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This product brochure is an overview of the products of hugong automation technology co.,Ltd.
If the product picture does not match the actual product,Please refer to the actual product. If you need more information, please contact our marketing department.

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# HUGONG
## AUTOMATION TECHNOLOGY CO. ,LTD.

Photoelectric Switch R&D, Manufacturing and Solution Provider

**2024 Rev.**

**Product selection manual**



OMCH® CE RoHS

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Product selection manual
in electronic version




## Company profile

Hugong Automation Technology Co., Ltd. (referred to as Hugong Company) is the manufacturer of electricity in China industrial automation, and the major enterprise in high-tech industrial control automation electricity which involves in research and development, production, trade, information, service and other functions.

Hugong Company specializes in the production and selling of proximity sensors, photoelectric sensors, laser sensors, color mark sensors, optical coupler sensors, light curtain sensors, fiber amplifiers, capacitive sensors, hall sensors, displacement sensors, magnetic switches, switch mode power supplies, midget relays, solid-state Relays.

The products adopt the latest circuit design of integrated IC and single-chip microcomputer in separate. They have the functions of short circuit protection, polarity protection, electrical surge absorption and anti-interference. There are 30 categories, more than 200 series, and over 3000 specifications. Hugong Company has authorized distributors across the country.

The products of Hugong Company are the most important automatic detection and control elements in the automation control system, and are widely used in machinery, chemicals, textiles, tobacco, printing, plastics, food, beer, mine, metallurgy, railway, elevator and other industrial control automation industries. The products meet the international standards of IEC and national standards of GB/T 14048.10, and have passed CCC, CE, ROHS, test reports and other certifications. It has obtained a number of patented products. The products sell well in major cities across the country, and are also exported to the Middle East, Southeast Asia, Europe, the United States and other countries, the quality is deeply trusted by customers.

Hugong Company has gathered a number of senior engineers and professional technicians, with independent innovation, research and development ability. The company has advanced production equipment, such as SMT automatic chip mounters, automatic compound appliers, and dynamic aging machine, and well-established professional production technology, multi-functional production lines, dynamic aging testing equipment and filed simulation experiment. Hugong Company has a group of senior managers and high -quality employee teams, who have integrated into the company and strictly abide by the ISO9001 quality management system standard and 6S on -site management standards.

Hugong Company takes “quality is the first, customer is the uppermost" as its principal, through unremitting scientific and technological innovation and scientific management, expecting to work with old and new customers to develop and create glory future!

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# ◎产品目录
# Product catalogue


The Introduction of Photoelectric Sensor Models ..... 01
The Instance Diagrams of the Application of Photoelectric Sensors ..... 01
The Output Method and Electrical Characteristics of Proximity Sensors ..... 02
Background Suppression Sensor ..... 03
Laser Sensor ..... 03-04
Cylindrical High Performance Photoelectric Switch ..... 04-07
Square High-performance Photoelectric Switches ..... 07-09
Slot Type High-performance Photoelectric Switch ..... 09-10
Cylindrical with Connector High Performance Photoelectric Switch ..... 10-13
Cylindrical Type Standard Type Photoelectric Switch ..... 13-16
Cylindrical with Connector Standard Photoelectric Switch ..... 16-18
Imported Photoelectric Switch ..... 18-19
Square Standard Photoelectric Switch ..... 19-23
Slot Type Standard Photoelectric Switch ..... 24-25
Optocoupler Sensor ..... 25
Color Mark Sensor ..... 26-27
Light Curtain Sensor ..... 28-29
Optical Fiber Amplifier ..... 30
Connectors, Reflectors ..... 31
Small Relay ..... 32
Solid Relay ..... 33-34
Heat Sink ..... 35


## The Introduction of Photoelectric Sensor Models

□ E3F □ – D S 30 C4 – G

- □: Cylindrical Photoelectric Sensors
  - A: High Performance Type
  - H: Water-Proof Type
  - No Letters: Standard Type
- □: Outside Size
  - No Numbers: M18
  - 1: M12
  - 3: M30
- D:
  - D: Diffuse Reflection
  - R: Feedback Reflection
  - No Letters:Correlation
- S:
  - S: cm
  - No Letters: m
- 30:
  - Distance Detection on Diffuse Reflection
    - 5:5cm
    - 8:8cm
    - 10:10cm
    - 30:30cm
    - 50:50cm
    - 70:70cm
    - 100:100cm
  - Distance Detection on Feedback Reflection
    - 1:1m
    - 2:2m
    - 4:4m
  - Distance Detection on Correlation
    - 3:3m
    - 5:5m
    - 10:10m
- C4:
  - Output Methods and Status
  - C4/N1: NPN-NO(Three-Wire)
  - B2/N2: NPN-NC(Three-Wire)
  - C3/N3: NPN-NO+NC(Four-Wire)
  - P1: PNP-NO(Three-Wire)
  - P2: PNP-NC(Three-Wire)
  - P3: PNP-NO+NC(Four-Wire)
  - Y1/A1: AC-NO(Two-Wire)
  - Y2/A2: AC-NC(Two-Wire)
  - DN1: NPN-NO(Three-Wire)
  - DN2: NPN-NC(Three-Wire)
  - DN3: NPN-NO+NC(Four-Wire)
  - DP1: PNP-NO(Three-Wire)
  - DP2: PNP-NC(Three-Wire)
  - DP3: PNP-NO+NC(Four-Wire)
  - DA1: AC-NO(Two-Wire)
  - DA2: AC-NC(Two-Wire)
- G/T: Connector Type

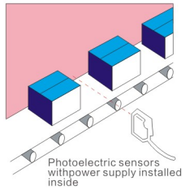
□ E3JK – D S 30 M1

- □:
  - A: High Performance Type
  - No Letters : Standard Type
- E3JK: Square Photoelectric Sensor
- D:
  - D: Diffuse Reflection
  - R: Feedback Reflection
  - No Letters: Correlation
- S:
  - S: cm
  - No Letters: m
- 30:
  - Distance Detection on Diffuse Reflection
    - 30:30cm
    - 50:50cm
    - 70:70cm
    - 100:100cm
  - Distance Detection on Feedback Reflection
    - 2:2m
    - 4:4m
  - Distance Detection on Correlation
    - 5:5m
    - 10:10m
- M1:
  - Output Methods and Status
  - M1: Light-On (Relay Outputs 5 Wires)
  - M2: Dark-On(Relay Outputs 5 Wires)
  - DM1: Light-On(Relay Outputs 5 Wires)
  - DM2: Dark-On(Relay Outputs 5 Wires)
  - DN1: NPN-NO(Three-Wire)
  - DN2: NPN-NC(Three-Wire)
  - DN3: NPN-NO+NC(Four-Wire)
  - DP1: PNP-NO(Three-Wire)
  - DP2: PNP-NC(Three-Wire)
  - DP3: PNP-NO+NC(Four-Wire)
  - DA1: AC-NO(Two-Wire)
  - DA2: AC-NC(Two-Wire)

## The Instance Diagrams of the Application of Photoelectric Sensors

1.Thick Carton Inspection

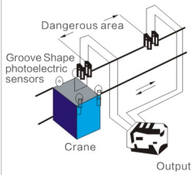
Using diffuse reflection photoelectric sensors when one side can not install sensors.




Photoelectric Sensors in Diffuse Reflection

2. Alarm Device for Cranes

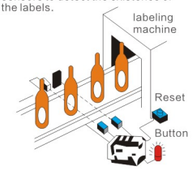
Direction judgement of the crane and the detection of entering dangerous area




Groove Shape Photoelectric Sensors

3.The Existence of Labels on the Beer Bottles

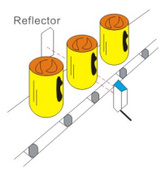
Using reflection-type photoelectric sensors to detect the beer bottles, and using opposite-type photoelectric sensors to detect the existence of the labels.




Reflection-type photoelectric sensors opposite-type photoelectric sensors

4. The Detection of Stability of the Mirror

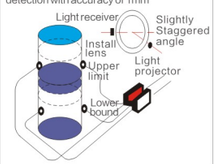
The MSR function can ensure the stability detection of the mirror without default.




Reflection-type photoelectric sensors

5.Detection of Water Level in the Glass Tube

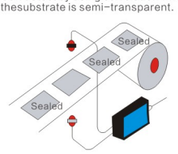
Install the light projectors and light receivers in slightly staggered angles, and the key point is only install lens on the light projectors. When the water level declines, becomes shading status, and can achieve water level detection with accuracy of 1mm




Opposite-type fiber sensors

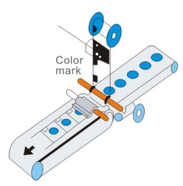
6.Air Tightness Detection

Can detect by using correlation when thesubstrate is semi-transparent.



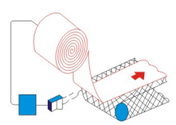

Opposite-Type Fiber Photoelectric Sensors

7.Mark Detection



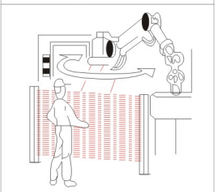

Mark Sensors

8.Slop Detection



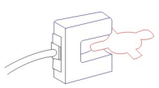
Photoelectric Sensors in Diffuse Reflection

9.Safety Detection in Robots WorkingAreas



Safety Light Curtain Sensors

10.Flutter Generator

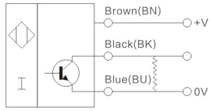


Groove Shape Photoelectric Sensors

## The Output Method and Electrical Characteristics of Proximity Sensors

● Proximity sensors /photoelectric sensors are connected with programmablecontroller

Can output in NPN type with DC three-wire system sensors

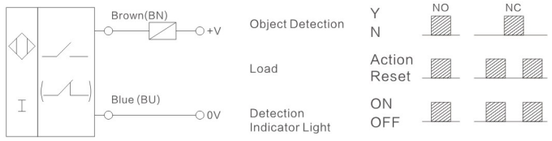



DC input module in programming controller

● DC Three-Wire System NO or NC

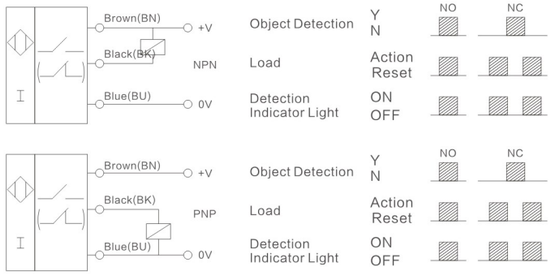
The load must be connected in series to operate within the sensor, and it has the protection functions of polarity and short circuit.

In open circuit status, there is small leakage of current. In closed circuit status, there is a relatively small loss of voltage in the elements of the switches.



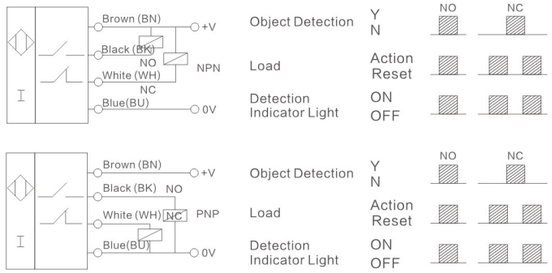

● DC Three-Wire System (N,P)NO or NC

The load and power supply of the switch are separately conneted, and it has theprotection functions of polarity, short circuit and overload. The residual currentcan be ignored.



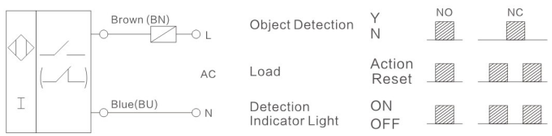

● DC Four-Wire System (N,P)NO+NC

These swithes can provide dual output with NO and NC



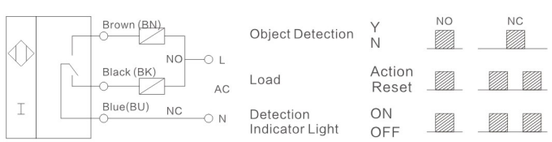

● AC Two-Wire System NO or NC

The load must be connected in series to operate within the sensor. In closed-circuit status, there is a relatively small loss of voltage in the elements of the swith



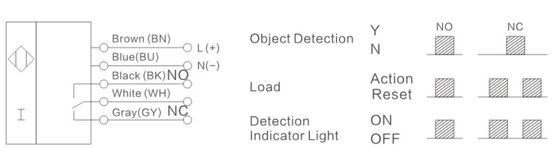

● AC Three-Wire System NO+NC

These switches can provide dual output with NO and NC




● AC, DC Five-Wire System(Relay Output)NO+NC

These switches can provide dual relay output with NO and NC






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# Background Suppression Sensor,Laser Sensor

## Introduction

Photoelectric switch, also known as photoelectric sensor, is divided into laser sensor and infrared photoelectric switch. The sensor is divided into diffuse reflection type, feedback reflection type, and through-beam type. Supporting use of Relay and other products.

It is a standard configuration that the diffuse reflection photoelectric switch is composed of a light emitter and a light receiver. When the speed of light comes from the transmitter, the target product is diffusely reflected; when there is enough combined light to return to the light receiver, the switch state changes. The effective operating distance is determined by the reflective ability of the target, which is determined by the surface properties and color. Variation capability with sensitivity adjuster for compensation; low assembly outlay, often coarse positioning is possible when the sensor consists of a single element; adjustment of the measuring distance with background suppression; sensitive to dust on the target and to the target Sensitive to changes in reflective properties.

The case where the feedback reflective photoelectric switch is composed of a light emitter and a light receiver is a standard configuration. The light beam from the transmitter is reflected by the opposite reflector and returns to the receiver. The light transit time is twice the signal duration; a switching transition occurs when the light beam is interrupted. Discrimination of opaque reflective objects; transparent glass identification marks can be used with the help of special sensors;when sensors with polarizing filters are used, reflective objects become reliable identification (see MSR function). Mirror components form a high effective distance range; not susceptible to interference.

