

LS01 Safety Laser Scanner

NEW

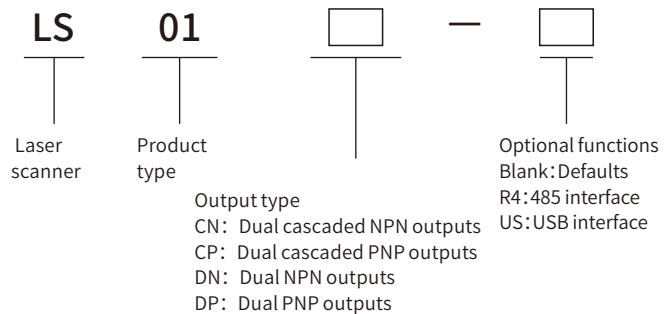


Product features

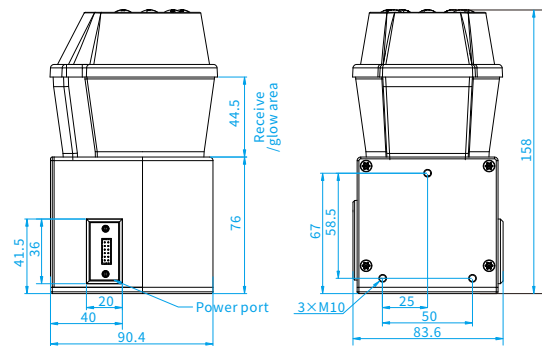
The LS01 series safety laser (radar) scanners are based on the laser ranging TOF method (time-of-flight method) to determine the position of protected objects in the scanning area, in accordance with EN 61496-1/3, ISO 13849-1PLd, with the following characteristics:

- ◆ Has 270° scanning range;
- ◆ Configure the LS01 from a laptop or computer;
- ◆ Different areas can be set (warning area, danger area);
- ◆ Communication interface: USB, 485 (special 485 cable accessories required, Please refer to the appendix);
- ◆ With a variety of input/output modules, easy input/output type switching;
- ◆ With 2 OSSD outputs and 1 AUX output, OSSD output and AUX can indicate different zone types, etc;
- ◆ Output overload protect;
- ◆ With product operating status OLED display and LED display;
- ◆ Product features can be configured via keystrokes;
- ◆ High efficiency, good concealment, strong anti-interference ability, small size, light weight and reliability.

Selection guide




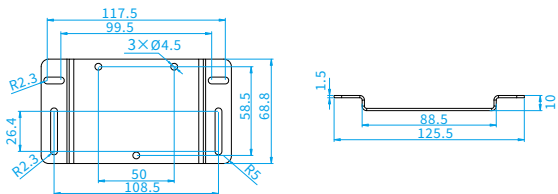

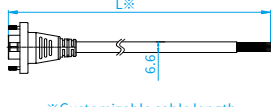

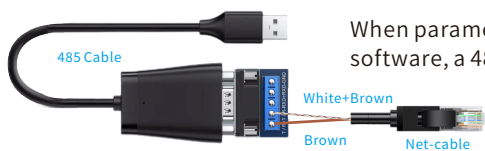
Installation dimensions



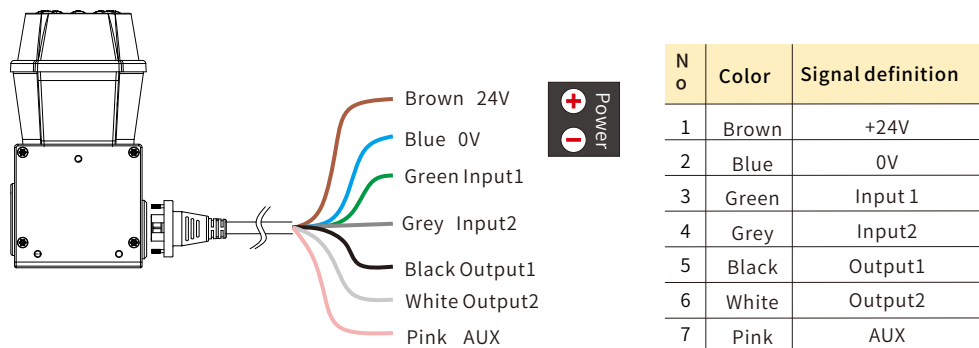
LS01 Series Safety Laser Scanner Selection Guide

