

## Proximity Sensor DLE 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.

### Safety Tips

The following contents are necessary to ensure safe use, please be sure to comply.

- Do not use in an environment with flammable, volatile or explosive gases. Do not disassemble, repair or modify this product. About power supply voltage:
- Do not use the product beyond the specified voltage. If you use a voltage higher than the rated voltage or apply AC power to a product that can only use DC power, it may cause the product to explode or burn.
- For short circuit at load end:
- Do not short-circuit the load. Do not connect the load end directly to the power supply. Otherwise, the product may explode or burn.
- About wiring:
- Do not make mistakes such as mistaking the power polarity or miswiring. Otherwise, the product may explode or burn. Regarding wiring
- when there is no load:
- If the power is turned on without connecting a load, there is a risk of internal components rupturing or burning, so please connect the wires and turn on the power after connecting a load.

### Instructions for use

- Do not use in the following places:
  - Outdoor places with direct sunlight, rain, snow, water drops, etc. Chemicals, especially in solvent and acid vapor environments. In the presence of corrosive gases.
- When used near mobile phones, transceivers, etc., the proximity switch may malfunction, so please be careful.
- When mixed with high-voltage wires and power wires in the same wiring conduit or wiring trough, malfunction or damage may occur due to induction. Please separate or wire separately.
- Regarding cleaning work:
  - Do not use solvent cleaners as they may melt the product surface.
- fixed:
  - Please set the tightening torque of the fixing screws to no more than 0.95N·m.
- Influence of surrounding metal:
  - If there is metal around, it may cause a reset failure, etc. Even if there is no reset failure, the detection distance may change due to the surrounding metal or temperature changes

## Technical Parameters

Basic features	How it works	Inductive Sensors			
	Shell style	Mini Blocks			
	Installation	Non-flush			
	Detection distance	1.0mm±15%		2.5mm±10%	
	Thread specification	-			
	Sensing surface material	PC			
	Detection object	Metal sensor			
	Indicator Lights	Operating status: LED			
	Detection distance adjustment	none			
Electrical data	Switch mode	NO: Normally Open, NC: Normally Closed			
	Output Mode	NPN or PNP open collector			
	External Input	none			
	Switching frequency	0.5kHz		0.8kHz	
	Repeatability	5%		1%	
	Hysteresis (hysteresis)	15%			
	Operating voltage	10~30V DC±10%			
	Current consumption	≤10mA			
	Residual voltage	≤1.5V			
	Load current	100mA		150mA	
	Leakage Current	<0.01mA			
	Insulation resistance	Between power terminal and housing ≥50MΩ (500VDC)			
	Pressure resistance	1000VAC (50/60Hz), 1 minute between power terminals and case			
	Vibration resistance	10~55Hz, amplitude 1.5mm, X/Y/Z axis, 2 hours each			
Protection Circuit	-		Short circuit protection		
Environmental conditions	Operating temperature	-25~+75°C			
	Working environment humidity	35~85%			
	Protection level	IP67			
Mechanical data	Connection	2m/3-wire cable			
	Dimensions (W x H x D)	20.4x6.4x6.2mm	20.4x6.3x6.1mm	23.5x8.4x8.0mm	25.5x8.4x8.0mm
	Material	Plastic+PC			
	weight	0.05kg			
	Accessories	-			
Model	NPN Normally Open	DLE-N06-01	DLE-N07-01	DLE-N08-2.5	DLE-N09-2.5
	other	NPN Normally Open	NPN Normally Closed	PNP Normally Open	PNP Normally Closed

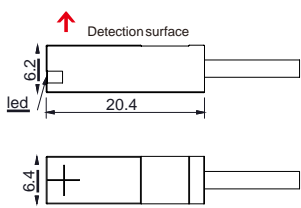
### Confirmation of packaging contents

- sensor one
- User Manual one

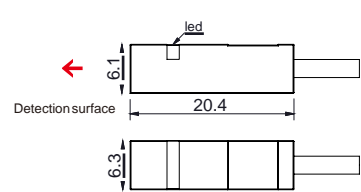
Basic features	How it works	Inductive Sensors						
	Shell style	Mini Blocks						
	Installation	Non-flush						
	Detection distance	2.5mm±10%	4.0mm±10%	5.0mm±10%	8.0mm±10%	5.0mm±10%	8.0mm±10%	
	Thread specification	-						
	Sensing surface material	PC						
	Detection object	Metal sensor						
	Indicator Lights	Operating status: LED						
	Detection distance adjustment	none						
Electrical data	Switch mode	NO: Normally Open, NC: Normally Closed						
	Output Mode	NPN or PNP open collector						
	External Input	none						
	Switching frequency	0.8kHz	0.2kHz	1kHz	0.5kHz			
	Repeatability	5%	1%					
	Hysteresis (hysteresis)	15%						
	Operating voltage	10~30V DC±10%						
	Current consumption	≤10mA						
	Residual voltage	≤1.5V						
	Load current	150mA						
	Leakage Current	<0.01mA						
	Insulation resistance	Between power terminal and housing ≥50MΩ (500VDC)						
	Pressure resistance	1000VAC (50/60Hz), 1 minute between power terminals and case						
	Vibration resistance	10~55Hz, amplitude 1.5mm, X/Y/Z axis, 2 hours each						
Protection Circuit	Short circuit protection							
Environmental conditions	Operating temperature	-25~+75°C						
	Working environment humidity	35~85%						
	Protection level	IP67						
Mechanical data	Connection	2m/3-wire cable						
	Dimensions (W x H x D)	30.5x10.4x6.6mm	30.5x12.4x8mm	34.5x15.4x8.0mm	34.5x16.4x15.0mm			
	Material	Plastic+PC						
	weight	0.05kg						
	Accessories	-						
Model	NPN Normally Open	DLE-N10-2.5	DLE-N10-04	DLE-N12-04	DLE-N15-05	DLE-N15-08	DLE-N16-05	DLE-N16-08
	other	NPN Normally Open	NPN Normally Closed	PNP Normally Open	PNP Normally Closed			