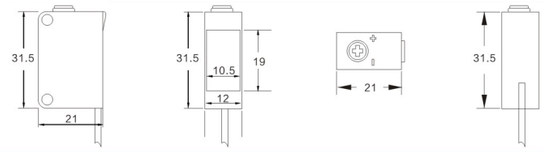
The through-beam photoelectric switch is composed of a light emitter and a light receiver, and the two are separated from each other in structure. It can distinguish opaque reflective objects; the effective distance is large, because the time for the beam to cross the sensing distance is only once; it is not easily disturbed; the consumption of the device is high and both units must be cabled.

## Background Suppression Sensor(Diffusive diffuse reflection)




Output Method

| DC 4-Wire | | | | |
|---|---|---|---|---|
| NO/NC：HG-B30-N | | NO/NC：HG-B30-P | | |
| Detection Distance | Voltage | Sensitivity adjuster | Response Time | Operating Temperature Range |
| 30-300mm(adjustable) | DC12-24V | Multiturn Potentiometers | 1.0ms | -10~+50℃ |
| Storage temperature | IP Protection Level | Normally open and normally closed mode | | Housing Material |
| -20~+60℃ | IP65 | NO(light-entry action)/NC(light-blocking action) | | PC |




## HG-J12-D15 Series(Diffuse Reflection)

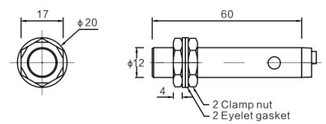


Output Method

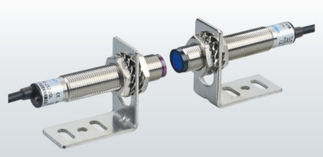
| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：HG-J12-D15N1<br>NC：HG-J12-D15N2 | NO：HG-J12-D15P1<br>NC：HG-J12-D15P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 20-300mm | Transparent/ opaque object | Sensitivity adjuster | 1.5ms | -30~+65℃ | IP65 | Nickel-plated brass |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## HG-J12-T20 Series(Opposite-type)

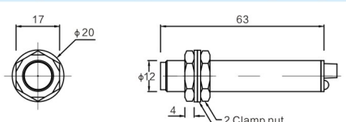


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：HG-J12-T20N1 · 20L<br>NC：HG-J12-T20N2 · 20L | NO：HG-J12-T20P1 · 20L<br>NC：HG-J12-T20P2 · 20L |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 20m | Opaque object | Fixed | 1.5ms | -30~+65℃ | IP65 | Nickel-plated brass |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption



## HG-J18-D50 Series(Diffuse Reflection)

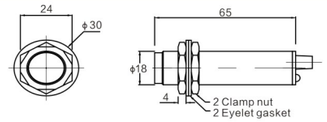


Output Method

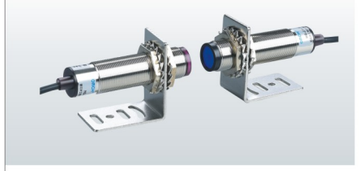
| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：HG-J18-D50N1<br>NC：HG-J18-D50N2 | NO：HG-J18-D50P1<br>NC：HG-J18-D50P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 50-500mm | Transparent/ opaque object | Sensitivity adjuster | 1.5ms | -30~+65℃ | IP65 | Nickel-plated brass |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## HG-J12-T20 Series(Opposite-type)

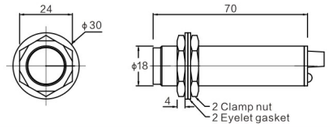


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：HG-J18-T20N1 · 20L<br>NC：HG-J18-T20N2 · 20L | NO：HG-J18-T20P1 · 20L<br>NC：HG-J18-T20P2 · 20L |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 20m | Opaque object | Fixed | 1.5ms | -30~+65℃ | IP65 | Nickel-plated brass |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## AE3F1-DS5(8,10) Series(Diffuse Reflection)

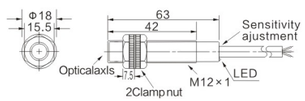


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：AE3F1-DS5(8,10)N1<br>NC：AE3F1-DS5(8,10)N2 | NO：AE3F1-DS5(8,10)P1<br>NC：AE3F1-DS5(8,10)P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 5(8,10)cm ± 10% | Transparent/ opaque object | Fixed | 1ms | -30~+65℃ | IP67 | Nickel-plated brass |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## AE3F1-R1 Series(Feedback Reflective)

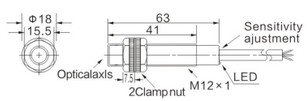


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：AE3F1-R1N1<br>NC：AE3F1-R1N2 | NO：AE3F1-R1P1<br>NC：AE3F1-R1P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 1m ± 10% | Opaque object | Sensitivity adjuster | 1ms | -30~+65℃ | IP67 | Nickel-plated brass |

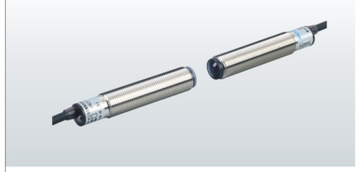
Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption








## AE3F1-3 Series(Opposite-type)

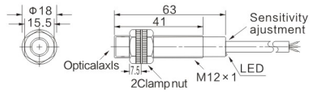


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：AE3F1-3DN1 · 3L<br>NC：AE3F1-3DN2 · 3L | NO：AE3F1-3DP1 · 3L<br>NC：AE3F1-3DP2 · 3L |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 3m ± 10% | Opaque object | Fixed | 1ms | -30~+65℃ | IP67 | Nickel-plated brass |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## AE3F-DS10 Series(Diffuse Reflection)

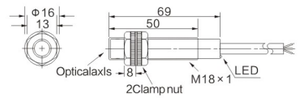


Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3F-DS10N3<br>NC：AE3F-DS10P3 | NO：AE3F-DS10A1<br>NC：AE3F-DS10A2 |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3F-DS10N1<br>NC：AE3F-DS10N2 | NO：AE3F-DS10P1<br>NC：AE3F-DS10P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10cm ± 10% | Transparent/ opaque object | Fixed | DC:1ms AC:30ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## AE3F-DS30 Series(Diffuse Reflection)

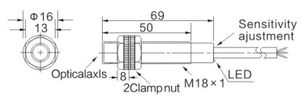


Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3F-DS30N3<br>NC：AE3F-DS30P3 | NO：AE3F-DS30A1<br>NC：AE3F-DS30A2 |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3F-DS30N1<br>NC：AE3F-DS30N2 | NO：AE3F-DS30P1<br>NC：AE3F-DS30P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10-30cm ± 10% | Transparent/ opaque object | Sensitivity adjuster | DC:1ms AC:30ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## AE3F-DS50 Series(Diffuse Reflection)

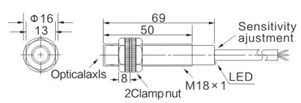


Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3F-DS50N3<br>NC：AE3F-DS50P3 | NO：AE3F-DS50A1<br>NC：AE3F-DS50A2 |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3F-DS50N1<br>NC：AE3F-DS50N2 | NO：AE3F-DS50P1<br>NC：AE3F-DS50P2 |

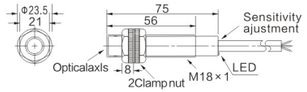
| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10-50cm ± 10% | Transparent/ opaque object | Fixed | DC:1ms AC:30ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption



## AE3F-R2 Series(Feedback Reflective)





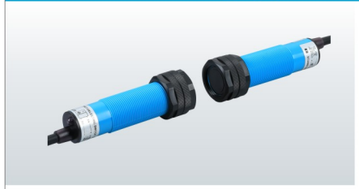

Output Method

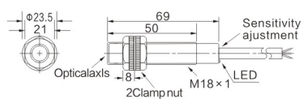
| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3F-R2N3<br>NC：AE3F-R2P3 | NO：AE3F-R2A1<br>NC：AE3F-R2A2 |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3F-R2N1<br>NC：AE3F-R2N2 | NO：AE3F-R2P1<br>NC：AE3F-R2P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 2m ± 10% | Opaque object | Sensitivity adjuster | DC:1ms<br>AC:30ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

## AE3F-5D Series(Opposite-type)






Output Method

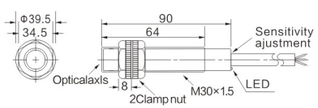
| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3F-5DN3 · 5L<br>NC：AE3F-5DP3 · 5L | NO：AE3F-5DA1 · 5A<br>NC：AE3F-5DA2 · 5A |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3F-5DN1 · 5L<br>NC：AE3F-5DN2 · 5L | NO：AE3F-5DP1 · 5L<br>NC：AE3F-5DP2 · 5L |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 5m ± 10% | Opaque object | Fixed | DC:1ms<br>AC:30ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

## AE3F3-DS50(70,80) Series(Diffuse Reflection)






Output Method

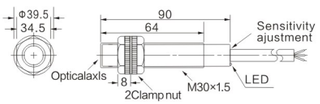
| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3F3-DS50(70,80)N3<br>NC：AE3F3-DS50(70,80)P3 | NO：AE3F3-DS50(70,80)A1<br>NC：AE3F3-DS50(70,80)A2 |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3F3-DS50(70,80)N1<br>NC：AE3F3-DS50(70,80)N2 | NO：AE3F3-DS50(70,80)P1<br>NC：AE3F3-DS50(70,80)P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10~50 (70,80)cm | Transparent/ opaque object | Sensitivity adjuster | DC:1ms<br>AC:30ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

## AE3F3 Series(Feedback Reflective)






Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3F3-R4N3<br>NC：AE3F3-R4P3 | NO：AE3F3-R4A1<br>NC：AE3F3-R4A2 |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3F3-R4N1<br>NC：AE3F3-R4N2 | NO：AE3F3-R4P1<br>NC：AE3F3-R4P2 |

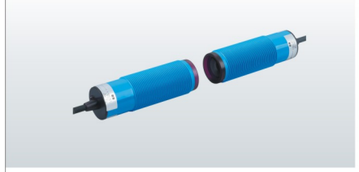
| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 4m ± 10% | Opaque object | Sensitivity adjuster | DC:1ms<br>AC:30ms | -30~+65℃ | IP67 | ABS |

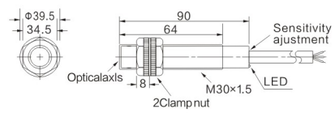
Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption





## AE3F3-10 Series(Opposite-type)






Output Method

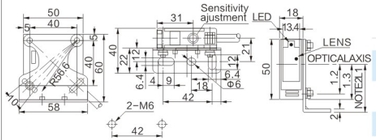
| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3F3-10DN3 · 10L<br>NC：AE3F3-10DP3 · 10L | NO：AE3F3-10DA1 · 10A<br>NC：AE3F3-10DA2 · 10A |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3F3-10DN1 · 10L<br>NC：AE3F3-10DN2 · 10L | NO：AE3F3-10DP1 · 10L<br>NC：AE3F3-10DP2 · 10L |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10m ± 10% | Opaque object | Fixed | DC:1ms<br>AC:30ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

## AE3JK-DS30 Series(Diffuse Reflection)






Output Method

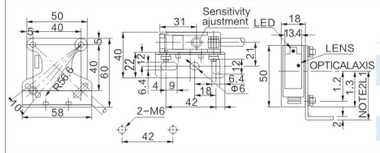
| AC 2-Wire | DC 4-Wire |
|---|---|
| NO：AE3JK-DS30A1<br>NC：AE3JK-DS30A2 | NO：AE3JK-DS30N3<br>NC：AE3JK-DS30P3 |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3JK-DS30N1<br>NC：AE3JK-DS30N2 | NO：AE3JK-DS30P1<br>NC：AE3JK-DS30P2 |
| **Relay Output** | |
| DC Light on：AE3JK-DS30M1-D<br>AC Light on：AE3JK-DS30M1-A | DC Dark on：AE3JK-DS30M2-D<br>AC Dark on：AE3JK-DS30M2-A |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 30cm ± 10% | Transparent/ opaque object | Sensitivity adjuster | 1ms,30ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

## AE3JK-DS50 Series(Diffuse Reflection)





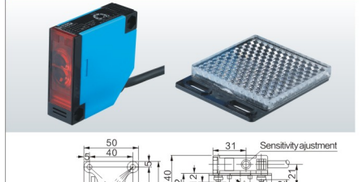

Output Method

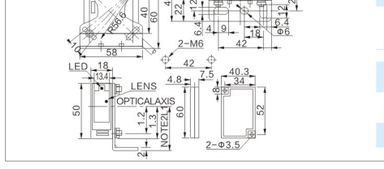
| AC 2-Wire | DC 4-Wire |
|---|---|
| NO：AE3JK-DS50A1<br>NC：AE3JK-DS50A2 | NO：AE3JK-DS50N3<br>NC：AE3JK-DS50P3 |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3JK-DS50N1<br>NC：AE3JK-DS50N2 | NO：AE3JK-DS50P1<br>NC：AE3JK-DS50P2 |
| **Relay Output** | |
| DC Light on：AE3JK-DS50M1-D<br>AC Light on：AE3JK-DS50M1-A | DC Dark on：AE3JK-DS50M2-D<br>AC Dark on：AE3JK-DS50M2-A |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 50cm ± 10% | Transparent/ opaque object | Sensitivity adjuster | 1ms,30ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

