.  
Make sure to set in accordance with the environment.

### Example)



## 8. Malfunction output

(1) Laser malfunction : When laser does not radiate or exceeds safety class 1.

(2) Motor malfunction : When rotation speed is not 1,2000rpm.

When malfunctioning, output is turned to OFF state and it stop radiating the laser beam and rotating the motor.  
Error analysis can be done via communication.