

Fork sensor

Micro groove type

## User Manual

Thank you for choosing Degson products. Please read this instruction manual carefully before using the product.

- It is intended to be used by personnel with certain electrical knowledge.
- Before using this product, please read this manual carefully and use it correctly after fully understanding 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.

	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

To ensure your safety, please be sure to follow the following.

- Do not use in an environment with flammable or explosive gases.
- Do not use the product in an environment with water, oil, chemical droplets, or in contact with steam.
- Do not disassemble, repair, or modify the product without authorization.
- Do not exceed the rated voltage and current range during use.
- Do not use in environments beyond the rated value.
- Please pay attention to the polarity of the working power supply and do not connect the wrong wires.
- Please connect the load correctly.
- Do not short-circuit the load.
- Do not use if the casing is damaged.
- When disposing of it, please treat it as industrial waste.
- Do not use in direct sunlight.
- Due to the use conditions (ambient temperature, power supply voltage, etc.), the sensor surface temperature may rise. Please be careful when operating or cleaning it, as there is a risk of burns.

## Instructions for use

- Do not use in the following places:  
Locations exposed to direct sunlight  
Places with high humidity and easy condensation  
Places with corrosive gases  
Locations where vibration and shock are directly transmitted to the product body
- When the lead wires of this product are installed in the same conduit as the power wires and electric power wires, they may be interfered with, malfunction or even be damaged.
- Extension cables must have a cross-sectional area of 0.3mm<sup>2</sup> or more and a length of 100m or less. When using Korean S-mark certified models as certified products, please set the length to 10m or less.
- The forces applied to the conductors are as follows: tension less than 40 N, torque less than 0.1 N-m, pressure less than 20 N, bending less than 3 kg.
- After the power is turned on, the product is in a detectable state within 200ms. Therefore, if the load and the product are connected to different power supplies, the power of the product must be turned on first.
- After cutting off the power supply, output pulses may occur, so please cut off the power supply of the load or load line first.
- Please do not use solvents such as thinner, gasoline, acetone, kerosene, etc. to clean.

## Confirmation of packaging contents

- sensor one
- User Manual one

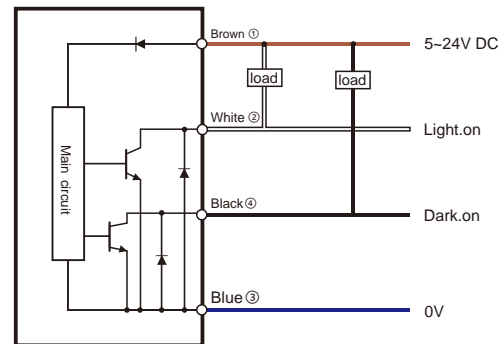
## Technical specifications

model	NPN	DSU-201NA-E	DSF-202NA-E	DSR-204NA-E	DSL-205NA-E	DSK-206NA-E
	PNP	DSU-201PA-E	DSF-202PA-E	DSR-204PA-E	DSL-205PA-E	DSK-206PA-E
type		U-Shape	Type F	R-Type	L-type	K-Type
Detection distance	5mm (slot width)					
Standard test objects	Opaque objects larger than 1.2*1.8mm					
Repeatability	0.03mm or less					
Output Mode	NPN or PNP open collector					
Switch mode	L.on (light-incoming action) / D.on (light-blocking action) switchable					
Indicator Lights	The light turns off when an object is detected and turns on when no object is detected					
Response frequency	3KHz					
light source	Infrared LED(940nm)					
Operating voltage	5~24V DC					
Residual voltage	1V or less (load current 50mA)					
Current consumption	≤16mA					
Protection Circuit	Surge protection, reverse polarity protection					
Ambient light	Incandescent lamp illuminance on the light receiving surface: 1000Lux or less					
Ambient temperature	Working temperature: -25°C~+55°C Storage temperature: -30°C~+80°C, no freezing					
Ambient humidity	Working: 5%~85%RH Storage: 5%~95%RH, no condensation					
Withstand voltage	AC, 1000V 1 minute, between all power connection terminals and the housing					
Vibration resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X, Y, and Z directions					
Insulation resistance	Between all power connection terminals and the housing, more than 20MΩ (based on 250V DC)					
Protection level	IP50					
Material	ABS					
Outlet mode	2M 4-core cable					

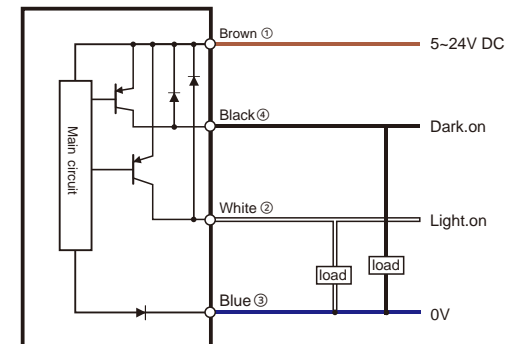
Note: For DSL-205NA/PA-E, it is recommended to use small-head or non-standard M3 (screw head diameter less than 5.2mm) screws for installation; for other models, it is recommended to use general-purpose M3 screws for installation.