## AE3JK-R4 Series(Feedback Reflective)






Output Method

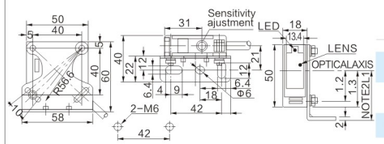
| AC 2-Wire | DC 4-Wire |
|---|---|
| NO：AE3JK-R4A1<br>NC：AE3JK-R4A2 | NO：AE3JK-R4N3<br>NC：AE3JK-R4P3 |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3JK-R4N1<br>NC：AE3JK-R4N2 | NO：AE3JK-R4P1<br>NC：AE3JK-R4P2 |
| **Relay Output** | |
| DC Light on：AE3JK-R4M1-D<br>AC Light on：AE3JK-R4M1-A | DC Dark on：AE3JK-R4M2-D<br>AC Dark on：AE3JK-R4M2-A |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 4m ± 10% | Opaque object | Sensitivity adjuster | 1ms,30ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

## AE3JK-5D Series(Opposite-type)






Output Method

| DC 2-Wire | DC 4-Wire |
|---|---|
| NO：AE3JK-5DA1 · 5L<br>NC：AE3JK-5DA2 · 5L | NO：AE3JK-5DN3 · 5L<br>NC：AE3JK-5DP3 · 5L |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3JK-5DN1 · 5L<br>NC：AE3JK-5DN2 · 5L | NO：AE3JK-5DP1 · 5L<br>NC：AE3JK-5DP2 · 5L |
| **Relay Output** | |
| DC Light on：AE3JK-5DM1 · 5L-D<br>AC Light on：AE3JK-5DM1 · 5L-A | DC Dark on：AE3JK-5DM2 · 5L-D<br>AC Dark on：AE3JK-5DM2 · 5L-A |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 5m ± 10% | Opaque object | Fixed | 1ms,30ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

## AE3Z-D Series(Diffuse Reflection)

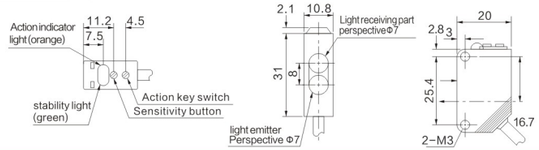


Output Method

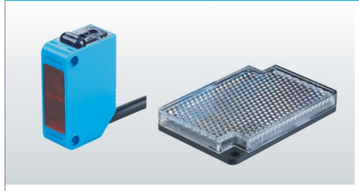
| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：AE3Z-D61 | NO：AE3Z-D81 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 5-20cm | Transparent/ opaque object | Setter | 1ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## AE3Z-R Series(Feedback Reflective)

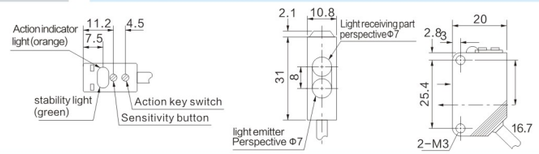


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：AE3Z-R61 | NO：AE3Z-R81 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 2m ± 10% | Opaque object | Setter | 1ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## AE3Z-T Series(Opposite-type)

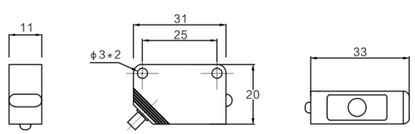


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：AE3Z-T61 | NO：AE3Z-T81 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10m ± 10% | Opaque object | Fixed | 1ms | -30~+65℃ | IP65 | ABS |

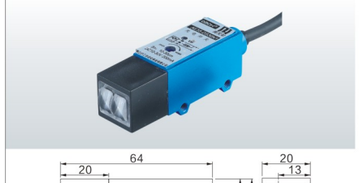
Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

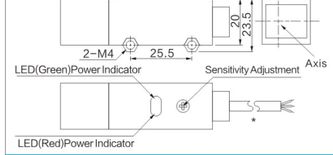






## AE3S-DS30 Series(Diffuse Reflection)





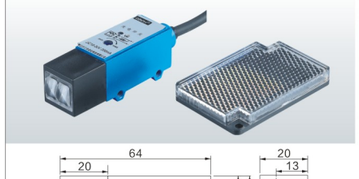

Output Method

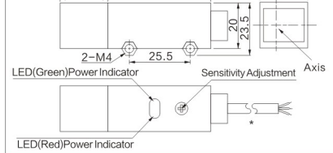
| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3S-DS30N3<br>NC：AE3S-DS30P3 | NO：AE3S-DS30A1<br>NC：AE3S-DS30A2 |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3S-DS30N1<br>NC：AE3S-DS30N2 | NO：AE3S-DS30P1<br>NC：AE3S-DS30P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 30cm ± 10% | Transparent/ opaque object | Sensitivity adjuster | DC:1ms AC:30ms | -30~+65℃ | IP65 | Aluminum die casting |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

## AE3S-R2 Series(Feedback Reflective)





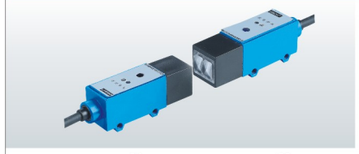

Output Method

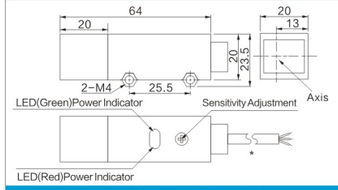
| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3S-R2N3<br>NC：AE3S-R2P3 | NO：AE3S-R2A1<br>NC：AE3S-R2A2 |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3S-R2N1<br>NC：AE3S-R2N2 | NO：AE3S-R2P1<br>NC：AE3S-R2P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 2m ± 10% | Opaque object | Fixed | DC:1ms AC:30ms | -30~+65℃ | IP65 | Aluminum die casting |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

## AE3S-5 Series(Opposite-type)






Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3S-5DN3 · 5L<br>NC：AE3S-5DP3 · 5L | NO：AE3S-5A1 · 5A<br>NC：AE3S-5A2 · 5A |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3S-5DN1 · 5L<br>NC：AE3S-5DN2 · 5L | NO：AE3S-5DP1 · 5L<br>NC：AE3S-5DP2 · 5L |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 5m ± 10% | Opaque object | Fixed | DC:1ms AC:30ms | -30~+65℃ | IP65 | Aluminum die casting |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

## AE3S-GS7 Series(Slot)

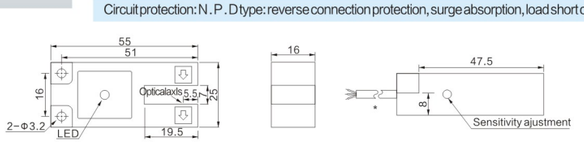


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：AE3S-GS7N1<br>NC：AE3S-GS7N2 | NO：AE3S-GS7P1<br>NC：AE3S-GS7P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 7mm | Opaque object | Sensitivity adjuster | 1ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption



## AE3S-GS15 Series(Slot)

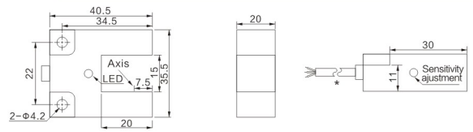


Output Method

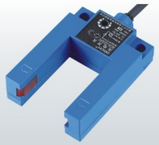
| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：AE3S-GS15N1<br>NC：AE3S-GS15N2 | NO：AE3S-GS15P1<br>NC：AE3S-GS15P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 15mm | Opaque object | Sensitivity adjuster | 1ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## AE3S-GS30 Series(Slot)

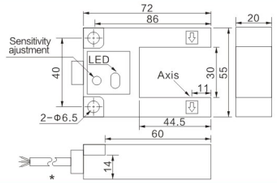


Output Method

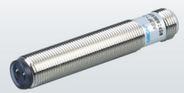
| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：AE3S-GS30N1<br>NC：AE3S-GS30N2 | NO：AE3S-GS30P1<br>NC：AE3S-GS30P2 |
| DC 4-Wire | |
| NO：AE3S-GS30N3<br>NC：AE3S-GS30P3 | |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 30mm | Transparent/ opaque object | Sensitivity adjuster | 1ms | -30~+65℃ | IP65 | Aluminum die casting |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## AE3F1-DS5(8,10) Series(Diffuse Reflection)

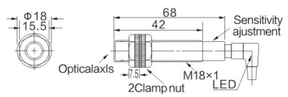


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：AE3F1-DS5(8,10)N1-T<br>NC：AE3F1-DS5(8,10)N2-T | NO：AE3F1-DS5(8,10)P1-T<br>NC：AE3F1-DS5(8,10)P2-T |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 5(8,10)cm ± 10% | Transparent/ opaque object | Fixed | 1ms | -30~+65℃ | IP65 | Nickel-plated brass |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## AE3F1-R1 Series(Feedback Reflective)

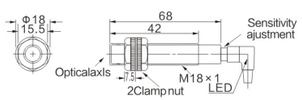


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：AE3F1-R1N1-T<br>NC：AE3F1-R1N2-T | NO：AE3F1-R1P1-T<br>NC：AE3F1-R1P2-T |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 1m ± 10% | Opaque object | Sensitivity adjuster | 1ms | -30~+65℃ | IP65 | Nickel-plated brass |

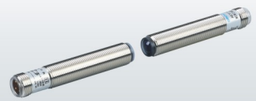
Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption








## AE3F1-3 Series(Opposite-type)

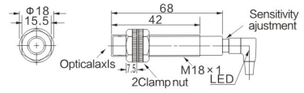


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：AE3F1-3DN1 · 3L-T<br>NC：AE3F1-3DN2 · 3L-T | NO：AE3F1-3DP1 · 3L-T<br>NC：AE3F1-3DP2 · 3L-T |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 3m ± 10% | Opaque object | Fixed | 1ms | -30~+65℃ | IP65 | Nickel-plated brass |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## AE3F-DS10 Series(Diffuse Reflection)

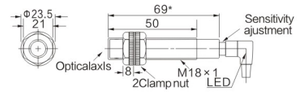


Output Method

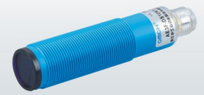
| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3F-DS10N3-T<br>NC：AE3F-DS10P3-T | NO：AE3F-DS10A1-T<br>NC：AE3F-DS10A2-T |
| DC 3-Wire NPN | DC 3-Wire PNP |
| NO：AE3F-DS10N1-T<br>NC：AE3F-DS10N2-T | NO：AE3F-DS10P1-T<br>NC：AE3F-DS10P2-T |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10cm ± 10% | Transparent/ opaque object | Fixed | DC:1ms<br>AC:30ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## AE3F-DS30 Series(Diffuse Reflection)

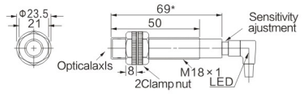


Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3F-DS30N3-T<br>NC：AE3F-DS30P3-T | NO：AE3F-DS30A1-T<br>NC：AE3F-DS30A2-T |
| DC 3-Wire NPN | DC 3-Wire PNP |
| NO：AE3F-DS30N1-T<br>NC：AE3F-DS30N2-T | NO：AE3F-DS30P1-T<br>NC：AE3F-DS30P2-T |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10-30cm ± 10% | Transparent/ opaque object | Sensitivity adjuster | DC:1ms<br>AC:30ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## AE3F-DS50 Series(Diffuse Reflection)

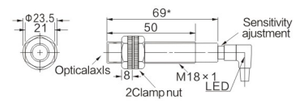


Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3F-DS50N3-T<br>NC：AE3F-DS50P3-T | NO：AE3F-DS50A1-T<br>NC：AE3F-DS50A2-T |
| DC 3-Wire NPN | DC 3-Wire PNP |
| NO：AE3F-DS50N1-T<br>NC：AE3F-DS50N2-T | NO：AE3F-DS50P1-T<br>NC：AE3F-DS50P2-T |

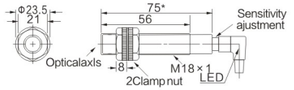
| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10-50cm ± 10% | Transparent/ opaque object | Sensitivity adjuster | DC:1ms<br>AC:30ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption



## AE3F-R2 Series(Feedback Reflective)





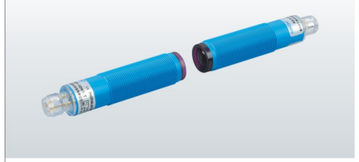

Output Method

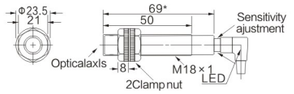
| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3F-R2N3-T<br>NC：AE3F-R2P3-T | NO：AE3F-R2A1-T<br>NC：AE3F-R2A2-T |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3F-R2N1-T<br>NC：AE3F-R2N2-T | NO：AE3F-R2P1-T<br>NC：AE3F-R2P2-T |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 2m ± 10% | Opaque object | Sensitivity adjuster | DC:1ms<br>AC:30ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

## AE3F-5D Series(Opposite-type)






Output Method

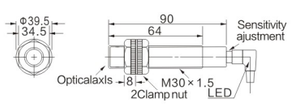
| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3F-5DN3 · 5L-T<br>NC：AE3F-5DP3 · 5L-T | NO：AE3F-5DA1 · 5A-T<br>NC：AE3F-5DA2 · 5A-T |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3F-5DN1 · 5L-T<br>NC：AE3F-5DN2 · 5L-T | NO：AE3F-5DP1 · 5L-T<br>NC：AE3F-5DP2 · 5L-T |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 5m ± 10% | Opaque object | Fixed | DC:1ms<br>AC:30ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

## AE3F3-DS50(70,100) Series(Diffuse Reflection)






Output Method

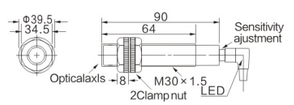
| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3F-DS50(70,100)N3-T<br>NC：AE3F-DS50(70,100)P3-T | NO：AE3F-DS50(70,100)A1-T<br>NC：AE3F-DS50(70,100)A2-T |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3F-DS50(70,100)N1-T<br>NC：AE3F-DS50(70,100)N2-T | NO：AE3F-DS50(70,100)P1-T<br>NC：AE3F-DS50(70,100)P2-T |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10~50 (70,100)cm | Transparent/ opaque object | Sensitivity adjuster | DC:1ms<br>AC:30ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

