

# DPRI Magnetic Proximity Switches

**No external magnet, no power supply required.  
Low profile design**

Magnetic proximity switch with integrated reed switch and magnet. Magnetic material (iron, nickel, cobalt, ferrite, etc.) can be detected externally without contact, and the sealed internal structure ensures a long service life and high reliability.

- No external magnet required.
- Collective mounting possible.
- No power supply required.
- High repeatability.
- Fully sealed structure enables long life and high reliability.
- Compact and lightweight structure allows installation in small spaces.
- Can be used as an input for electronic circuits.
- Low cost.



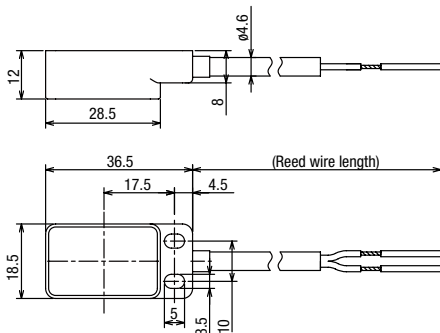
## DPRI

Package quantity: 1

Part No.	Operating distance	Output			Response speed	
		Contact	Switching capacity	Operating voltage		
DPRI-01	5mm	1NO	AC: 10VA DC: 10W	AC: 100V DC: 100V	AC: 0.25A DC: 0.25A	300Hz max.

## Dimensions

All dimensions in mm.

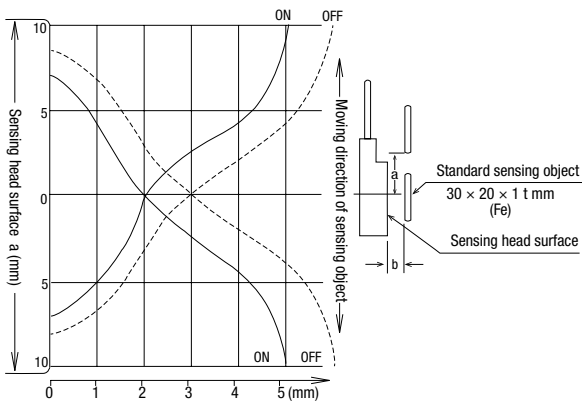


## Specification

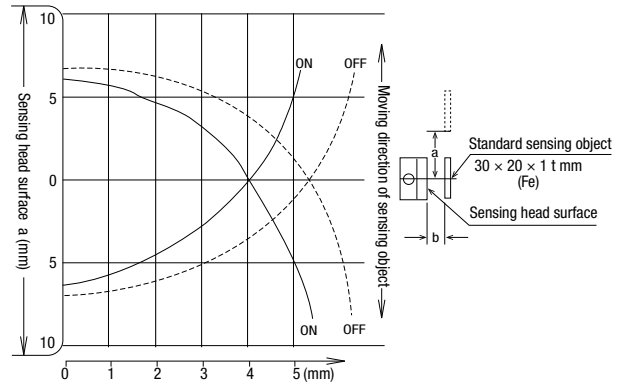
Part No.	DPRI-01		
Operating distance	5mm		
Installation range	0 to 4mm		
Release distance	Above operating distance, 9mm max.		
Repetitive error	ON	0.05mm max.	
	OFF	0.15mm max.	
Temperature error	±0.5 mm max. (at 20°C, -10 to +50°C)		
Response speed	300Hz max. (bounce time 0.4ms max.)		
Output	Contact	1NO	
	Switching capacity	AC (max.)	10VA
		DC (max.)	10W
	Operating voltage	AC (max.)	100V
		DC (max.)	100V
Operating current	AC (max.)	0.25A	
	DC (max.)	0.25A	
Max. contact resistance (initial value)	0.35Ω (including 1m cable)		
Shock resistance	200m/s <sup>2</sup> max.		
Operating temperature	-10 to +50°C (no freezing)		
Operating humidity	35 to 85%RH (no condensation)		
Storage temperature	-10 to +50°C (no freezing)		
Degree of Protection	IP65 (IEC 60529)		
Sensing object	Magnetic materials (iron, nickel, cobalt, etc.)		
Standard sensing object	30 x 20 x 1mm, soft magnetic iron plate		
Life	Electrical	Contact resistance 1.5Ω max. after 20 million operations (10V, 100mA resistive load)	
	Mechanical	100 million operations min.	
Operation method	Permanent magnet or built-in reed switch		
Lead wire	Cab tire cord, outer diameter ø4.6, length 1m		
Weight (approx.)	40g		

### Operating characteristics

#### Operating area characteristics (example)

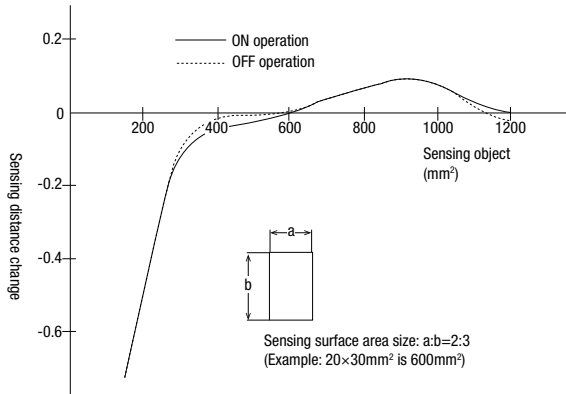


Characteristic curve of a proximity switch when the sensing object is closer to the proximity switch than the long axis direction of the sensing surface.



