

Hokuyo UST-20LX

The Hokuyo UST-20LX scanning laser rangefinder is a small, accurate, high-speed device for obstacle detection and localization of autonomous robots and automated material handling systems. This model uses Ethernet interface for communication and can obtain measurement data in a wide field of view up to a distance of 20 meters with millimeter resolution. Due to its low power consumption, this scanner is able to be used on battery-operated platforms.



Features

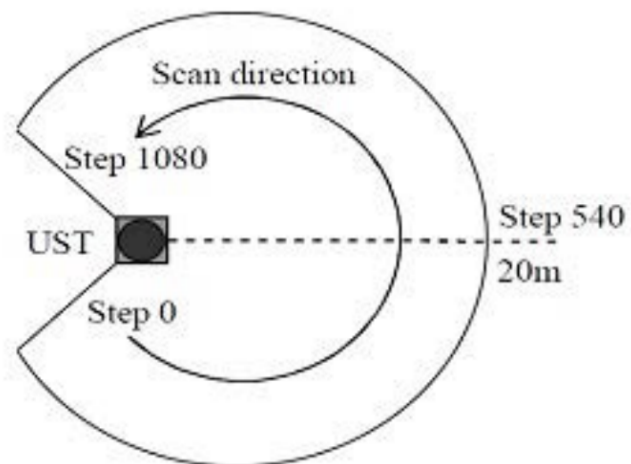
- The smallest and the lightest of its kind, 130g
- Mid-detection range 10m/20m
- Wide detection angle 270°
- Fast response 25msec
- High angular resolution 0.25°
- It is possible to detect size, position and the moving direction of objects