## AE3F3-R4 Series(Feedback Reflective)






Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3F-R4N3-T<br>NC：AE3F-R4P3-T | NO：AE3F-R4A1-T<br>NC：AE3F-R4A2-T |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3F-R4N1-T<br>NC：AE3F-R4N2-T | NO：AE3F-R4P1-T<br>NC：AE3F-R4P2-T |

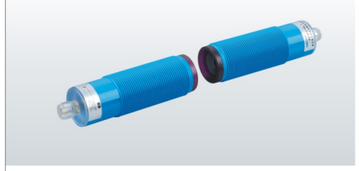
| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 4m ± 10% | Opaque object | Sensitivity adjuster | DC:1ms<br>AC:30ms | -30~+65℃ | IP67 | ABS |

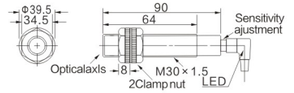
Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption





## AE3F3-10 Series(Opposite-type)






Output Method

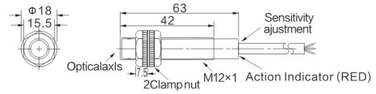
| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：AE3F3-10DN3 · 10L-T<br>NC：AE3F3-10DP3 · 10L-T | NO：AE3F3-10DA1 · 10A-T<br>NC：AE3F3-10DA2 · 10A-T |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：AE3F3-10DN1 · 10L-T<br>NC：AE3F3-10DN2 · 10L-T | NO：AE3F3-10DP1 · 10L-T<br>NC：AE3F3-10DP2 · 10L-T |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10m ± 10% | Opaque object | Fixed | DC:1ms<br>AC:30ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

## E3F1-DS5(8) Series(Diffuse Reflection)






Output Method

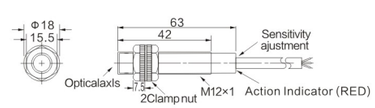
| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：E3F1-DS5(8)C4<br>NC：E3F1-DS5(8)B2 | NO：E3F1-DS5(8)P1<br>NC：E3F1-DS5(8)P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 5(8)cm ± 10% | Opaque object | Fixed | 1ms | -30~+65℃ | IP67 | Nickel-plated brass |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

## E3F1-DS10 Series(Diffuse Reflection)






Output Method

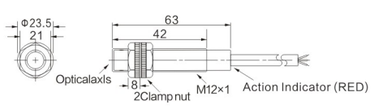
| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：E3F1-DS10C4<br>NC：E3F1-DS10B2 | NO：E3F1-DS10P1<br>NC：E3F1-DS10P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10cm ± 10% | Transparent/ opaque object | Sensitivity adjuster | 1ms | -30~+65℃ | IP67 | Nickel-plated brass |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

## E3F1-R1 Series(Feedback Reflective)





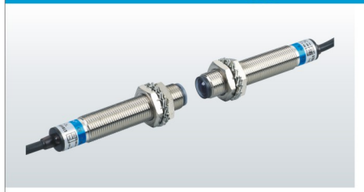

Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：E3F1-R1NK<br>NC：E3F1-R1N2 | NO：E3F1-R1PK<br>NC：E3F1-R1P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 1m ± 10% | Opaque object | Sensitivity adjuster | 1ms | -30~+65℃ | IP67 | Nickel-plated brass |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption

## E3F1-3D Series(Opposite-type)

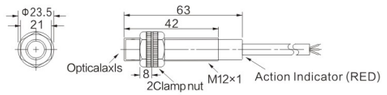


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：E3F1-3DN1 · 3L<br>NC：E3F1-3DN2 · 3L | NO：E3F1-3DP1 · 3L<br>NC：E3F1-3DP2 · 3L |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 3m ± 10% | Opaque object | Fixed | 1ms | −30~+65℃ | IP67 | Nickel-plated brass |

Circuit protection: N . P . D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## E3F-DS10 Series(Diffuse Reflection)

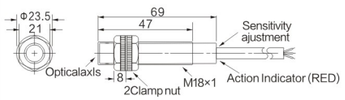


Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：E3F-DS10C3<br>NC：E3F-DS10P3 | NO：E3F-DS10Y1<br>NC：E3F-DS10Y2 |
| DC 3-Wire NPN | DC 3-Wire PNP |
| NO：E3F-DS10C4<br>NC：E3F-DS10B2 | NO：E3F-DS10P1<br>NC：E3F-DS10P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10cm ± 10% | Transparent/ opaque object | Fixed | 1ms | −30~+65℃ | IP67 | ABS |

Circuit protection: N . P . D type: surge absorption, A type: surge absorption




## E3F-DS30(50,100) Series(Diffuse Reflection)

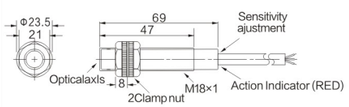


Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：E3F-DS30(50,100)C3<br>NC：E3F-DS30(50,100)P3 | NO：E3F-DS30(50,100)Y1<br>NC：E3F-DS30(50,100)Y2 |
| DC 3-Wire NPN | DC 3-Wire PNP |
| NO：E3F-DS30(50,100)C4<br>NC：E3F-DS30(50,100)B2 | NO：E3F-DS30(50,100)P1<br>NC：E3F-DS30(50,100)P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10−30(50, 100)cm ± 10% | Transparent/ opaque object | Sensitivity adjuster | 1ms | −30~+65℃ | IP67 | ABS |

Circuit protection: N . P . D type: surge absorption, A type: surge absorption




## E3F-R2 Series(Feedback Reflective)

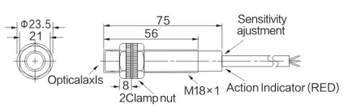


Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：E3F-R2N3<br>NC：E3F-R2P3 | NO：E3F-R2Y1<br>NC：E3F-R2Y2 |
| DC 3-Wire NPN | DC 3-Wire PNP |
| NO：E3F-R2NK<br>NC：E3F-R2N2 | NO：E3F-R2PK<br>NC：E3F-R2P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 2m ± 10% | Opaque object | Sensitivity adjuster | 1ms | −30~+65℃ | IP67 | ABS |

Circuit protection: N . P . D type: surge absorption, A type: surge absorption








## E3F-5(10) Series(Opposite-type)

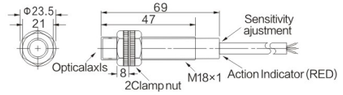


Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：E3F-5(10)DN3 · 5L<br>NC：E3F-5(10)DP3 · 5L | NO：E3F-5(10)DY1 · 5LY<br>NC：E3F-5(10)DY2 · 5LY |
| DC 3-Wire NPN | DC 3-Wire PNP |
| NO：E3F-5(10)DN1 · 5L<br>NC：E3F-5(10)DN2 · 5L | NO：E3F-5(10)DP1 · 5L<br>NC：E3F-5(10)DP2 · 5L |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 5(10)m ± 10% | Opaque object | Fixed | 1ms | −30~+65℃ | IP67 | ABS |

Circuit protection: N . P . D type: surge absorption, A type: surge absorption




## E3F3-DS50(70,100) Series(Diffuse Reflection)

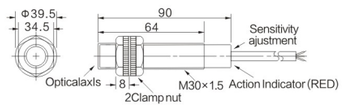


Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：E3F3-DS50(70,100)N3<br>NC：E3F3-DS50(70,100)P3 | NO：E3F3-DS50(70,100)Y1<br>NC：E3F3-DS50(70,100)Y2 |
| DC 3-Wire NPN | DC 3-Wire PNP |
| NO：E3F3-DS50(70,100)N1<br>NC：E3F3-DS50(70,100)N2 | NO：E3F3-DS50(70,100)P1<br>NC：E3F3-DS50(70,100)P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10−50(70, 100)cm ± 10% | Transparent/ opaque object | Sensitivity adjuster | 1ms | −30~+65℃ | IP67 | ABS |

Circuit protection: N . P . D type: surge absorption, A type: surge absorption




## E3F3-R4 Series(Feedback Reflective)

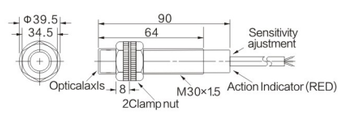


Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：E3F3-R4N3<br>NC：E3F3-R4P3 | NO：E3F3-R4Y1<br>NC：E3F3-R4Y2 |
| DC 3-Wire NPN | DC 3-Wire PNP |
| NO：E3F3-R4NK<br>NC：E3F3-R4N2 | NO：E3F3-R4PK<br>NC：E3F3-R4P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 4m ± 10% | Opaque object | Sensitivity adjuster | 1ms | −30~+65℃ | IP67 | ABS |

Circuit protection: N . P . D type: surge absorption, A type: surge absorption




## E3F3-10 Series(Opposite-type)

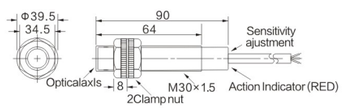


Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：E3F3-10DN3 · 10L<br>NC：E3F3-10DP3 · 10L | NO：E3F3-10DY1 · 10LY<br>NC：E3F3-10DY2 · 10LY |
| DC 3-Wire NPN | DC 3-Wire PNP |
| NO：E3F3-10DN1 · 10L<br>NC：E3F3-10DN2 · 10L | NO：E3F3-10DP1 · 10L<br>NC：E3F3-10DP2 · 10L |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10m ± 10% | Opaque object | Fixed | 1ms | −30~+65℃ | IP67 | ABS |

Circuit protection: N . P . D type: surge absorption, A type: surge absorption



## CDD-11 Series(Diffuse Reflection)



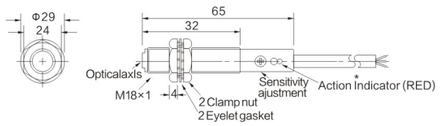
Output Method

DC 4-Wire

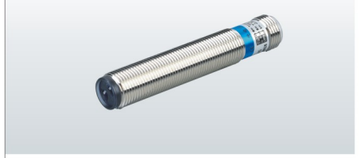
NO/NC(NPN)：CDD-11N(40N)
NO/NC(PNP)：CDD-11P(40P)

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10(30)cm ± 10% | Opaque object | Sensitivity adjuster | 1ms | -30~+65℃ | IP67 | Nickel-plated brass |

Circuit protection: N . P . D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## E3F1-DS5(8,10) Series(Diffuse Reflection)

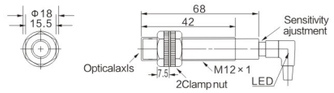


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：E3F1-DS5(8,10)C4-G<br>NC：E3F1-DS5(8,10)B2-G | NO：E3F1-DS5(8,10)P1-G<br>NC：E3F1-DS5(8,10)P2-G |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 5(8,10)cm ± 10% | Transparent/ opaque object | Fixed | 1ms | -30~+65℃ | IP67 | Nickel-plated brass |

Circuit protection: N . P . D type: surge absorption, A type: surge absorption




## E3F1-R1 Series(Feedback Reflective)

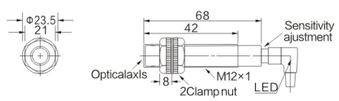


Output Method

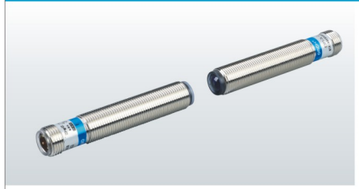
| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：E3F1-R1NK-G<br>NC：E3F1-R1N2-G | NO：E3F1-R1PK-G<br>NC：E3F1-R1P2-G |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 1m ± 10% | Opaque object | Sensitivity adjuster | 1ms | -30~+65℃ | IP67 | Nickel-plated brass |

Circuit protection: N . P . D type: surge absorption, A type: surge absorption




## E3F1-3 Series(Opposite-type)

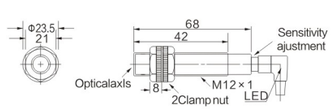


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：E3F1-3DN1 · 3L-G<br>NC：E3F1-3DN2 · 3L-G | NO：E3F1-3DP1 · 3L-G<br>NC：E3F1-3DP2 · 3L-G |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 3m ± 10% | Opaque object | Fixed | 1ms | -30~+65℃ | IP67 | Nickel-plated brass |

Circuit protection: N . P . D type: surge absorption, A type: surge absorption








## E3F-DS10 Series(Diffuse Reflection)

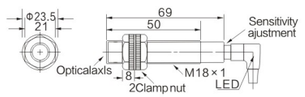


Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：E3F-DS10C3-G<br>NC：E3F-DS10P3-G | NO：E3F-DS10Y1-G<br>NC：E3F-DS10Y2-G |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：E3F-DS10C4-G<br>NC：E3F-DS10B2-G | NO：E3F-DS10P1-G<br>NC：E3F-DS10P2-G |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10cm ± 10% | Transparent/ opaque object | Fixed | 1ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N . P . D type: surge absorption, A type: surge absorption




## E3F-DS30(50,100) Series(Diffuse Reflection)

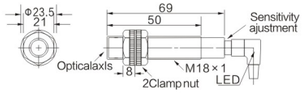


Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：E3F-DS30(50,100)C3-G<br>NC：E3F-DS30(50,100)P3-G | NO：E3F-DS30(50,100)Y1-G<br>NC：E3F-DS30(50,100)Y2-G |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：E3F-DS30(50,100)C4-G<br>NC：E3F-DS30(50,100)B2-G | NO：E3F-DS30(50,100)P1-G<br>NC：E3F-DS30(50,100)P2-G |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 30(50,100)cm ± 10% | Transparent/ opaque object | Sensitivity adjuster | 1ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N . P . D type: surge absorption, A type: surge absorption




## E3F-R2 Series(Feedback Reflective)

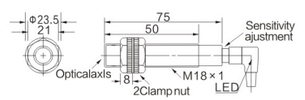


Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：E3F-R2N3-G<br>NC：E3F-R2P3-G | NO：E3F-R2Y1-G<br>NC：E3F-R2Y2-G |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：E3F-R2NK-G<br>NC：E3F-R2N2-G | NO：E3F-R2PK-G<br>NC：E3F-R2P2-G |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 2m ± 10% | Opaque object | Sensitivity adjuster | 1ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N . P . D type: surge absorption, A type: surge absorption