Characteristic curve of a proximity switch when the sensing object is closer to the proximity switch than the short axis direction of the sensing surface.

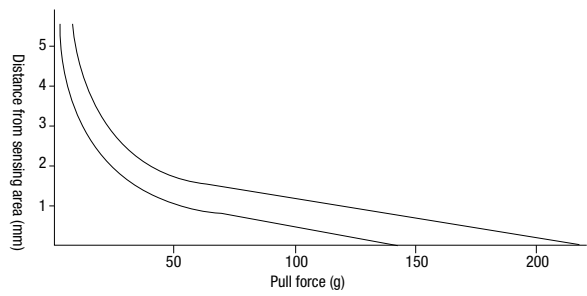
#### Characteristics of a sensing object against the surface area (example)



Sensing object: 20 x 30 x 1t

#### Pull curve (example)

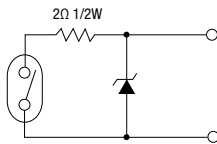
The DPRI has a permanent magnet inside, which generates a pull force, as shown below.



## Instructions

- Do not apply a strong magnetic field of more than a few kilogauss.
- Make sure that iron dust or chips do not adhere on the sensing surface.
- When the sensing object approaches the sensing surface while moving, a protective guide should be provided to prevent strong shocks and vibrations to the switch. Otherwise, characteristics may change and cause malfunctions.
- Keep lead wires as short as possible, avoid parallel installation with other signals or power lines, and use shielded wires to avoid induction. Noise from the power supply circuit side may affect the contacts, so be sure to protect the contacts with a noise-absorbing circuit.
- An input signal for PLCs and other electronic control circuits can be used as a load. When using inductive or capacitive loads, be sure to use the dedicated power unit (DPRR). Provide the below protection circuit to protect the contacts against chattering and bounce.

Circuit example (at 24V DC)

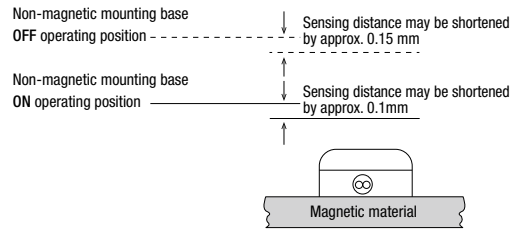


- If a magnetic object is installed parallel to the sensing surface, the bias effect will cause the operating distance and return distance to change and may cause malfunction. When installing the magnetic object, make sure to keep a distance of 25mm from the sensing surface.

## Installation

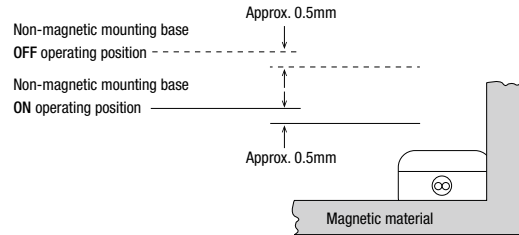
### Effects caused by the mounting base

If non-magnetic (aluminum, copper, brass, nonmetal, etc.) material is used as the mounting base, no effects are caused. However, if magnetic materials (iron, cobalt, nickel, etc.) are used, the operating distance may be shortened by 0.1 to 0.5 mm.

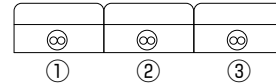


### Effects of magnetic materials with edges

Both ON/OFF operations may shorten the operating distance by about 0.5mm.

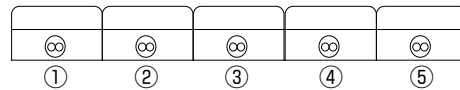


### Mutual influence by close mounting



All (1), (2) and (3)

ON operation may be shortened by about 0 to 0.2 mm.  
OFF operation may be shortened by about 0 to 0.3 mm.



Both (1) and (5)

ON operation may be shortened by about 0 to 0.2 mm.  
OFF operation may be shortened by about 0 to 0.3 mm.

(2), (3), or (4)

ON operation may be shortened by about 0 to 0.2 mm.  
OFF operation may be shortened by about 0 to 0.5 mm.

For effects caused by mounting methods and materials, be sure to test before use.

# Ordering Terms and Conditions

Thank you for using IDEC Products.

By purchasing products listed in our catalogs, datasheets, and the like (hereinafter referred to as "Catalogs") you agree to be bound by these terms and conditions. Please read and agree to the terms and conditions before placing your order.

