



Laser Sensors DELC/DELE-series

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

- The light source of this product is a visible semiconductor laser. Take care to prevent the laser from entering the eye, either directly or after being reflected through a specular body. If it is shot into the eye eyesight, which can lead to blindness.
- This product is not an explosion-proof structure, so do not use it in an environment with flammable or explosive gases or liquids.
- This product does not have the function of automatically stopping the laser projection after decomposition, please do not disassemble or transform.
- This product should not be used as a safety device for the purpose of protecting the human body.
- If used improperly, it may cause injury, fire, and electric shock.

Notice

- Wiring with the power supply on is very dangerous, so be sure to do it after the power supply is turned off
- Please be careful that if it is installed in the following places, it may malfunction.
 - Dusty, steam-filled places, 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).
- Wiring with high-voltage lines and power lines should be wired separately. Otherwise, malfunction and damage may occur 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 it in water.
- Do not disassemble, repair or modify the product. Otherwise, it may cause personal injury, fire or electric shock.
- Please use it within 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 standard. If the laser label on the unit is covered when installing the product, please attach the attached laser label in a visible position.

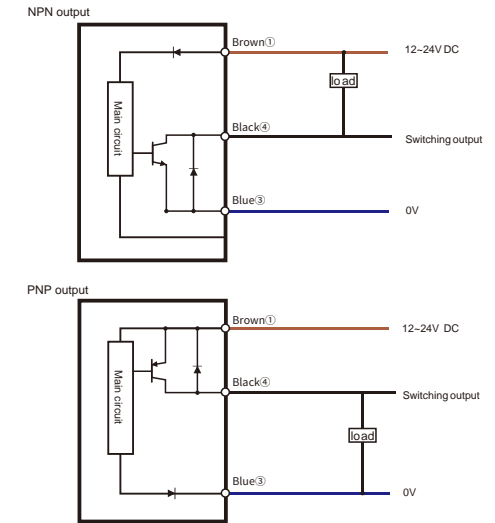
Confirmation of packaging contents

- sensor One (one pair)
- User Manual One
- Mounting bracket set
- Reflectors One piece (retro-reflective)

Technical specifications

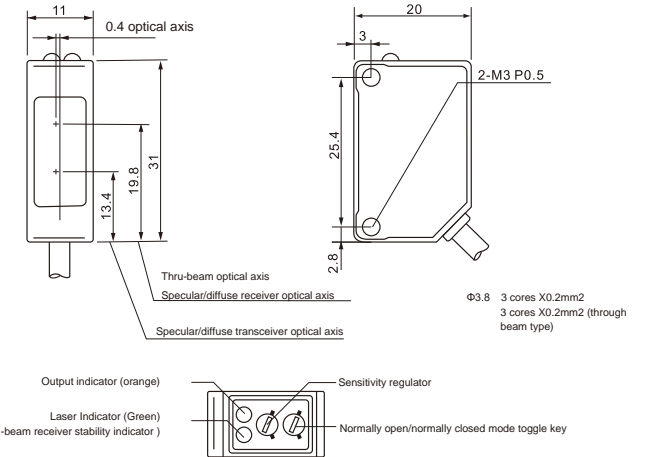
type	DELC/DELEseries			
model	NPN	DELC-TM30N	DELC-RM10N	DELE-D40N
	PNP	DELC-TM30P	DELC-RM10P	DELE-D40P
Detection method	Shooting	Retro-reflection	Diffuse	
Detection distance	30m	10m	40cm	
Spot size	Φ30mm/30m	Φ10mm/10m	Φ2mm/40cm	
Switch mode	L.on (light-incoming action) / D.on (light-blocking action) switchable			
Indicator Lights	Output indicator light (orange)/Laser indicator light (green)			
Response time	0.25 ms			
Sensitivity adjustment	Single-turn potentiometer			
light source	Laser: 650nm			
Laser Class	CLASS 1	CLASS 2		
Operating voltage	12~24V DC±10%			
Current consumption	≤30mA	≤20mA		
Ambient temperature	-10~50°C, no freezing			
Ambient humidity	35~85% RH, no condensation			
Vibration resistance	10~55Hz amplitude 1.5mm			
Anti-collision	50G(500m/s ²)			
Protection level	IP67			

Circuit Diagram

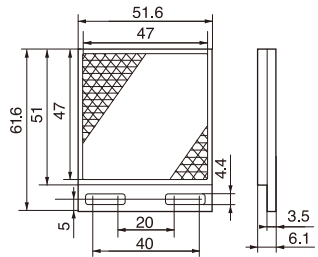


Dimensions

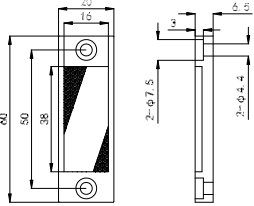
Unit: mm



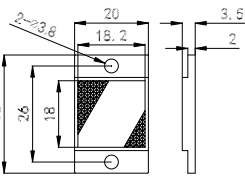
DELC-RM10N/P reflector:



(DR-13 as standard)



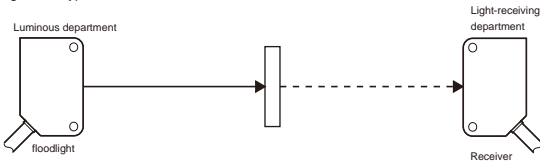
(Optional DR-14)



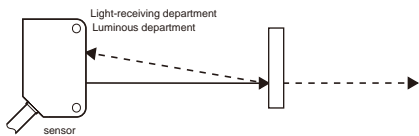
(Optional DR-15)

Installation

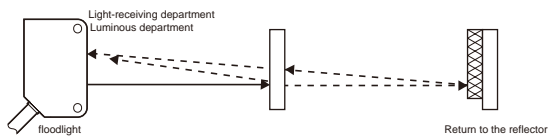
Through-beam type



Diffuse reflection



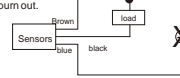
Retro-reflective



Power Distribution Considerations

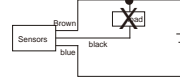
Supply voltage

Do not use the product beyond the voltage range. Inputting voltage beyond the range or inputting AC power to a DC power type may cause the product to rupture or burn out.



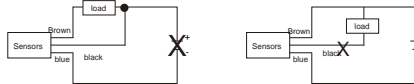
Load short circuit

Do not short-circuit the load to avoid rupture or burning. The load short-circuit holding function is a function used within the rated voltage with the correct polarity of the power supply.



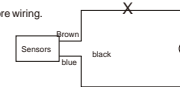
Miswiring

Do not mismatch the polarity of the power supply, as this may cause rupture or burning.



When no load is connected

If the power supply is directly connected to the internal element without load, it may cause cracking or burning. Therefore, please add load before wiring.



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 there is any loosening, whether there is an improper tilt, and whether the detected object has changed.
 - Wiring or equal connection wires, whether the contact is normal, 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

- 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 natural disasters such as fire, earthquake and flood, or external factors such as abnormal voltage are not covered by Degson.
 - Failures caused by unforeseen changes in the level of science and technology after the product is shipped from 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.