## E3F-5(10) Series(Opposite-type)

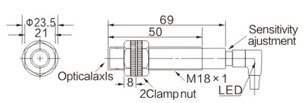


Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：E3F-5(10)DN3 · 5L-G<br>NC：E3F-5(10)DP3 · 5L-G | NO：E3F-5(10)DY1 · 5LY-G<br>NC：E3F-5(10)DY2 · 5LY-G |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：E3F-5(10)DN1 · 5L-G<br>NC：E3F-5(10)DN2 · 5L-G | NO：E3F-5(10)DP1 · 5L-G<br>NC：E3F-5(10)DP2 · 5L-G |

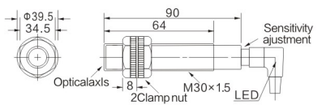
| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 5(10)m ± 10% | Opaque object | Fixed | 1ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N . P . D type: surge absorption, A type: surge absorption



## E3F3-DS50(70,100) Series(Diffuse Reflection)






Output Method

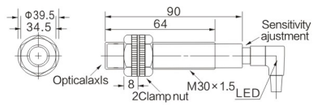
| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：E3F3-DS50(70,100)N3-G<br>NC：E3F3-DS50(70,100)P3-G | NO：E3F3-DS50(70,100)Y1-G<br>NC：E3F3-DS50(70,100)Y2-G |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：E3F3-DS50(70,100)N1-G<br>NC：E3F3-DS50(70,100)N2-G | NO：E3F3-DS50(70,100)P1-G<br>NC：E3F3-DS50(70,100)P2-G |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 50(70, 100)cm ± 10% | Transparent/ opaque object | Sensitivity adjuster | 1ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N . P . D type: surge absorption, A type: surge absorption

## E3F-DS30(50,100) Series(Feedback Reflective)





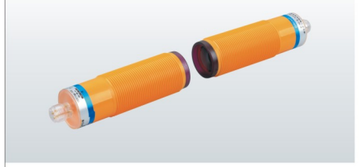

Output Method

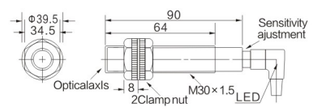
| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：E3F3-R4N3-G<br>NC：E3F3-R4P3-G | NO：E3F3-R4Y1-G<br>NC：E3F3-R4Y2-G |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：E3F3-R4NK-G<br>NC：E3F3-R4N2-G | NO：E3F3-R4PK-G<br>NC：E3F3-R4P2-G |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 4m ± 10% | Opaque object | Sensitivity adjuster | 1ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N . P . D type: surge absorption, A type: surge absorption

## E3F3-10 Series(Opposite-type)






Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：E3F3-10DN3 · 10L-G<br>NC：E3F3-10DP3 · 10L-G | NO：E3F3-10DY1 · 10LY-G<br>NC：E3F3-10DY2 · 10LY-G |
| **DC 3-Wire NPN** | **DC 3-Wire PNP** |
| NO：E3F3-10DN1 · 10L-G<br>NC：E3F3-10DN2 · 10L-G | NO：E3F3-10DP1 · 10L-G<br>NC：E3F3-10DP2 · 10L-G |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10m ± 10% | Opaque object | Fixed | 1ms | -30~+65℃ | IP67 | ABS |

Circuit protection: N . P . D type: surge absorption, A type: surge absorption

## HG-E3FA Series(Diffuse Reflection)

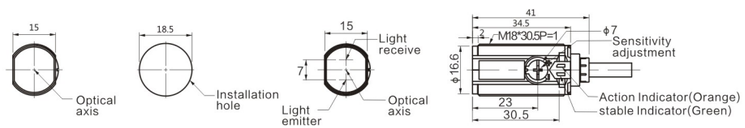


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NC：HG-E3FA-DN11(12,13) | NC：HG-E3FA-DP11(12,13) |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 100mm,300mm, 1m | Transparent/ opaque object | Setter | 1ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N . P . D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption








## HG-E3FA Series(Feedback Reflective)

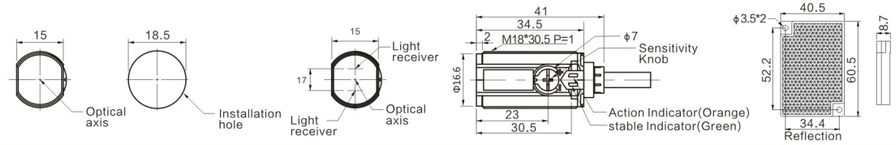


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NC：HG-E3FA-RN11 | NC：HG-E3FA-RP12 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 0.1-4m | Transparent/ opaque object | Setter | 1ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N . P . D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## HG-E3FA Series(Opposite-type)

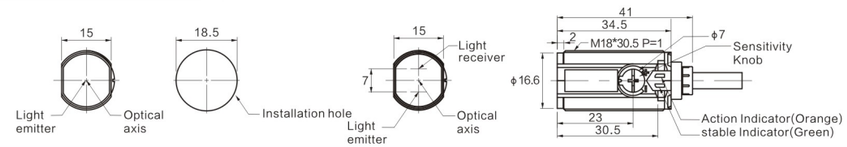


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NC：HG-E3FA-TN11(12) | NC：HG-E3FA-TP11(12) |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 20m,15m | Transparent/ opaque object | Setter | 1ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N . P . D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## E3JK-DS30(50)M Series(Diffuse Reflection)



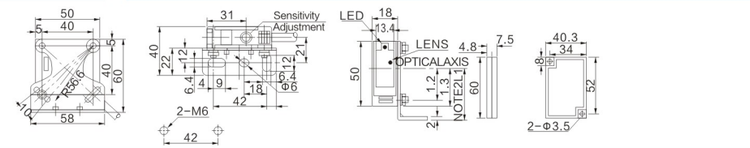
Output Method

Relay Output

| | |
|---|---|
| DC light on：E3JK-DS30(50)M1<br>AC light on：E3JK-DS30(50)M1 | DC dark on：E3JK-DS30(50)M2<br>AC dark on：E3JK-DS30(50)M2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 30(50)cm ± 10% | Transparent/ opaque object | Sensitivity adjuster | 30ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N . P . D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## E3JK-R4M Series(Feedback Reflective)



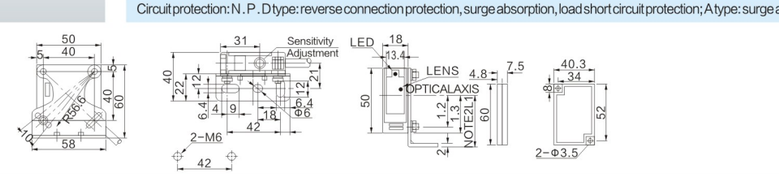
Output Method

Relay Output

| | |
|---|---|
| DC light on：E3JK-R4M1<br>AC light on：E3JK-R4M1 | DC dark on：E3JK-R4M2<br>AC dark on：E3JK-R4M2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 4m ± 10% | Opaque object | Sensitivity adjuster | 30ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N . P . D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption



## E3JK-5DM Series(Opposite-type)



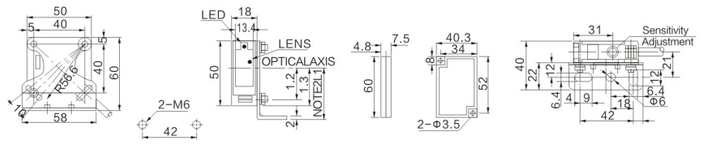
Output Method

Relay Output

DC light on：E3JK-5DM1 · 5L
AC light on：E3JK-5DM1 · 5L
DC dark on：E3JK-5DM2 · 5L
AC dark on：E3JK-5DM2 · 5L

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 5m ± 10% | Opaque object | Fixed | 30ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## E3Z-D Series(Diffuse Reflection)

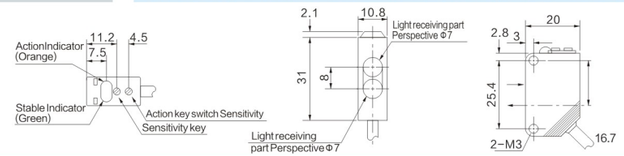


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：E3Z-D61 | NO：E3Z-D81 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 5-20cm | Transparent/ opaque object | Setter | 1ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## E3Z-R Series(Feedback Reflective)

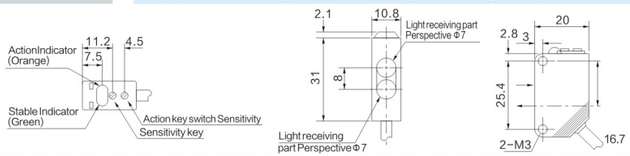


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：E3Z-R61 | NO：E3Z-R81 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 2m ± 10% | Opaque object | Setter | 1ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## E3Z-T Series(Opposite-type)

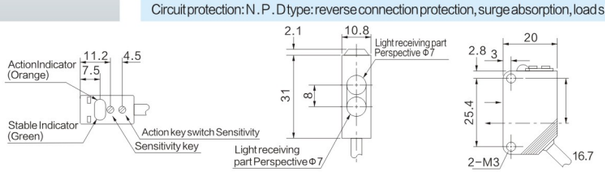


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：E3Z-T61 | NO：E3Z-T81 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10m ± 10% | Opaque object | Fixed | 1ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption








## E3JK Series(Diffuse Reflection)

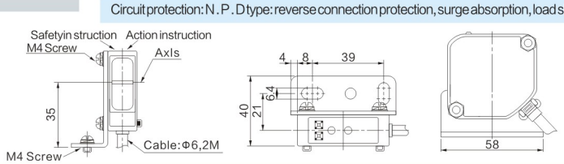


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO/NC/Adjustable：E3JK-DN12-C | NO/NC/Adjustable：E3JK-DP12-C |
| AC-DC Relay Output Bright and dark onadjustable：E3JK-DR12-C | |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 30cm ± 10% | Transparent/ opaque object | Sensitivity adjuster | 1/30ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## E3JK Series(Feedback Reflective)

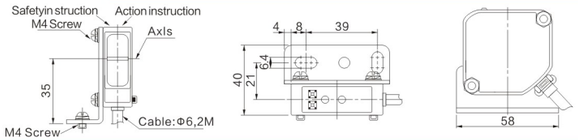


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO/NC/Adjustable：E3JK-RN12-C | NO/NC/Adjustable：E3JK-RP12-C |
| AC-DC Relay Output Bright and dark onadjustable：E3JK-RR12-C | |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 4m | Opaque object | Sensitivity adjuster | 1/30ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## E3JK Series(Opposite-type)

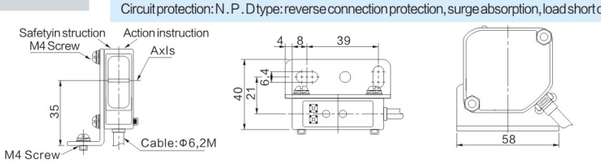


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO/NC/Adjustable：E3JK-TN12-C | NO/NC/Adjustable：E3JK-TP12-C |
| AC-DC Relay Output Bright and dark onadjustable：E3JK-TR12-C | |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 5m ± 10% | Opaque object | Fixed | 1/30ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## BEN300-DFR Series(Diffuse Reflection)

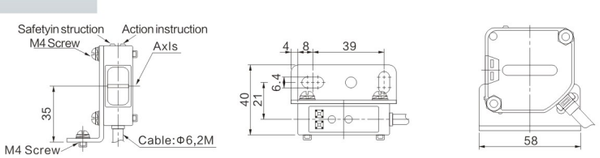


Output Method

AC-DC Relay Output Bright and dark onadjustable：BEN300-DFR

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 30cm ± 10% | Transparent/ opaque object | Sensitivity adjuster | 30ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption



## BEN5M-MFR Series(Feedback Reflective)

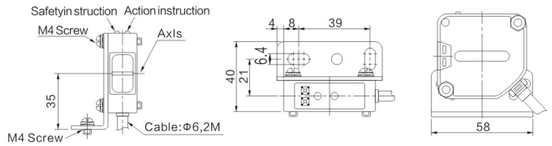


Output Method

AC-DC Relay Output Bright and dark onadjustable：BEN5M-MFR

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 5m ± 10% | Opaque object | Sensitivity adjuster | 30ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## BEN10M-TFR Series(Opposite-type)

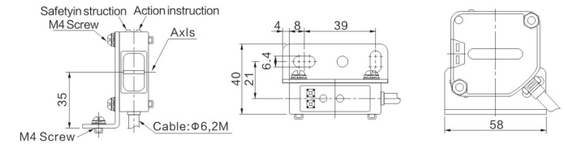


Output Method

AC-DC Relay Output Bright and dark onadjustable：BEN10M-TFR

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10m ± 10% | Opaque object | Fixed | 30ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## GKF-2 Series(Diffuse Reflection)



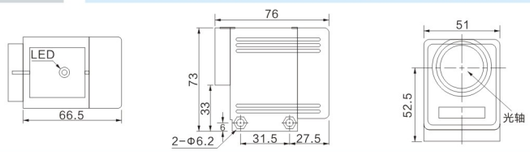
Output Method

Relay Output

DC light on：GKF-2
AC light on：GKF-2

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 50cm ± 10% | Transparent/ opaque object | Sensitivity adjuster | 30ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## GDK-5(50) Series(Opposite-type)



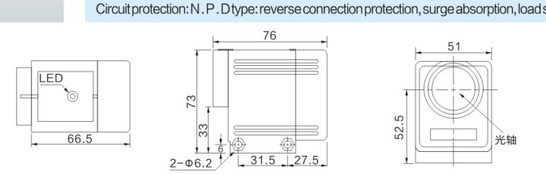
Output Method

Relay Output

DC light on：GDK-5(50)
AC light on：GDK-5(50)