Laser scanning image

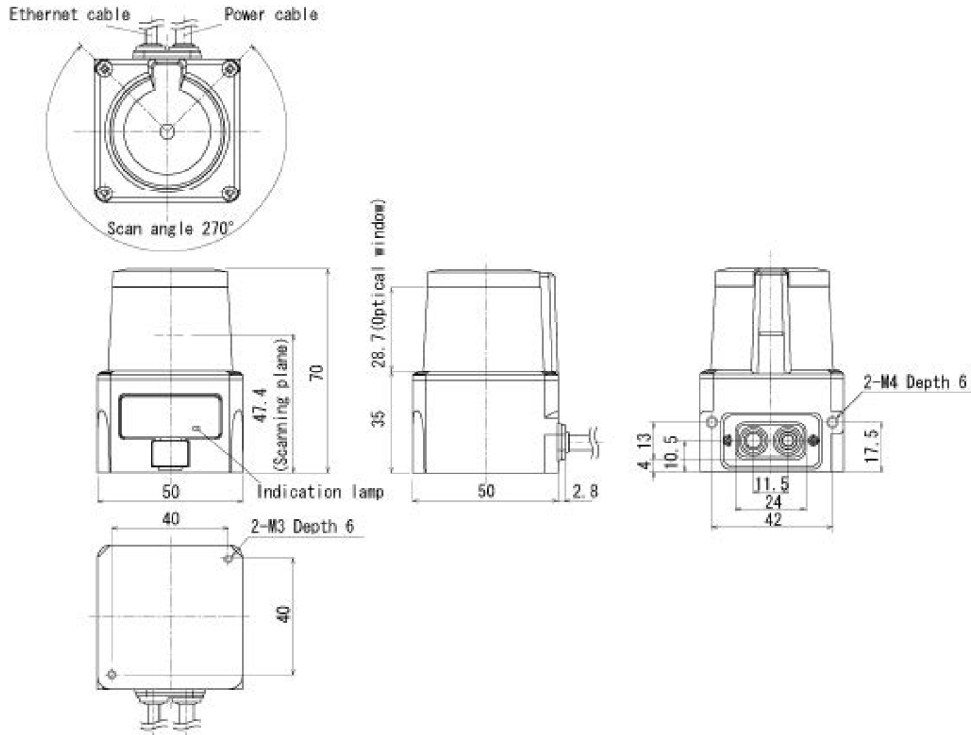
Measurement steps 1081

Detection angle 270°

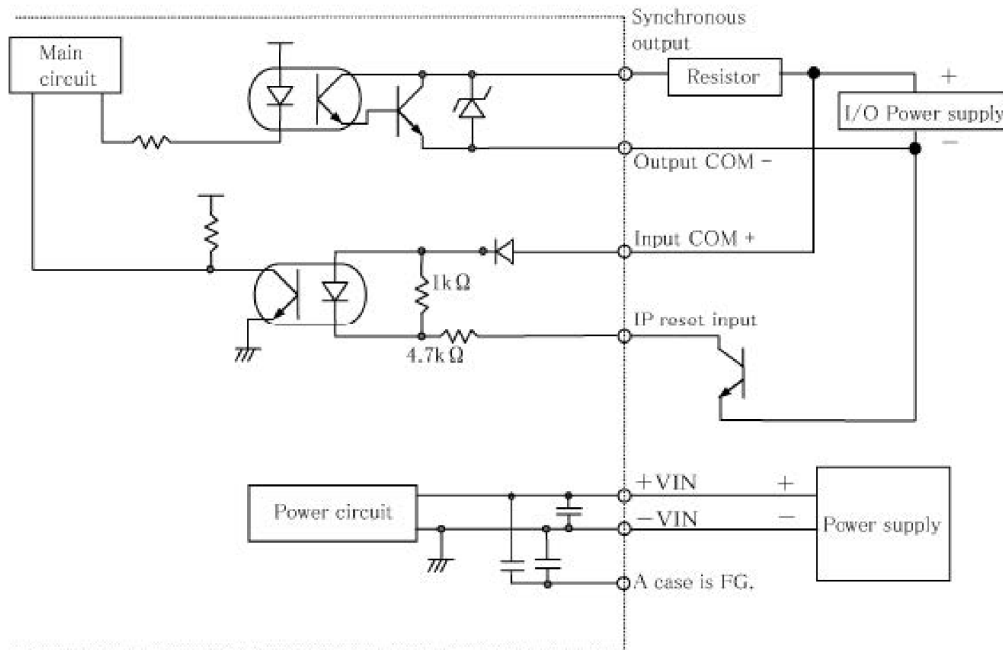
Angular resolution 0.25°



External dimensions



Output circuit



Connection

Power source I/O cable

Cable length: 1,000 mm flying lead cable (AWG28)

Color	Signal
Red	COM input+
Gray	COM output-
Light blue	IP reset input
Orange	Synchronous output
Brown	+VIN (12 VDC / 24 VDC)
Blue	-VIN

Ethernet cable

Cable length: 300 mm

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

Applications

Autonomous robots



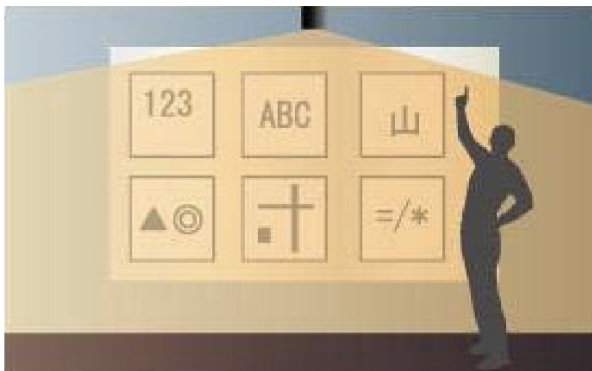
Environmental recognition

Unmanned aerial vehicle



Small and light enough to mount on UAVs for environmental recognition

Air touch panel



Projecting image linked with hands' motion

Interactive exhibit



Interactive attraction

People counting



Counting the number of visitors at public facilities for marketing purposes

Analysis of human movement patterns



Adjusting air-conditioning and lighting depending on the density of people for energy saving

Specifications

Product name	Scanning Laser Range Finder	
Model	UST-10LX	UTS-20LX
Supply voltage	DC 12V / DC 24V (operation range 10 to 30 V ripple within 10%)	
Supply current	150 mA or less (during start up 450 mA is necessary)	
Light source	Laser semiconductor (905 nm), laser class 1 (IEC60825-1:2007)	
Detection range	0.06 m to 10 m (white Kent sheet) 0.06 m to 4 m (diffuse reflectance 10%) Max. detection distance: 30 m	0.06 m to 20 m (white Kent sheet) 0.06 m to 8 m (diffuse reflectance 10%) Max. detection distance: 60 m
Accuracy	± 40 mm *1	
Repeated accuracy	σ < 30 mm *1	
Scan angle	270°	
Scan speed	25 ms (motor speed 2,400 rpm)	
Angular resolution	0.25°	
Start up time	Within 10 sec (start up time differs if malfunction is detected during start up)	
Input	IP reset input, photo-coupler input (current 4 mA at ON)	
Output	Synchronous output, photo coupler open collector output 30 VDC 50 mA MAX	
Interface	Ethernet 100BASE-TX	
LED display	Power supply LED display (blue): Blinks during start up and malfunction state	
Surrounding intensity	Less than 15,000 lx Note: Avoid direct sunlight or other illumination sources as it may cause sensor malfunction	
Ambient temperature and humidity	-10° C to +50° C, below 85% RH (without dew, frost)	
Storage temperature and humidity	-30° C to +70° C, below 85% RH (without dew, frost)	
Vibration resistance	10 to 55 Hz double amplitude of 1.5 mm for 2 hrs in each X, Y and Z direction 55 to 200 Hz 98 m/s ² sweep of 4 min for 1 hr in each X, Y and Z direction	
Vibration resistance (operating)	55 to 150 Hz 19.6 m/s ² sweep of 2 min for 30 min in each X, Y and Z direction	
Shock resistance	196 m/s ² (20G) X, Y and Z direction 10 times	
EMC standards	(EMI) EN61326-1 : 2013 EN55011 : 2009 + A1 : 2010 (EMS) EN61326-1:2013 EN61000-4-2:2009 EN61000-4-3:2006 + A1 : 2008 + A2 : 2010 EN61000-4-4:2012 EN61000-4-6:2009 EN61000-4-8:2010	
Protective structure	IP65	
Weight	130 g (excluding cable)	
Material	Front case: polycarbonate; Rear case: aluminum	
Dimensions (W × D × H)	50 × 50 × 70 mm (sensor only)	

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