



## Laser Sensors DELSseries



### User Manual

Thank you for choosing Degson products. Please read this manual carefully before using the product. For your convenience, please keep this manual properly so that you can refer to it at any time.

### symbol

The following symbols are important reminders in this manual. Please be sure to comply with the following.

	Indicates that if you ignore this mark and operate incorrectly, it may cause death or serious injury. In addition, you may suffer significant material damage.
	There is a risk of malfunction or fire. Please do not exceed the rated voltage when using.
	Do not use AC power as there is a risk of rupture.
	There is a risk of burns due to high temperatures.

### warn

- This product uses a visible semiconductor laser as its light source. Please be careful not to let the laser enter your eyes directly or after being reflected by a mirror. If it enters your eyes, it may cause blindness.
- This product is not explosion-proof. Do not use it in an environment with flammable or explosive gases or liquids.
- This product does not have the function of automatically stopping laser projection after disassembly. Do not disassemble or modify it.
- This product cannot be used as a safety device for the purpose of protecting the human body.
- Improper use may cause personal injury, fire or electric shock.

### Notice

- It is very dangerous to perform wiring work when the power is on. Be sure to turn off the power before doing so.
- If the device is installed in the following places, it may cause malfunction. Please be careful.
  - Places that are dusty or filled with steam, etc.
  - Places where corrosive gases are generated.
  - Places where water, oil, etc. are directly splashed.
  - Places with severe vibration, impact, etc.
- Please avoid using outdoors.
- Please avoid using it in the transient state when the power is turned on (about 1.5s).
- The wiring with high-voltage wires and power lines should be wired separately. Otherwise, it may cause malfunction and damage due to induction.
- There may be individual differences in the product, and the inspection characteristics may also vary depending on the state of the test object.
- Do not use in water.
- Do not disassemble, repair or modify the product. Otherwise, it may cause human injury, fire, and electric shock.
- Please use within the range of the rated value.

### Precautions for using laser

#### Laser Tag

This product is classified as a Class 2 (II) laser product according to the JIS C6802/IEC/FDA laser safety standards.

If the laser label on the unit is covered when installing the product, please stick the included laser label in a visible position.

### Confirmation of packaging contents

- |                    |                        |
|--------------------|------------------------|
| • sensor           | one                    |
| • User Manual      | One                    |
| • Mounting bracket | One set (for DELS-30)  |
| • Mounting Screws  | One set (for DELS-D30) |

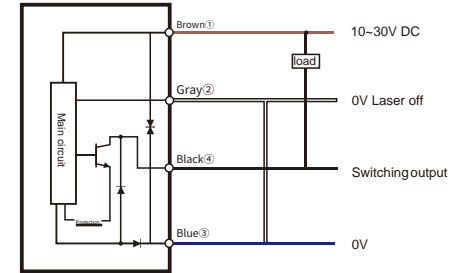
### Technical specifications

series	DELS Column	
model	NPN	DELS-D30N
	PNP	DELS-D30P
type	Long distance type	
Detection method	Diffuse	
Set distance	50~300mm	
Detection distance	10~300mm	
Spot size	Φ1.5mm/300mm	
Switch mode	L.on (light-incoming action) / D.on (light-blocking action) switchable	
Indicator Lights	Output indicator light (orange)/Laser indicator light (green)	
Response time	0.3 ms	
Sensitivity adjustment	4-turn potentiometer	
light source	Laser: 650nm	
Laser Class	CLASS 1	
Operating voltage	10~30V DC±10%	
Current consumption	≤30mA	
Ambient temperature	-10~50°C, no freezing	
Ambient humidity	35~85% RH, no condensation	
Anti-collision	50G(500m/s <sup>2</sup> )	
Protection level	IP67	
Material	Housing: ABS with glass fiber, Lens: PMMA	