## 1. Notes on contents of Catalogs

- (1) Rated values, performance values, and specification values of IDEC products listed in this Catalog are values acquired under respective conditions in independent testing, and do not guarantee values gained in combined conditions.  
Also, durability varies depending on the usage environment and usage conditions.
- (2) Reference data and reference values listed in Catalogs are for reference purposes only, and do not guarantee that the product will always operate appropriately in that range.
- (3) The specifications / appearance and accessories of IDEC products listed in Catalogs are subject to change or termination of sales without notice, for improvement or other reasons.
- (4) The content of Catalogs is subject to change without notice.

## 2. Note on applications

- (1) If using IDEC products in combination with other products, confirm the applicable laws / regulations and standards.  
Also, confirm that IDEC products are compatible with your systems, machines, devices, and the like by using under the actual conditions. IDEC shall bear no liability whatsoever regarding the compatibility with IDEC products.
- (2) The usage examples and application examples listed in Catalogs are for reference purposes only. Therefore, when introducing a product, confirm the performance and safety of the instruments, devices, and the like before use. Furthermore, regarding these examples, IDEC does not grant license to use IDEC products to you, and IDEC offers no warranties regarding the ownership of intellectual property rights or non-infringement upon the intellectual property rights of third parties.
- (3) When using IDEC products, be cautious when implementing the following.
  - i. Use of IDEC products with sufficient allowance for rating and performance
  - ii. Safety design, including redundant design and malfunction prevention design that prevents other danger and damage even in the event that an IDEC product fails
  - iii. Wiring and installation that ensures the IDEC product used in your system, machine, device, or the like can perform and function according to its specifications
- (4) Continuing to use an IDEC product even after the performance has deteriorated can result in abnormal heat, smoke, fires, and the like due to insulation deterioration or the like. Perform periodic maintenance for IDEC products and the systems, machines, devices, and the like in which they are used.
- (5) IDEC products are developed and manufactured as general-purpose products for general industrial products. They are not intended for use in the following applications, and in the event that you use an IDEC product for these applications, unless otherwise agreed upon between you and IDEC, IDEC shall provide no guarantees whatsoever regarding IDEC products.
  - i. Use in applications that require a high degree of safety, including nuclear power control equipment, transportation equipment (railroads / airplanes / ships / vehicles / vehicle instruments, etc.), equipment for use in outer space, elevating equipment, medical instruments, safety devices, or any other equipment, instruments, or the like that could endanger life or human health
  - ii. Use in applications that require a high degree of reliability, such as provision systems for gas / waterworks / electricity, etc., systems that operate continuously for 24 hours, and settlement systems
  - iii. Use in applications where the product may be handled or used deviating from the specifications or conditions / environment listed in the Catalogs, such as equipment used outdoors or applications in environments subject to chemical pollution or electromagnetic interference  
If you would like to use IDEC products in the above applications, be sure to consult with an IDEC sales representative.

## 3. Inspections

We ask that you implement inspections for IDEC products you purchase without delay, as well as thoroughly keep in mind management/maintenance regarding handling of the product before and during the inspection.

## 4. Warranty

- (1) Warranty period  
The warranty period for IDEC products shall be one (1) year after purchase or delivery to the specified location. However, this shall not apply in cases where there is a different specification in the Catalogs or there is another agreement in place between you and IDEC.
- (2) Warranty scope  
Should a failure occur in an IDEC product during the above warranty period for reasons attributable to IDEC, then IDEC shall replace or repair that product, free of charge, at the purchase location / delivery location of the product, or an IDEC service base. However, failures caused by the following reasons shall be deemed outside the scope of this warranty.
  - i. The product was handled or used deviating from the conditions / environment listed in the Catalogs
  - ii. The failure was caused by reasons other than an IDEC product
  - iii. Modification or repair was performed by a party other than IDEC
  - iv. The failure was caused by a software program of a party other than IDEC
  - v. The product was used outside of its original purpose
  - vi. Replacement of maintenance parts, installation of accessories, or the like was not performed properly in accordance with the user's manual and Catalogs
  - vii. The failure could not have been predicted with the scientific and technical standards at the time when the product was shipped from IDEC
  - viii. The failure was due to other causes not attributable to IDEC (including cases of force majeure such as natural disasters and other disasters)Furthermore, the warranty described here refers to a warranty on the IDEC product as a unit, and damages induced by the failure of an IDEC product are excluded from this warranty.

## 5. Limitation of liability

The warranty listed in this Agreement is the full and complete warranty for IDEC products, and IDEC shall bear no liability whatsoever regarding special damages, indirect damages, incidental damages, or passive damages that occurred due to an IDEC product.

## 6. Service scope

The prices of IDEC products do not include the cost of services, such as dispatching technicians. Therefore, separate fees are required in the following cases.

- (1) Instructions for installation / adjustment and accompaniment at test operation (including creating application software and testing operation, etc.)
- (2) Maintenance inspections, adjustments, and repairs
- (3) Technical instructions and technical training
- (4) Product tests or inspections specified by you

The above content assumes transactions and usage within your region. Please consult with an IDEC sales representative regarding transactions and usage outside of your region. Also, IDEC provides no guarantees whatsoever regarding IDEC products sold outside your region.

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