Model	Specification	Order number
LS01CN	Dual cascaded NPN outputs	LOT1588490CN
LS01CP	Dual cascaded PNP outputs	LOT1588490CP
LS01DN	Dual NPN outputs	LOT1588490DN
LS01DP	Dual PNP outputs	LOT1588490DP

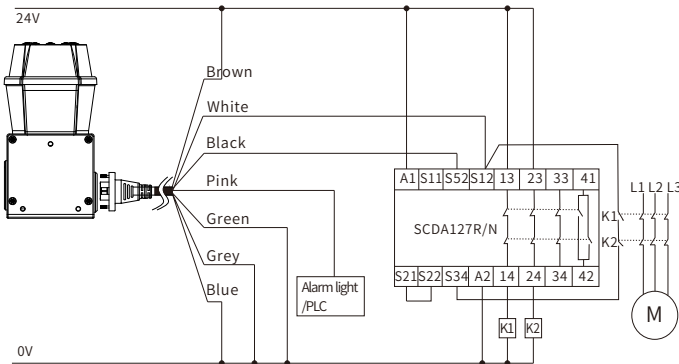
Accessories Selection Guide

Type	Name	Style+Model	Dimension	Order number	NO.
Brac-ket		 Model: LS01-ZJ01		LOT1256915ZJ01	1
Power Cord		 Model: LS01-XC03	 Cable model description LS01 - XC 03 Product type Cable Cable Length 03: 3m 05: 5m 10: 10m ※Customizable cable length	LOTLS01XC03	1
Configuration tool	USB Cable	 Model: LS01-DU	When parameterizing the product using PC software, a USB cable can be used.	LOTLS01DU001	1
	485 Cable	 Model: LS01-485X	When parameterizing the product using PC software, a 485 cable can be used.	LOTLS01485X01	1

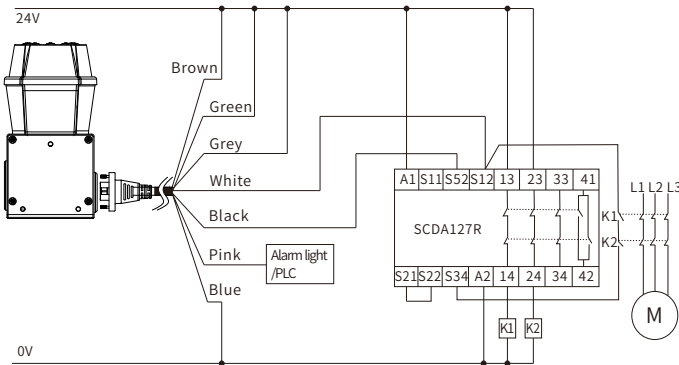
Interface signal definition



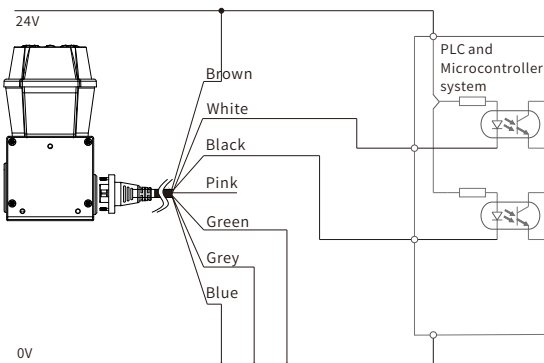
LS01 NPN type output and SCDA127R/N application wiring example diagram



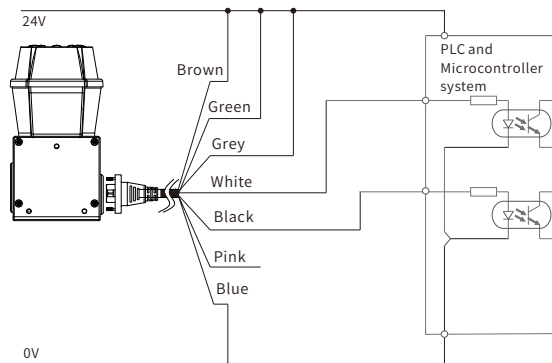
LS01 PNP type output and SCDA127R/N application wiring example diagram



