

TECHNICAL DATA SHEET

Inductive Proximity Switches Proximity Sensors **Ring Shape Series**

Contents

- Functional Description
- Application Scenarios
- Technical Parameters
- Size Parameters
- Wiring Diagram



Proximity sensors: solutions for multiple scenarios

Proximity sensors are widely used in many fields due to their non-contact detection, high accuracy and fast response.

Inductive series for oil-resistant and corrosion-resistant machine tool industry

Many times we are faced with harsh operating environments, compact installation spaces, and conditions with both movement and corrosion during use, such as the machine tool manufacturing industry, which has such diverse needs – the number of materials, processes and molds involved is huge and varied. During the production process, cutting fluids and abrasives are required to process workpieces, so various sensor solutions that are not affected by harsh environmental conditions are required. dadisick's product series, which uses different manufacturing processes, can even provide fully suitable sensor solutions for high-speed applications or applications involving corrosive coolants and lubricants.



All-metal integrated housing anti-washing series



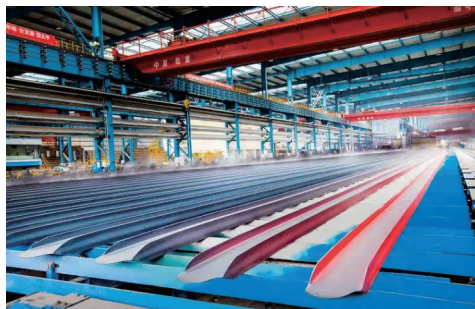
Due to the stainless steel integrated housing, this series of sensors not only has good impact resistance, but also can withstand the corrosion of detergents and solvents. It can be used in environments that require frequent high-pressure washing, and can achieve long-term sealing that meets the IP69K protection level. At the same time, it is compatible with the installation method of conventional sensors, which can be replaced and replaced conveniently and practically. It includes a variety of models with a diameter of 8mm...30mm, all with direct cable output and M12 standard connector. Operating distance 2...8mm.

Low-temperature -40°C inductive series for wind power generation

Wind power generation has become one of the world's recognized main clean energy generation methods because it does not require the use of fuel and does not produce radiation or air pollution. Different sensors are used in the operation of the variable pitch yaw generator reducer of the wind turbine to detect the correction of the control movement and rotation process. Most of the installation locations of wind turbines are in places with severe temperature changes such as mountains, oceans and plateaus, which require higher temperature environments for sensors. Our low-temperature -40°C product series launched for this use environment is perfectly adapted to the application here.



Solutions for high-temperature series long-distance products in steelmaking and rolling



Steelmaking and rolling equipment produces complex oil, gas and water erosion and flushing sensors for various raw materials under high temperature of oil and gas in a high-temperature 2000° radiation environment, which puts higher requirements on the stability of sensors. In the position control detection of multiple processes of steel billets, coils and wires, DADISICK has a variety of series of products with high temperature resistance of 250°C, DC two-wire, AC 250V, etc., which are widely used in this complex environment to ensure normal production.

Anti-welding slag adhesion, high temperature resistance and anti-interference series

Whether it is stamping, welding, painting, or assembly processes in automobile manufacturing, long distance, anti-welding slag adhesion, strong current magnetic field interference, or high temperature environment, DADISICK sensors can be used for fixtures, molds and other equipment. Reliable performance and perfect solutions bring a smooth production process to automobile manufacturing. In the welding of various high-current welding machines, the strong magnetic field interference generated by the current and the high-temperature heat conduction generated by the arc will affect the sensors in the fixture molds. Reliable performance products must be selected to ensure normal operation.



All-metal integrated housing anti-washing series

A large number of intelligent warehousing and logistics facilities, such as AGV trolleys and rail-to-rail stackers, are equipped with our sensors to realize the control of rotating positioning and lifting devices, etc., providing very stable and durable high-reliability products. Under the high requirements of small installation space and long detection distance, this series of products is the best choice for customers with strict cost control. Choosing this series of products is the best choice for customers with strict cost control.



High-pressure 1000Bar hydraulic cylinder series

The stable and reliable hydraulic cylinder telescopic more often uses DADISICK's inductive proximity sensors with a high pressure resistance of up to 1000Bar to achieve the control of the origin. Ceramic chips are used as high-voltage products at the induction level and stainless steel integrated housings are used to achieve high-pressure resistant applications. DC10-30V two-wire and three-wire products are also provided.



Analog output series for position correction and control devices



In detecting the offset position of the controlled parts of the fixture, analog output proximity sensors are often used in wire reel correction, and the size of the offset is controlled by the size of the detection distance. This use can be installed and tested in a very small position space. We have successfully provided stable and accurate products for many parts manufacturers and wire rope winding equipment, including 0-10V voltage output and 4-20mA current output and current + voltage output products. The detectable distance can be adjusted between 0-50mm.