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 5(50)m ± 10% | Opaque object | Fixed | 30ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption








## E3S-DS30 Series(Diffuse Reflection)

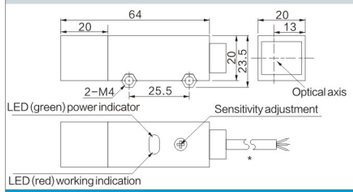


Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：E3S-DS30N3<br>NC：E3S-DS30P3 | NO：E3S-DS30Y1<br>NC：E3S-DS30Y2 |
| DC 3-Wire NPN | DC 3-Wire PNP |
| NO：E3S-DS30N1<br>NC：E3S-DS30N2 | NO：E3S-DS30P1<br>NC：E3S-DS30P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 30cm ± 10% | Transparent/ opaque object | Sensitivity adjuster | DC:1ms AC:30ms | -30~+65℃ | IP65 | Aluminum die casting |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## E3S-R2 Series(Feedback Reflective)

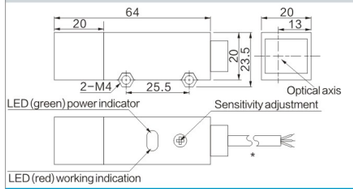


Output Method

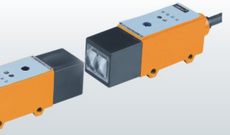
| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：E3S-R2N3<br>NC：E3S-R2P3 | NO：E3S-R2Y1<br>NC：E3S-R2Y2 |
| DC 3-Wire NPN | DC 3-Wire PNP |
| NO：E3S-R2N1<br>NC：E3S-R2N2 | NO：E3S-R2P1<br>NC：E3S-R2P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 2m ± 10% | Opaque object | Fixed | DC:1ms AC:30ms | -30~+65℃ | IP65 | Aluminum die casting |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## E3S-5D Series(Opposite-type)

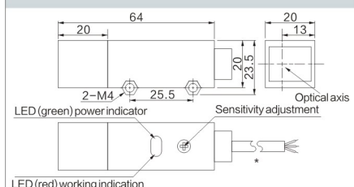


Output Method

| DC 4-Wire | AC 2-Wire |
|---|---|
| NO：E3S-5DN3 · 5L<br>NC：E3S-5DP3 · 5L | NO：E3S-5DY1 · 5LY<br>NC：E3S-5DY2 · 5LY |
| DC 3-Wire NPN | DC 3-Wire PNP |
| NO：E3S-5DN1 · 5L<br>NC：E3S-5DN2 · 5L | NO：E3S-5DP1 · 5L<br>NC：E3S-5DP2 · 5L |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 5m ± 10% | Opaque object | Fixed | DC:1ms AC:30ms | -30~+65℃ | IP65 | Aluminum die casting |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## GDK-3 Series(Diffuse Reflection)



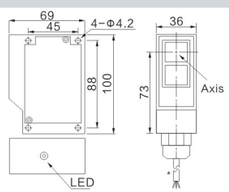
Output Method

Relay Output

| DC 5-Wire：GDK-3 | AC 5-Wire：GDK-3 |
|---|---|

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 100cm | Transparent/ opaque object | Sensitivity adjuster | 30ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption



## E3S-GS7 Series(Slot)

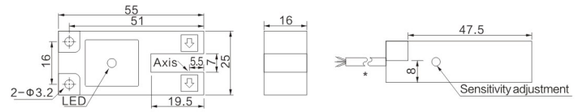


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：E3S-GS7N<br>NC：E3S-GS7N2 | NO：E3S-GS7P<br>NC：E3S-GS7P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 7mm | Transparent/ opaque object | Sensitivity adjuster | 1ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## E3S-GS10 Series(Slot)

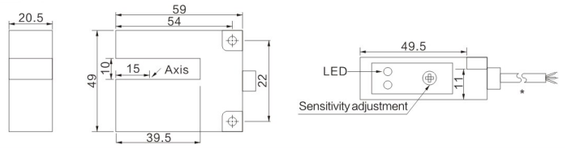


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：E3S-GS10N<br>NC：E3S-GS10N2 | NO：E3S-GS10P<br>NC：E3S-GS10P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 10mm | Opaque object | Sensitivity adjuster | 1ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## E3S-GS15 Series(Slot)

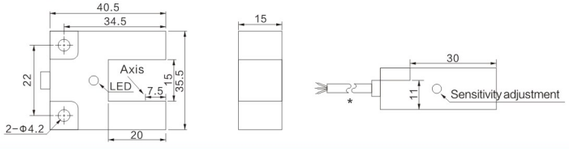


Output Method

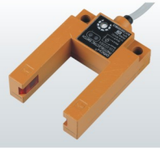
| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：E3S-GS15N<br>NC：E3S-GS15N2 | NO：E3S-GS15P<br>NC：E3S-GS15P2 |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 15mm | Opaque object | Sensitivity adjuster | 1ms | -30~+65℃ | IP65 | ABS |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## E3S-GS30 Series(Slot)

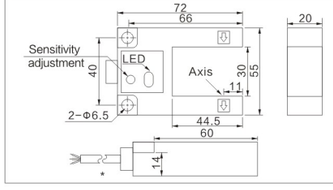


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：E3S-GS30E4<br>NC：E3S-GS30E2 | NO：E3S-GS30F4<br>NC：E3S-GS30F2 |
| DC 4-Wire | |
| NO：E3S-GS30E42<br>NC：E3S-GS30F42 | |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 30mm | Opaque object | Sensitivity adjuster | 1ms | -30~+65℃ | IP65 | Aluminum die casting |

Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption








## E3S-GS50 Series(Slot)

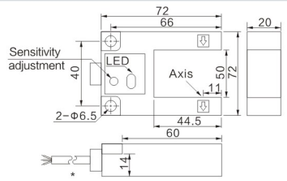


Output Method

| DC 3-Wire NPN | DC 3-Wire PNP |
|---|---|
| NO：E3S-GS50E4<br>NC：E3S-GS50E2 | NO：E3S-GS50F4<br>NC：E3S-GS50F2 |
| DC 4-Wire | |
| NO：E3S-GS50E42<br>NC：E3S-GS50F42 | |

| Detection Distance | Detection Target | Detection Distance Adjustment | Response Time | Operating Temperature Range | IP Protection Level | Housing Material |
|---|---|---|---|---|---|---|
| 50mm | Opaque object | Sensitivity adjuster | 1ms | -30~+65℃ | IP65 | Aluminum die casting |

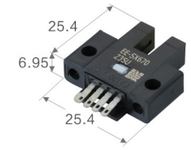
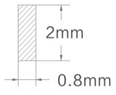
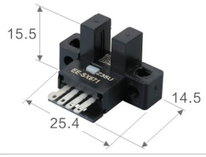
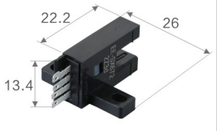
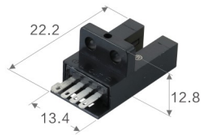
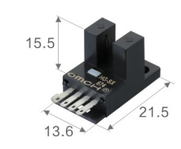
Circuit protection: N.P.D type: reverse connection protection, surge absorption, load short circuit protection; A type: surge absorption




## Main Characteristics

- Operation mode: ON when light is blocked/ON when light is received (switchable type)
- High-speed response with a response frequency of 1kHz
- The incident light indicator light is obvious, easy to confirm the action
- Voltage is a wide range of DC5~24V
- With the function of lighting up the incoming light display when the light is blocked.



| Shape | Detection Distance | Structure | Speciality | Output Patter | Indicator | Type | |
|---|---|---|---|---|---|---|---|
| | | | | | | NPN | PNP |
|  | 5mm (groove width) | DC Light Mode | Universal connector type light emitter/ light receiving window  | ON when shading ON in light (switchable) | - | EE-SX670 | EE-SX670P |
| | | | | | ● | EE-SX670A | EE-SX670R |
|  | | | | | - | EE-SX671 | EE-SX671P |
| | | | | | ● | EE-SX671A | EE-SX671R |
|  | | | | | - | EE-SX672 | EE-SX672P |
| | | | | | ● | EE-SX672A | EE-SX672R |
|  | | | | | - | EE-SX673 | EE-SX673P |
| | | | | | ● | EE-SX673A | EE-SX673R |
|  | | | | | - | EE-SX674 | EE-SX674P |
| | | | | | ● | EE-SX674A | EE-SX674R |

## KS series color mark sensor

- KS series mark detection photoelectric switch scans on the surface of the paper to be inspected by its own light source.Due to the different surface colors, the amount of light reflected back is different, so as to achieve the recognition of color marks.
- Coaxial optical path design, more adaptable to high reflection coefficient paper (such as aluminum foil, etc.).
- White, blue, green, red and other light sources are available, which is convenient for distinguishing various colors.
- The light spot is small and the resolution is extremely high.
- High response speed of 0.1~1ms can meet the control needs of various packaging machines, bag making machines and printing machines.
- Excellent internal circuit design, excellent anti-electromagnetic and stray light interference performance, stable operation,N/A malfunction.
- With a sensitivity adjustment knob, it can be adjusted without tools.



## Model Specification

| Model | Light Source | Lead wire | Model | Light Source | Lead wire |
|---|---|---|---|---|---|
| KS-C2G | Green | four core | KS-C2RG | Red Green | four core |
| KS-C2W | White | four core | KS-C2GB | Green Blue | four core |
| KS-C2R | Red | four core | KS-C2WB | White Blue | four core |
| KS-C2B | Blue | four core | KS-C2GW | Green White | four core |

## Main Technical Parameters

| | | | |
|---|---|---|---|
| Detection Method | Coaxial reflective | Load Current | 200mA(max) |
| Detection Distance | 12mm ± 2mm | Circuit protection device | Vs Voltage has reverse polarity protection, and Output has Short circuit protection. When the load current L>200mA, the switch automatically trips,and when L≤200mA, the signal automatically recovers. At the same time, it has any protection against wrong line. |
| Power supply Voltage | DC10-30V ± 10% ripple <10% | | |
| Current consumption | <45mA | Sensitivity | Single turn adjustable |
| Light source spectrum | Red, green, blue (choose according to the Modeltable) | Anti-ambient light | Incandescent lamp<3000LX<br>Sunlight 10000LX |
| Light spot | Φ0.5-Φ1.5 | Degree of protection | IP67(moisture-proof and dust-proof) |
| Detection angle | The light is perpendicular to the surface to be tested and the allowable aberration is ± 15° | Ambient temperature | Operation-15℃-65℃<br>Storage-15℃-80℃ |
| Response Time | 0.1~1ms | Shell Material | Engineering plastics |
| Output Method | Bright and dark optional | Lead wire | Φ5.4PVC four-core sheathed shielded cable standard length 2m |
| Output indicator | Red LED | Dimension | 22 × 63 × 89mm |
| OutputVoltage | High level VS- (≤1.5) Low level (≤1.2V) | Weight | 200g |





## BZJ Series color mark sensor

BZJ series color mark sensor adopts the principle of light emission and reception, generates modulated light, receives the reflected light of the supplementary measurement object, and distinguishes different colors or judges whether the object exists or not according to the strength of the received signal. In the automatic control system of packaging machinery, printing machinery, textile and papermaking machinery, it is used as a sensor in conjunction with other instruments. It can be used to detect the N/A of marked pattern color blocks, lines, or objects, and can realize automatic positioning and color identification, correction, version alignment, counting and other functions. This series of sensors adopts optical technology, semiconductor electronic technology, and modulation and demodulation technology. It has the characteristics of high sensitivity, fast response speed, strong anti-interference ability of background light, compact structure, and convenient use.

## Model and Meaning Description

BZJ - □ □ □ □ - □

- Logical classification：P-PNP N-NPN
- Light source color：R means white light G means green light
- Light source classification：1.Single light source 2.Double light source
- Optical path classification：1.Coaxial 2. Non coaxial
- Design procedure：1,2...
- Color mark sensor

## Main Technical Parameters

| Model | BZJ-211 | BZJ-311 | BZJ-411 | BZJ-511 |
|---|---|---|---|---|
| Shape legend |  |  |  |  |
| Dimension mm | 28 × 57 × 85 | 38 × 62 × 100 | 23 × 40 × 56 | 23 × 40 × 56 |
| Power supply Voltage | 10-30VDC | 10-30VDC | 10-30VDC | 10-30VDC |
| Ambient temperature | 0-50℃ | 0-50℃ | 0-50℃ | 0-50℃ |
| Detection Method | Coaxial beam | Coaxial beam | Coaxial beam | Coaxial beam |
| Detection Distance | 10mm ± 2mm | 9mm | 9mm | 9mm |
| Light source spectrum | red, green, blue,white | red, green, blue,white | red, green, blue,white | red, green, blue,white |
| light spot | polka dot | polka dot | polka dot | polka dot |
| Response time | 50us | 50us | 200uS/500uS | 200uS/500uS |
| Output current | <200mA | <200mA | <200mA | <200mA |
| Output Method | NPN | NPN、Analog Output | NPN | NPN |
| Shell Material | Metal | Metal | Metal | Metal |
| Lead length | 2m | 2m | 2m | 2m |
| Protective function | Power supply reverse protection, load Short circuit protection | | | |
| Weight | 300g | 500g | 200g | 200g |

## Main Characteristics



- It is applicable to automatic assembly line, elevator, dangerous restricted area, forging press,punching and shearing machine tool, paper cutter, etc., for safety inspection, and plays a protective role.
- It uses synchronous scanning technology, dense light source, N/A working blind area, strong antiinterference ability, and easy installation.
- It has the function of anti-mutual interference, more than two sets can be installed closely.
- It has fault self-checking function, power-off stop, internal device failure stop, connection failure stop, object intrusion stop signal Output.
- It is supplied with dedicated controller, providing powerful control functions.