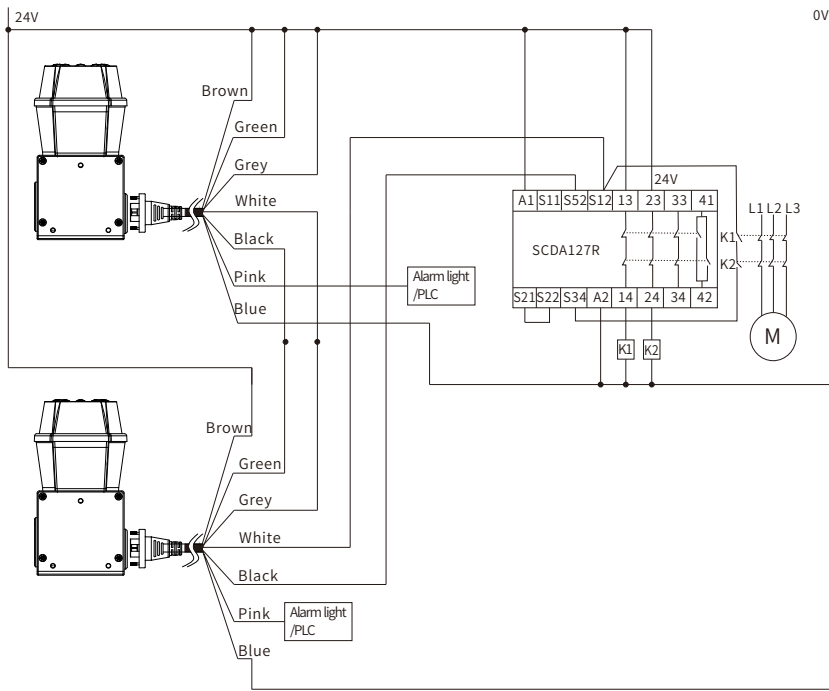
LS01NPN type output and PLC application wiring example diagram



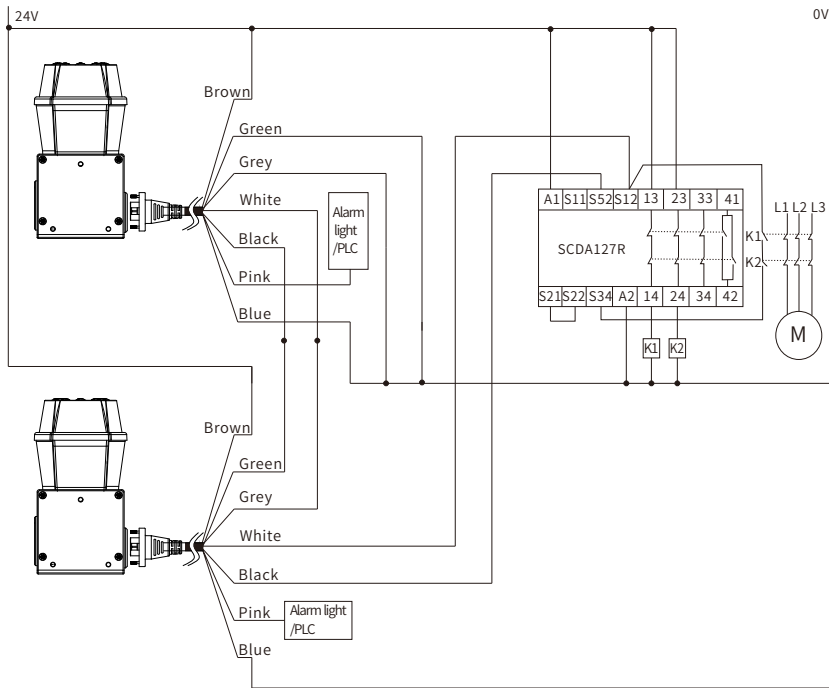
LS01PNP type output and PLC application wiring example diagram



LS01 PNP type output multi-set cascade with SCDA127R application wiring example



LS01 series NPN type output multi-set cascade with SCDA127R application wiring example