## Circuit Diagram

NPN output



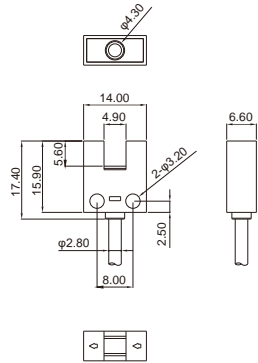
PNP output



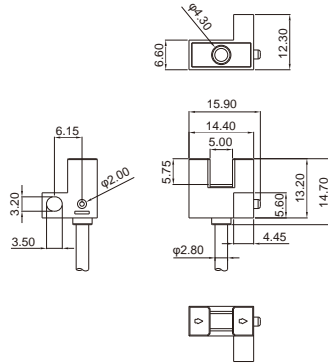
## Dimensions

unit:mm

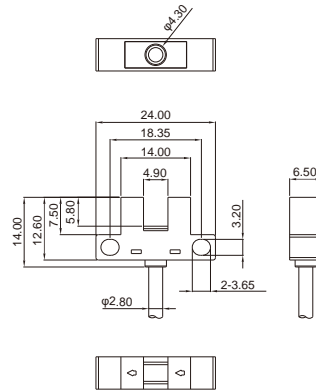
U type



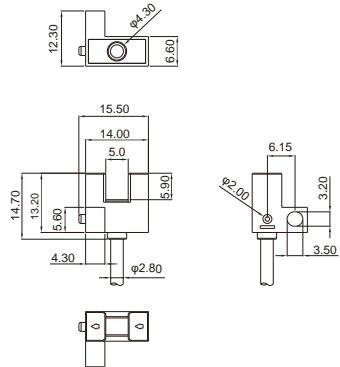
Rtype



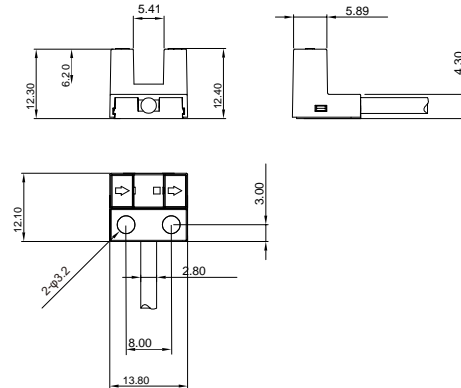
Ktype



Ftype



Ltype



## 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 supply is provided by a commercial switching regulator, make sure the power rack ground terminal (F.G) is grounded.
- Be sure to ground the ground terminal (F.G) of the device.
- Do not use the power supply for a short time (0.5s) after it is powered on.
- Do not run the line with or in the same conduit as the high-voltage or power line, 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 solutions 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, Degson will repair the product free of charge.

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

- Failure to comply with the conditions and environment specified in the operating manual, user manual, or technical requirements specifically agreed between the buyer and Degson. Improper operation, or improper use of the appropriate malfunction.
- The failure is not due to a defect in the product, but to the design of the Buyer's equipment or Buyer's software.
- Failure caused by modifications or repairs carried out by personnel other than Degson.
- Faults that can be completely avoided by properly repairing or replacing wearing parts in accordance with the operating instructions or user instructions.
- After the product is shipped from Degson, it is caused by unforeseen changes in the level of science and technology and other factors.
- Degson Corporation is not responsible for faults due to natural disasters such as fires, earthquakes, and floods, or external factors such as abnormal voltages.

(2) The warranty is limited to the (1) In the circumstances specified in Article 11, Degson shall not be liable for any indirect losses (equipment damage, loss of opportunity, loss of profit, 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.

- Potential chemical contamination or use that may cause damage to electricity, or conditions that are not specified in catalogs, instruction manuals, etc and environmental use.
- Nuclear control equipment, incineration equipment, railways, aviation, vehicle equipment, safety devices and administrative agencies and according to individual industries. Specify the equipment manufactured.
- Machinery, systems, and devices that may endanger life or property.
- Gas, water, and electricity supply system twenty-four hours. Equipment that requires high reliability, such as systems that operate continuously for 24 hours.