## Model Specification

| Model | GM20-2M04NC-R · T | GM20-2M04PC-R · T |
|---|---|---|
| Output Mode | NPN Output | PNP Output |
| Type | 1output port, lead-out type | |
| Control Output | 1 output port | |
| Light | Red, 4-element LED body | |
| Response Time | 250μS | |
| Output Selection | LIGHT-ON/DARK-ON(Select by switch;S) | |
| Dusplay Indicator | Operation Indicator: red light-emitting diode, dual digital monitor: double 8-digit display, threshold value (4-digit green lightemitting diode body indicator) and current value (4-digit red light-emitting diode body indicator) light up together. Current value range: 0 -9999 | |
| Detection Method | Light Intensity | |
| Delay Function | N/A | |
| Control Output | NPN/PNP open collector 24V, maximum 100mA (main unit only), maximum 20mA (residual voltage: 1V when extension unit is connected) | |
| Power Supply | Between 12 and 24VDC ± 10%, floating ratio (P-P): 10% max Class 2 | |
| Bright Working Environment | Incandescent: Maximum: 20,000lux, Daylight: Maximum: 30,000lux | |
| Power consumption | Standard Mode: Maximum 300mW Maximum Voltage:24V | Standard Mode: Maximum 300mW Maximum Voltage:24V |
| Vibration resistance | 10 to 55Hz, double amplitude: 1.5mm, X, Y, Z axes are 2 hours respectively | |
| Ambient temperature | - 10 to +55° C, N/A condensation | |
| Impact resistance | 500m/ in X, Y and Z directions, 3 times each | |
| Shell Material | Polycarbonate | |
| Relative humidity | 35 to 85%, N/A condensation | |
| Size | 30.3mm((height)×10.5mm(width)×71.8mm(depth) | |
| Weight | About 80g | |
| Accessories | N/A | |

## Characteristic Parameters

| Voltage | 12-24VDC |
|---|---|
| Current consumption | Below 100mA |
| Response time | Below 20mS |
| Output mode | Open collector NPN type: current 100mA, residual Voltage1.6V |
| Output state | When all optical axes receive light |
| Light source | Infrared LED |
| Connect mode | With dedicated cable connector |
| Shell material | Shell: aluminum alloy, color filter cover: |
| Resistance to ambient light | Incandescent lamp: the illuminance of the light-receiving surface is 3000Lx, sunlight: the illuminance of the light-receiving surface is 10000Lx |
| Ambient temperature | Working: - 10~50° (but not freezing), Storage: -40~70° - 10~55 |
| Environment humidity | Working: 35~85%RH, storage: 35~95%RH35~85% |
| Vibration | Vibration frequency: 10~50Hz, vibration amplitude: 1.5mm, 2 hours each in X, Y, and Z directions |
| Inrush | Acceleration: 500/s2 (about 50g) 3 times each in X, Y, and Z directions |

## Controller Performance

| Model | GMK Light Curtain Controller |
|---|---|
| Voltage | 200~220VAC ± 10%，50/60Hz，3.5VA |
| Current consumption | Below 100mA |
| Response Time | Below 20mS |
| Output | Contact：COSΦ=1，AC250V5A，normally open and normally closed |
| Light Source | InfraredLED |
| Delay function | 0.01~5S delay to turn on, turn on delay |
| Indicator | Power Indicator(G), Action Indicator(R) |
| Shell material | ABS |
| Ambient temperature | Working：10~55°（but no condensation），Storage：-40~70° |
| Environment humidity | Working: 35~85%RH, Storage: 35~95%RH |
| Vibration | Vibration frequency: 10~55Hz, vibration amplitude: 1.5mm, 2 hours each in X, Y, and Z directions |
| Inrush | Acceleration: 500/s² (about 50g) 3 times each in X, Y, and Z directions |



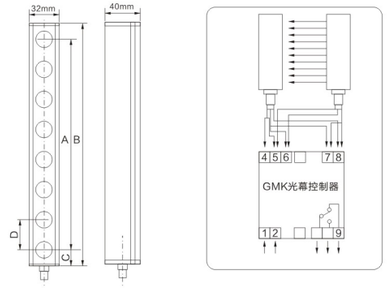


## Dimension

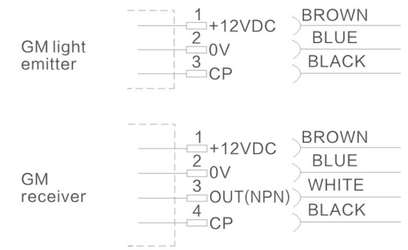
Unit：mm

| Model | A | B | C | D |
|---|---|---|---|---|
| GM40-4 | 120 | 180 | 30 | 40 |
| GM40-6 | 200 | 260 | 30 | 40 |
| GM40-8 | 280 | 340 | 30 | 40 |
| GM40-10 | 360 | 420 | 30 | 40 |
| GM40-12 | 440 | 500 | 30 | 40 |
| GM40-16 | 600 | 660 | 30 | 40 |
| GM40-20 | 760 | 820 | 30 | 40 |
| GM40-24 | 920 | 980 | 30 | 40 |
| GM40-32 | 1240 | 1300 | 30 | 40 |
| GM40-40 | 1560 | 1620 | 30 | 40 |
| GM40-56 | 2200 | 2260 | 30 | 40 |
| GM40-64 | 2520 | 2580 | 30 | 40 |

| Model | A | B | C | D |
|---|---|---|---|---|
| GM20-4 | 60 | 120 | 30 | 20 |
| GM20-6 | 100 | 160 | 30 | 20 |
| GM20-8 | 140 | 200 | 30 | 20 |
| GM20-10 | 180 | 240 | 30 | 20 |
| GM20-12 | 220 | 280 | 30 | 20 |
| GM20-16 | 300 | 360 | 30 | 20 |
| GM20-20 | 380 | 440 | 30 | 20 |
| GM40-24 | 460 | 520 | 30 | 20 |
| GM40-32 | 620 | 680 | 30 | 20 |
| GM40-40 | 780 | 840 | 30 | 20 |
| GM40-56 | 1100 | 1160 | 30 | 20 |
| GM40-64 | 1260 | 1320 | 30 | 20 |




- Wiring diagram




## Model specification and meaning description

| GM | 20 | - | 2M | 04 | N | C | □ | - | R |
|---|---|---|---|---|---|---|---|---|---|
| Light curtain sensor | Optical axis distance 10、20、40mm | | Detection Distance 2、5、10m | No. of optical axes 4、6、8、10… …96axle | N:NPN P:PNP | C:NC O:NO | Specific specifications | | R:Receiver T:Transmitter |

## Wiring Method

| GMK Controller Base Terminal | light emitter Cable | Receiver Cable |
|---|---|---|
| 1：220VAC(N)Input | | |
| 2：220VAC(N)Input | | |
| 3：Barefoot | | |
| 4：Light curtain signal Input(IN) | | |
| 5：Positive pole | | |
| 6：Negative pole | Brown wire(1) | brown wire (1) |
| 7：SY | Blue wire(2) | Blue wire(2) |
| 8：R | White wire(3) | White wire(3) |
| 9：Relay NC point | Black wire(4) | Black wire(4) |
| 10：Relay common point | | Grey wire(5) |
| 11：Relay NO point | | |

## Technical Terms

Ds=KX(Ts+Tc+Tt+Tbm)+Ddf

Ds：Minimum light curtain installation safety distance, which refers to the distance from the detection area of the light curtain to the nearest point of the danger zone, unit: m.

K：Hand speed, generally 1.6ms, refers to the speed at which the operator's hand moves from the normal start to the working point in the example.

Ts：The maximum time required for the machine to stop pressing down, unit: S.

Tc：The time required from the machine controller to the machine braking response, unit: S.

Tt：The time required for the light curtain to respond, unit: S.

Tbm：Time required for braking, unit: S . Ddf

Ds=KX(Ts+Tc+Tt+Tbm)+DH

Dh=1 .2m-(0 .4 × H), the minimum value of Dh is 0.8m.

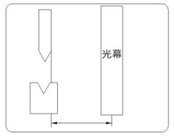
H：The minimum height of the light curtain detection area from the ground, unit: m.

Note: The horizontal installation angle of the light curtain must be less than 30° .

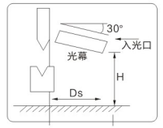
- GM series light curtains are for indoor use only.
- The light curtain, high voltage line and power line should be wired separately or piped separately to avoid malfunction caused by strong electric induction.
- It avoids places where there are corrosive gases, a lot of dust, severe vibration, direct splashing of water, oil, and chemicals, and places where the product is exposed to direct sunlight.
- This information is subject to change without prior notice.
- Inspect light curtaln
  After installation, block the center, bottom, edge and top of the light curtain detection area with the detection object, and at the same time check whether the output status of the lightcurtain is normal。

## 正确使用

- 最小光幕安装安全距离Ds




- 水平安装光幕时最小安全距离Ds



## Main Characteristics

- General-purpose type that allows fine adjustment with an 8-turn adjustment knob.
- It is two digits of the detection distance for traditional products.
- With variable hysteresis knob.
- Super high-speed response of 20 μ S by pulse oil lighting.
- It can detect subtle color difference with green color source.



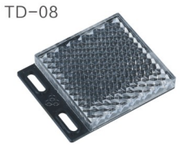
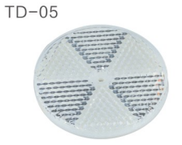
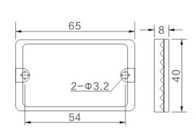
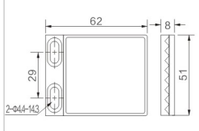
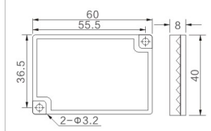
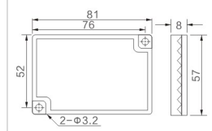
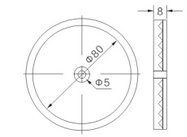

## Key Technical Parameters

| Items | | Model:HG11-N(P)/HG-NA11 ( NA41 ) |
|---|---|---|
| Light source (light emitting wavelength) | | Red LED(660nm) |
| Voltage | | DC10~30V[including pulsation (P-P)10%]DC10~30V |
| Current consumption | | Below 35mA |
| Control Output | | Load voltage below DC35, load current below 100mA (keep Voltage below 1V) open collector Output type (NPN/PNP output varies with different types) ON when light is received/ON when light is blocked switch conversion type |
| Response time | | Operation and reset, each within 200μs |
| Sensitivity adjustment | | 8 turn N/A terminal knob (with indicator) |
| Circuit Protection | | Protect electromagnetic reverse wiring, protect Output short circuit, and prevent mutual interference |
| Illumination | | Illuminance of light-receiving surface, incandescent lamp; below 3000rx, sunlight below 10000rx |
| Ambient temperature | | When operating: -25~+55° C, when storing: 40~70° C (no icing or condensation) |
| Ambient humidity | | 35-85%RH, storage: during storage: 35~95%RH (no condensation) |
| Insulation resistance | | More than 20mΩ (DC500MV in megabytes) |
| Resistance to Voltage | | AC1,000V50/60Hz 1 min |
| Vibration (durable) | | 10~55Hz complex amplitude 1.5mm X, Y, Z directions |
| Impact (durable) | | 500m/s² X, Y, Z each direction 3 times |
| Protective structure | | IBC standard IP50 (when the protective cover is installed) |
| Connection method | | Wire lead-out open type (standard wire length 2m) |
| Quality (in packaging) | | 100g |
| Material | Shell | Heat-resistant ABS |
| | Protective cover | Polyester |
| Accessories | | Metal mounting accessories, screwdriver for adjustment, operating instructions |





| Exterior Shape | Turn-buckle | Model | SPEC | Connection Diagram: NPN/PNP NO | NPN/PNP NC | NPN/PNP NO+NC | AD/DC dual selection NO | AD/DC dual selection NC |
|---|---|---|---|---|---|---|---|---|
|  | M8 | L1 | Three core straight |  |  | |  |  |
| | M8 | L2 | Four core straight |  |  | |  |  |
|  | M8 | L3 | Three core curved |  |  | |  |  |
| | M8 | L4 | Four core curved |  |  | |  |  |
|  | M12 | L6 | Four core straight | | | | | |
|  | M12 | L7 | Four core curved with LED |  |  |  |  |  |
|  | M12 | L8 | Four core relay | | | | | |

| Exterior Shape | TD-02 | TD-08 | TD-09 | TD-03 | TD-05 |
|---|---|---|---|---|---|
| |  |  |  |  |  |
| Installation Dimension |  |  |  |  |  |

## Main Characteristics

Small Relay is suitable for electronic control equipment, household appliances, office automation, test and test, security, commercial machinery, general equipment, automobiles, machine tools, construction, transportation equipment, instruments and meters, and can be used as a remote control intermediate conversion or amplifying element.