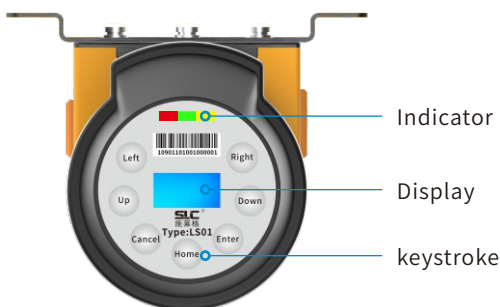


Product parameters


































Project	Parameters
Safety standards	Class I per EN60825-1 Type 3 per EN61496-1、EN61496-3 PLd per ISO13849-1
Minimum detection object diameter	Diameter 30、40、50、70、150mm (Depend on settings)
Blind spots	100mm
Detectable angle	270° (-45°~225°)
Resolution	0.5°
Response time (ON to OFF)	Default 120ms (80ms-400ms can be set)
Recovery time (OFF to ON)	Default 120ms (80ms~400ms can be set)
Standard scan cycle	40ms
Maximum monitoring area	50m (Standard white reflector)
Maximum detection distance (Diameter 45mm test piece)	4m
Light type	905nm Infrared laser
Laser classification	Class 1 IEC/EN 60825-1:2014
Rated supply voltage	24V Dc ± 10%
Consumption	Maximum 10W (without load)
Output mode	Two PNP or NPN (can be set according to software)
Maximum load current	100mA
Residual voltage (during OFF)	Max 2.5V
Maximum voltage drop in ON state	2.0V
Maximum leakage current (OFF)	100uA

Project	Parameters
Maximum capacitive load	1μF
Maximum cable length	20m
Enclosure protection	IP65
Operating ambient temperature	-10°C~+50°C (no freezing)
Storage ambient temperature	-25°C~+60°C (no freezing)
Operating relative humidity	35-85%RH (non-condensing)
Storage relative humidity	35-95%RH
Ambient light incandescent lamp	1500lx or below vibration
Vibrate	10~55Hz, 0.7mm composite banner, 20 sweeps each in the X, Y, and Z directions
Shock	100m/s ² (约10G) 16ms Pulse, 1000 times in each axis in the X, Y, and Z directions
Material	Main device (internal bracket die-cast aluminum, housing stainless steel) Face Shield PC

LS01 Safety Laser Scanner LED Status



Indicator:
Indicates the operating status of the product, there are three colors: red, green and yellow.

LED status during normal operation			
Red Light	Green Light	Yellow Light	Product status
Always on 	Extinguish 	Slow flash 	An object is detected in the alert area
Always on 	Extinguish 	Flash up 	An object is detected in the danger zone
Always on 	Slow flash 	Extinguish 	No cascade input signal, output off
Extinguish 	Always on 	Extinguish 	There is a cascade input signal and the output is on
Flash up 	Extinguish 	Extinguish 	EEPROM authentication failure
Flash up 	Extinguish 	Flash up 	SPI communication failure
Flash up 	Extinguish 	Slow flash 	Motor failure or optocoupler failure
Flash up 	Alternating flash flashes 		Laser emission related failures※
Flash up 	Alternating Slow flash 		Failure related to laser reception※
Slow flash 	Extinguish 	Extinguish 	OSSO output overload fault
Slow flash 	Slow flash 	Extinguish 	Power supply failure (exceeding 16.6V~29.7V)

※Laser emission related faults, emission temperature detection failures, emission bias adjustment failures, emission circuit failures;

※Laser reception-related faults, receiving temperature detection faults, receiving bias adjustment faults, and summarizing period ranging self-test faults.