## Dimensions

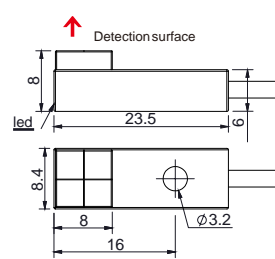
DLE-N06-01 □□



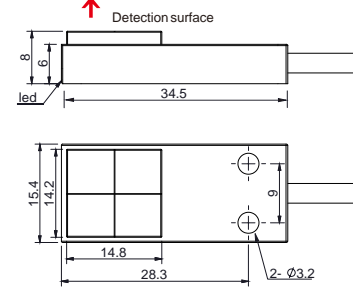
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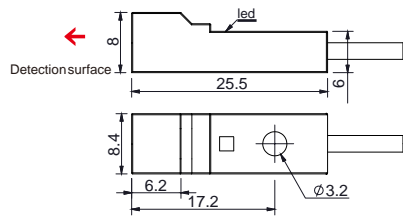
DLE-N08-2.5/03 □□



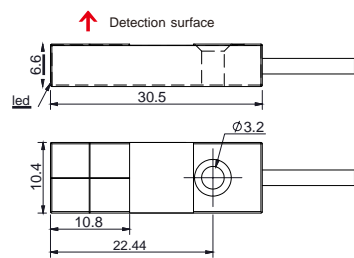
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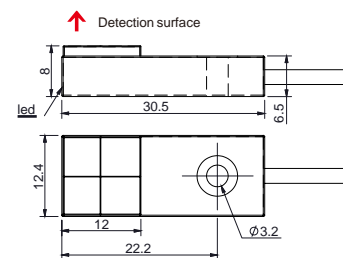
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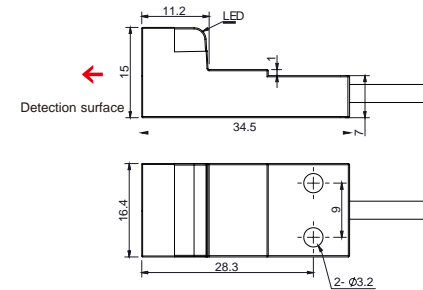
DLE-N10-2.5/04 □□



DLE-N12-04 □□

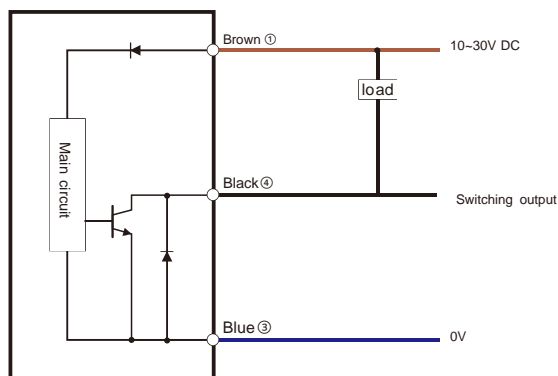


DLE-N16-05/08 □□

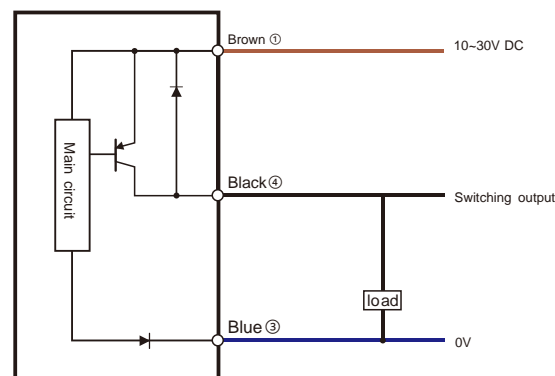


## Circuit Diagram

NPN



PNP



## Regular maintenance inspection

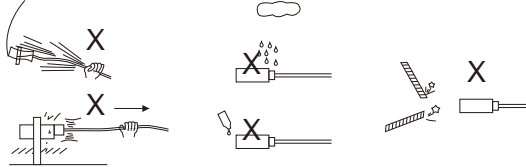
Proximity switches can maintain permanent life and stability under correct use, so regular inspection and maintenance during use is very necessary to ensure the normal operation of the machine. Regular inspection items are as follows:

- When detecting an object, check whether the switch is within the distance, whether it is loose, whether it is tilted,
- whether the detected object has changed. Check whether the wiring or connecting wires are in normal contact or there is no concern about disconnection.
- Check whether there is metal powder accumulation 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 switch needs a lead time of 100ms. In order to achieve stable output of the switch, please do not operate the switch during this period. Avoid using it outdoors (except when there is a shelter).

- 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 to turn off the power before 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.