### HH52PL(MY3)



| | |
|---|---|
| Contact Form | 2H,2D,2Z |
| Contact Load | 5A/240VAC 28VDC |
| Coil Power | DC:0.9W, AC1.2VA |
| Coil Specifications | DC:6V–220V AC:6V–380V |
| Dimension | 27×21×35mm |

### HH62P(LY2)



| | |
|---|---|
| Contact Form | 2H,2D,2Z |
| Contact Load | 10A/240VAC 28VDC |
| Coil Power | DC:0.9W, AC:1.2VA |
| Coil Specifications | DC:6V–220V AC:6V–380V |
| Dimension | 27×21×35mm |

### HH53PL(MY3)



| | |
|---|---|
| Contact Form | 3H,3D,3Z |
| Contact Load | 5A/240VAC 28VDC |
| Coil Power | DC:0.9W, AC1.2VA |
| Coil Specifications | DC:6V–220V AC:6V–380V |
| Dimension | 27×21×35mm |

### HH63P(LY3)



| | |
|---|---|
| Contact Form | 3H,3D,3Z |
| Contact Load | 10A/240VAC 28VDC |
| Coil Power | DC:0.9W, AC:1.2VA |
| Coil Specifications | DC:6V–220V AC:6V–380V |
| Dimension | 27.5×31×35mm |

### HH54PL(MY4)



| | |
|---|---|
| Contact Form | 4H,4D,4Z |
| Contact Load | 3A/240VAC 28VDC |
| Coil Power | DC:0.9W, AC1.2VA |
| Coil Specifications | DC:6V–220V AC:6V–380V |
| Dimension | 27×21×35mm |

### HH64P(LY4)



| | |
|---|---|
| Contact Form | 4H,4D,4Z |
| Contact Load | 10A/240VAC 28VDC |
| Coil Power | DC:1.5W, AC:3.0VA |
| Coil Specifications | DC:6V–220V AC:6V–380V |
| Dimension | 27.5×41×35mm |

### JQX–13F–2Z(LY2)



| | |
|---|---|
| Contact Form | 2H,2D,2Z |
| Contact Load | 10A/240VAC 28VDC |
| Coil Power | DC:0.9W, AC:1.2VA |
| Coil Specifications | DC:6V–220V AC:6V–380V |
| Dimension | 27×21×35mm |

### JQX–10F



| | |
|---|---|
| Contact Form | 2H,2D,2Z 3H,3D,3Z |
| Contact Load | 10A/240VAC 28VDC |
| Coil Power | DC:1.8W, AC:2.7VA |
| Coil Specifications | DC:6V–220V AC:6V–380V |
| Dimension | 35×35×53mm |

### JQX–13F–3Z(LY3)



| | |
|---|---|
| Contact Form | 3H,3D,3Z |
| Contact Load | 10A/240VAC 28VDC |
| Coil Power | DC:0.9W, AC:1.2VA |
| Coil Specifications | DC:6V–220V AC:6V–380V |
| Dimension | 27.5×31×35mm |

### JQX–13F–4Z(LY4)



| | |
|---|---|
| Contact Form | 4H,4D,4Z |
| Contact Load | 10A/240VAC 28VDC |
| Coil Power | DC:1.5W, AC:3.0VA |
| Coil Specifications | DC:6V–220V AC:6V–380V |
| Dimension | 27.5×41×35mm |





## Profile

Solid State Relay (Solid State Relay) is called SSR for short. It is a new type of N/A contact switch device composed entirely of solid electroniccomponents. It uses large power transistors, power field effect transistors, one–way thyristors and two–way thyristors in electronic N/A devices. The switching characteristics of devices such as modules and modules can achieve N/A contacts and N/A sparks to turn on and off electrical circuits. It is also called N/A contact switches. SSR is generally a four–terminal active device, including two control terminals and two output terminals. Input and output terminals are reliably isolated. When the Input adds a control signal, the Output port performs an or switch conversion.

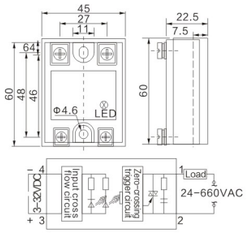
## Naming of Solid State Relay

SSR/JGX – □ D A

- OutputVoltage Type: D: DCOutput A: ACOutput
- Control Voltage Type: D: DC3~32V Control DC3~32V
  - A：AC80~250V control
  - V: Potentiometer
  - L：4~20mA 0~5V control
- Rated operating current: Ampere (Example E.g:40=40A)
- English abbreviation for solid state relay

### JGX–48□DA

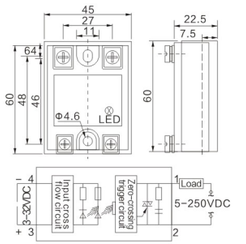





| | |
|---|---|
| Load Current | 10A,25A,40A,60A, 75A,90A,100A |
| Load Voltage | 24–480VAC |
| Control Voltage | 3–32VDC |
| Control Current | DC4–12mA |
| On–state voltage drop | ⩽1.5V |
| On–state leakage current | ⩽4mA |
| Off time | ⩽10ms |
| Dielectric withstand Voltage | 2000VAC |
| Insulation resistance | 500MΩ/500VDC |
| Ambient temperature | –30℃~+75℃ |
| Placement | Bolt Fixed |
| Work instructions | LED |
| Weight | 135g |

### JGX–25□DD

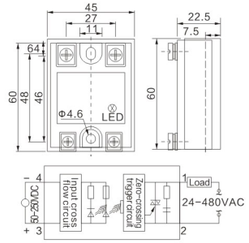





| | |
|---|---|
| Load Current | 10A,25A,40A,60A, 75A,90A,100A |
| Load Voltage | 5–250VDC |
| Control Voltage | 3–32VDC |
| Control Current | DC4–12mA |
| On–state voltage drop | ⩽1.5V |
| On–state leakage current | ⩽2mA |
| Off time | ⩽10ms |
| Dielectric withstand Voltage | 2000VAC |
| Insulation resistance | 500MΩ/500VDC |
| Ambient temperature | –30℃~+75℃ |
| Placement | Bolt Fixed |
| Work instructions | LED |
| Weight | 135g |

### JGX–48□AA

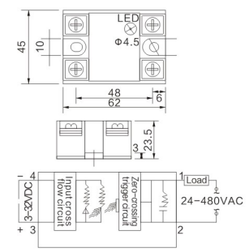





| | |
|---|---|
| Load Current | 10A,25A,40A,60A, 75A,90A,100A |
| Load Voltage | 24–480VAC |
| Control Voltage | 50–250VDC |
| Control Current | AC⩽12mA |
| On–state voltage drop | ⩽1.5V |
| On–state leakage current | ⩽4mA |
| Off time | ⩽10ms |
| Dielectric withstand Voltage | 2000VAC |
| Insulation resistance | 500MΩ/500VDC |
| Ambient temperature | –30℃~+75℃ |
| Placement | Bolt Fixed |
| Work instructions | LED |
| Weight | 135g |

### SSR–48□DA





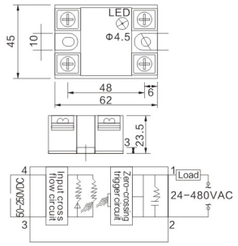

| | |
|---|---|
| Load Current | 10A,25A,40A,60A, 75A,90A,100A |
| Load Voltage | 24–480VAC |
| Control Voltage | 3–32VDC |
| Control Current | DC4–12mA |
| On–state voltage drop | ⩽1.5V |
| On–state leakage current | ⩽2mA |
| Off time | ⩽10ms |
| Dielectric withstand Voltage | 2000VAC |
| Insulation resistance | 1000MΩ/500VDC |
| Ambient temperature | –30℃~+75℃ |
| Placement | Bolt Fixed |
| Work instructions | LED |
| Weight | 132g |

# Solid Relay

## SSR-48□AA



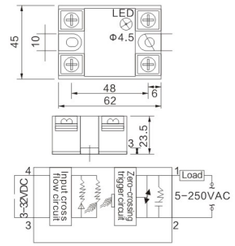
| | |
|---|---|
| Load Current | 10A,25A,40A,60A, 75A,90A,100A |
| Load Voltage | 24-480VAC |
| Control Voltage | 50-250VDC |
| Control Current | AC≤12mA |
| On-state voltage drop | ≤1.5V |
| On-state leakage current | ≤4mA |
| Off time | ≤10ms |
| Dielectric withstand Voltage | 2000VAC |
| Insulation resistance | 1000MΩ/500VDC |
| Ambient temperature | -30℃~+75℃ |
| Placement | Bolt Fixed |
| Work instructions | LED |
| Weight | 132g |




## SSR-25□DD



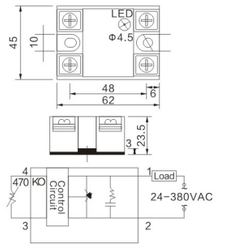
| | |
|---|---|
| Load Current | 10A,25A,40A,60A, 75A,90A,100A |
| Load Voltage | 5-250VAC |
| Control Voltage | 3-32VDC |
| Control Current | DC4-12mA |
| On-state voltage drop | ≤1.5V |
| On-state leakage current | ≤2mA |
| Off time | ≤10ms |
| Dielectric withstand Voltage | 2000VAC |
| Insulation resistance | 500MΩ/500VDC |
| Ambient temperature | -30℃~+75℃ |
| Placement | Bolt Fixed |
| Work instructions | LED |
| Weight | 132g |




## SSVR-38□RA(Resistor voltage regulation type)



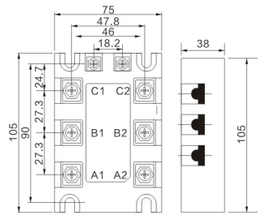
| | |
|---|---|
| Load Current | 10A,25A,40A,60A, 75A,90A,100A |
| Load Voltage | 24-480VAC |
| Control Voltage | 50-250VDC |
| Control Current | AC≤12mA |
| On-state voltage drop | ≤1.5V |
| On-state leakage current | ≤4mA |
| Off time | ≤10ms |
| Dielectric withstand Voltage | 2000VAC |
| Insulation resistance | 1000MΩ/500VDC |
| Ambient temperature | -30℃~+75℃ |
| Placement | Bolt Fixed |
| Work instructions | LED |
| Weight | 132g |

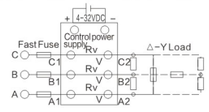



## JGX-3-48□DA



| | |
|---|---|
| Load Current | 10A,25A,40A,60A, 75A,90A,100A |
| Load Voltage | 24-480VAC |
| Control Voltage | 4-32VDC |
| Control Current | DC12-32mA |
| On-state voltage drop | ≤1.5V |
| On-state leakage current | ≤10mA |
| Off time | ≤10ms |
| Dielectric withstand Voltage | 2000VAC |
| Insulation resistance | 500MΩ/500VDC |
| Ambient temperature | -30℃~+75℃ |
| Placement | Bolt Fixed |
| Work instructions | LED |
| Weight | 450g |

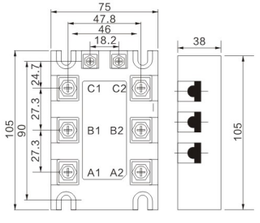


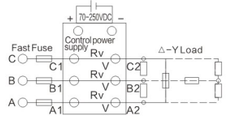




## JGX-3-48□AA



| | |
|---|---|
| Load Current | 10A,25A,40A,60A, 75A,90A,100A |
| Load Voltage | 24-480VAC |
| Control Voltage | 70-250VDC |
| Control Current | AC≤12mA |
| On-state voltage drop | ≤1.5V |
| On-state leakage current | ≤10mA |
| Off time | ≤10ms |
| Dielectric withstand Voltage | 2000VAC |
| Insulation resistance | 500MΩ/500VDC |
| Ambient temperature | -30℃~+75℃ |
| Placement | Bolt Fixed |
| Work instructions | LED |
| Weight | 450g |

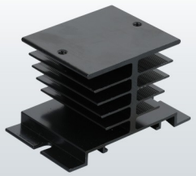


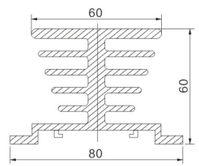


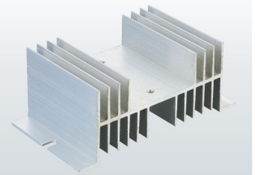



# Heat Sink

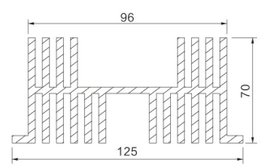


| | |
|---|---|
| Model | MA single phase solid state heat sink |
| Dimension | 80×50×60mm |
| Application Scope | It is suitable for a rectangular single phase solid state relay with a load actually less than 10A-20A (heat sinkA-50, length 50mm, the length of this heat sink is one,A-100 length 100mm, is two, and so on... |



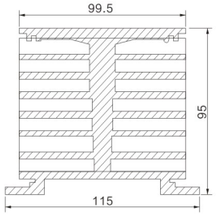



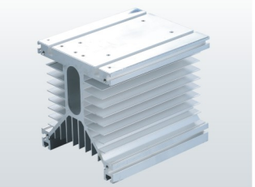
| | |
|---|---|
| Model | MB single phase solid state heat sink |
| Dimension | 125×70×51mm |
| Application Scope | A rectangular single-phase solid-state relay suitable for loads with an actual current of 25A~120A (heat sinkG-80, length 80mm,the length of the heat sink is 1, G-160 length 160mm, 2, and so on...) |



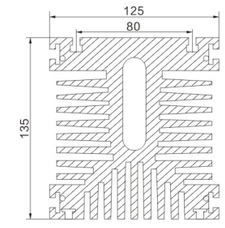


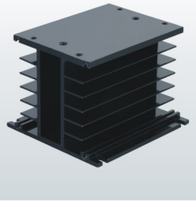

| | |
|---|---|
| Model | MC Industrial Grade Solid State heat sink |
| Dimension | 115×50×95mm |
| Application Scope | It is suitable for a long industrial-grade one-way solid relay (heat sinkE-50, length 50mm) with a load actually less than 60A~150A. The length of the radiator is one, the length of E-220 is 220mm, two,and so on……) |



| | |
|---|---|
| Model | ME Industrial Grade Solid State heat sink |
| Dimension | 150×125×135mm |
| Application Scope | It is suitable for a rectangular single-phase solid relay with a load actually less than 35A (heat sink D-120, length 120mm. The length of the heat sink is one, D-240 length is 240mm, two, and so on...) |



| | |
|---|---|
| Model | MF Three-phase solid state heat sink |
| Dimension | 100×80×80mm |
| Application Scope | It is suitable for a Three-phase solid state relay (heat sink C-100, length 110mm) with the actual load current (total of three phases)less than 60A~150A, the length of this heat sink is one, and the length of C-220 is 220mm, two , and so on...) |