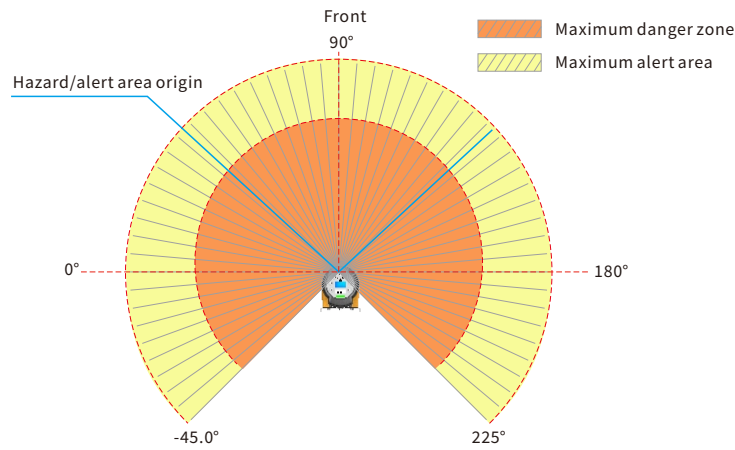
LS01 safety laser scanner danger areas and warning area

◆ Danger areas

By default, when LS01 detects an object in a hazardous area, OSSD performs an "off" or "on" operation according to the status setting indicated by OSSD.


◆ Warning area

The setting of the warning area can be distinguished from the danger zone. - As a general principle, the alert area setting needs to be larger than the hazardous area area, and OSSD cannot indicate the warning area. When an object enters the danger zone, a warning signal can be sent to the outside world, which can prevent unnecessary stops of the rear end equipment.



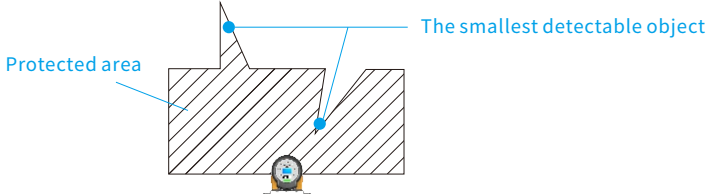
The distance of the settable danger zone/warning area varies with the minimum detected object size:

Minimum detected object size(mm)	Ø30	Ø40	Ø50	Ø70	Ø150
Maximum distance(m)	3.4	4.5	5.7	8.0	



Warn

- ◆ The hazardous area must be set to ensure a minimum safety distance, which is calculated in accordance with the laws, regulations and standards of the country and region where LS01 is installed;
- ◆ The LS01 cannot show any objects behind the objects it detects in the danger zone (this is the blind zone of the LS01). When installing LS01, the person in charge must take this factor into account when conducting the insurance assessment. If necessary, the person in charge must take additional countermeasures;
- ◆ As shown in the figure below, if the minimum detectable object cannot be contained in its entirety within the protected area, it cannot be detected, and you must set the protected area to ensure that the minimum detectable object can be contained in the entire protected area everywhere;

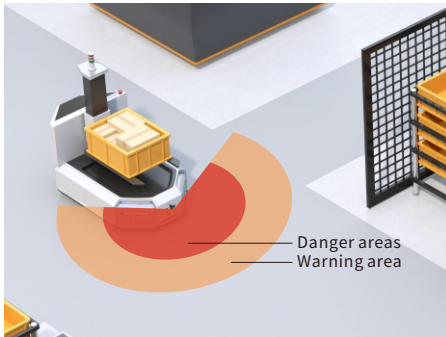


The diagram shows a hatched 'Protected area' with a 'The smallest detectable object' (blue dot) partially outside its boundary. A laser scanner is shown at the bottom center of the protected area.

- ◆ Even if the object is smaller than the smallest detected object, it may be detected, but this is not guaranteed.
- ◆ If the smallest detectable object cannot be contained in its entirety in the guard area, detection cannot be performed in the guard area. You must set the guard area so that the minimum detectable object can be contained in its entirety everywhere in the guard area.

LS01 laser scanner application example

AGV application



As shown, first use the LS01 Configurator to set the danger or warning zone (the red box area in Tushen). Then set OSSD to indicate danger areas or warning areas. When something is detected in the area OSSD turns on (or off) the output according to the set state, and controls the AGV device to stop or perform other operations.

Plant personnel protection

As shown, first use the LS01 Configurator to set the danger zone (red area in the figure) or the warning area (yellow area in image). Then set OSSD to indicate the danger area and AUX1 to indicate the warning area. When the warning area detects that someone has entered, the AUX1 turns on (or off) according to the settings, giving a warning prompt.

When a person is detected in the danger area, OSSD shuts down according to the settings and the control machinery shuts down.