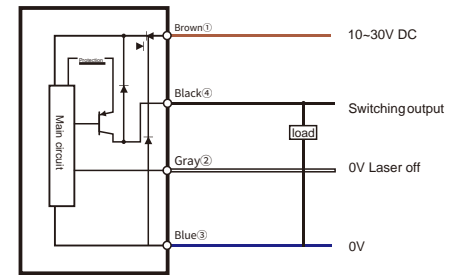
### Circuit Diagram

#### DELS-D30

NPN output

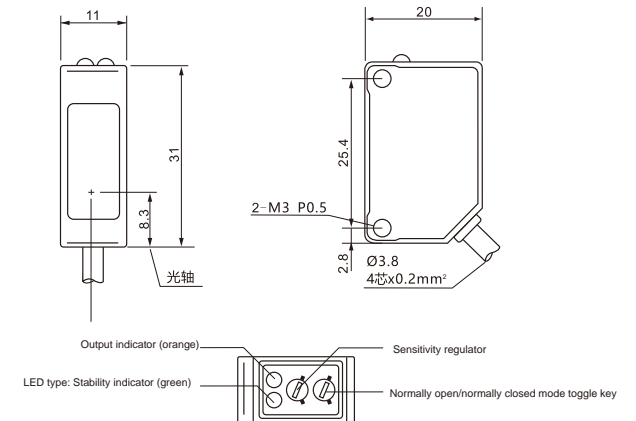


PNP output



### Dimensions

#### DELS-D30N(P)



## Regular maintenance inspection

During the use period, regular inspection and maintenance are very necessary to ensure the normal operation of the machine.  
The regular inspection items are as follows:

- When detecting an object, whether the switch is within the distance, whether it is loose, whether it is tilted and whether the detected object has changed.
- Whether the wiring or connecting wires are in normal contact or there is no concern about disconnection.
- Whether there is dust on the sensing surface
- Check whether the operating temperature and surrounding environment are normal.
- Check the installation space for any abnormalities, such as vibration, electrical leakage, etc.

**other:**

After power is turned on, the sensor needs a lead time of 100ms to achieve stable output of the sensor. Therefore, do not operate the sensor during this period. Avoid using it outdoors (except when there is a shield).

- Avoid direct contact with organic solvents.
- Avoid objects hitting the detection surface, as the sensing surface is very fragile.
- Do not pull or move the power supply excessively during installation or movement.



## Precautions

- Please make sure that the power is off when wiring.
- Please confirm that the power supply voltage varies within the rated range.
- If the power is provided by a commercial switching regulator, make sure that the frame ground terminal (FG) of the power supply is connected to ground.
- Be sure to connect the equipment ground terminal (FG) to ground.
- Do not use the device within a short period of time (0.5s) after the power is turned on.
- Do not run the wiring together with high voltage or power lines or in the same conduit as this may cause malfunction due to induction.
- Avoid dust, dirt and water vapor.
- Do not put the sensor in direct contact with water, oil, grease or organic solvents such as thinners.

## Product Commitment

Degson's products undergo strict factory inspection. If a fault occurs, please contact the nearest Degson office and provide detailed information so that we can solve it as soon as possible.

### Warranty

- The product warranty period is one year, starting from the date the product is shipped to the place designated by the purchaser.

### Warranty coverage

(1) If a fault occurs during the warranty period stated above and caused by Degson, Degson will repair the product free of charge.

However, the following situations are not covered by the warranty.

- Failure caused by improper operation or improper use under the conditions or environment not specified in the operating instructions, user manual or technical requirements specially agreed upon between the purchaser and Degson.
- The failure is not due to a product defect but is caused by the design of the purchaser's equipment or software.
- The failure is caused by modification or repair performed by someone other than Degson.
- Failures that can be completely avoided by properly repairing or replacing wearing parts according to the operating instructions or user manual.
- Failures caused by unforeseen changes in the level of science and technology after the product is shipped from Degson.
- Failures caused by natural disasters such as fire, earthquake and flood or external factors such as abnormal voltage are not covered by Degson.

(2) The warranty covers only the situations specified in Article (1). Degson shall not be liable for any indirect losses

(damage to equipment, loss of opportunity, loss of profits, etc.) or other losses caused to the purchaser by its equipment.

### Product Suitability

Degson's products are designed and manufactured as general-purpose products for general industries. Therefore,

Degson's products must not be used for the following applications and are not suitable for their use. However,

if the purchaser consults Degson in advance about the use of the product with a responsible attitude and understands

the technical specifications, grades and performance of the product, and takes necessary safety measures, the product can be used.

In this case, the product warranty scope is the same as above.

- Uses that may result in chemical contamination or electrical interference, or use under conditions or environments not described in the product catalog, instruction manual, etc.
- Atomic power control equipment, incineration equipment, railway, aviation, vehicle equipment, safety devices, and administrative agencies and equipment manufactured in accordance with the regulations of individual industries.
- Machinery, systems and devices that may endanger life or property.
- Gas, water, and electricity supply systems require highly reliable equipment that operates continuously 24 hours a day.