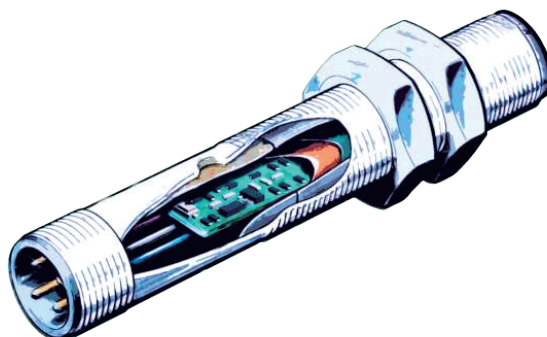
Shoemaking, textile and papermaking machinery series products

Whichever manufacturer of shoemaking machines, textile machines and papermaking machines has long equipped the mechanical equipment they produce with more automated operation technologies, these control technologies are also equipped with high-quality sensors to achieve their control conditions. They require products with higher switching frequency accuracy and better stability, and they need a variety of products with unconventional dimensions. We tailor new outer shell dimensions for them one by one to meet their needs.



Proximity Sensor Model Specifications

EL	I	0	5	2	0	N	O	Z	B	A	3	A	P		(ELI05-20NO-ZBA-3A-P)
															Special Instructions: N:Time-delay dynamic mode; T:Delayed static mode
															Shell material: H: nickel-plated brass; S: stainless steel; L: aluminum alloy; P: PBT; T: Teflon; F: PTFE; M: POM;
															Short circuit protection: A: Standard type with short circuit protection M: Short type with short circuit protection S: Standard type without short circuit protection R: Ultra short type with short circuit protection
															Wiring method: 2: 2-wire 5: 5-wire type 2E: 2 wire+M8 connector 2T: 2 wire+M12 connector 3: 3-wire E: M8 connector 3E: 3 wire+M8 connector 3T: 3 wire+M12 connector 4: 4-wire T: M12 connector 4E: 4 wire+M8 connector 4T: 4 wire+M12 connector
															Voltage: A:DC10-30V B:DC5-36V C:DC10-55V D:DC10-60V E:DC18-30V F:DC6-12V G:AC20-250V H:AC/DC20-250V
															Installation method: A: Shielded B: Non-shielded
															Connection method: Y: Plug-in type Z: Cable type
															Output mode: NC: NPN NC; NO: NPN NO PC: PNP NC; PO: PNP NO NS: NPN NO&NC; PS: PNP NO&NC HC: DC NC; HO: DC NO AC: AC NC; AO: AC NO HS: DC NO&NC; AS: AC NO&NC I: analog current; U: analog voltage TC: AC&DC NC; TO: AC&DC NO TS: AC/DC NO&NC; V: Current + voltage output NA: Explosion-proof type
															Detection distance: 1mm-50mm
															Specification(mm): ϕ 3, ϕ 4, M4, M5, ϕ 6.5, M8, M12, M18, M30
															Type: R: Standard type; X: Ultra-small; B: Explosion-proof type; J: All-metal type; P: High-pressure resistant type; G: High-temperature resistant; Z: Low-temperature resistant type; C: Limit switch type; D: Anti-welding slag and high-magnetic type; F: Corrosion-resistant type; A: Analog type; I: Ring type; E: Square type
															Series: EL: Inductive sensor EC: Capacitive sensor



Ring Shape Series

Proximity sensors

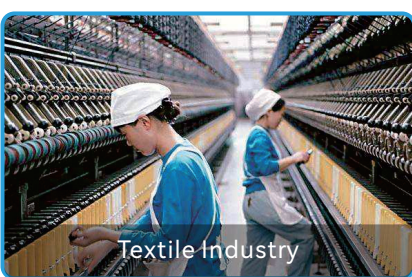
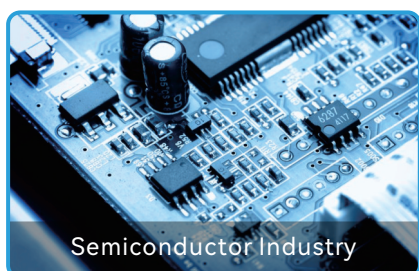
According to the different detection functions, it is divided into: metal through type, used for metal target through detection, adjustable sensitivity, high detection accuracy (0.1mm diameter iron wire), strong anti-interference. Metal through dynamic detection type, used for high-speed detection of metal targets and dynamic points, adjustable sensitivity, pulse delay (0.1-200ms adjustable), high detection accuracy (0.1mm diameter high-speed iron wire), strong anti-interference. High-precision metal through type, with both metal detection and points, adjustable sensitivity, pulse delay (0.1-200ms adjustable), high detection accuracy (0.1mm diameter high-speed iron wire), strong anti-interference.

Features:

- Features: Can detect metals, non-metals, liquids, etc., adjustable sensitivity, NO/NC adjustable;
- Aperture specifications: R05, R06, R10, R15, R21;
- Pulse adjustable: 0.1-200ms;
- Detection distance: 15-20mm;
- Response frequency: 2KHZ;
- Rated voltage: 10-30VDC;
- Rated current: 200mA;
- Product certification: CE, ROHS.

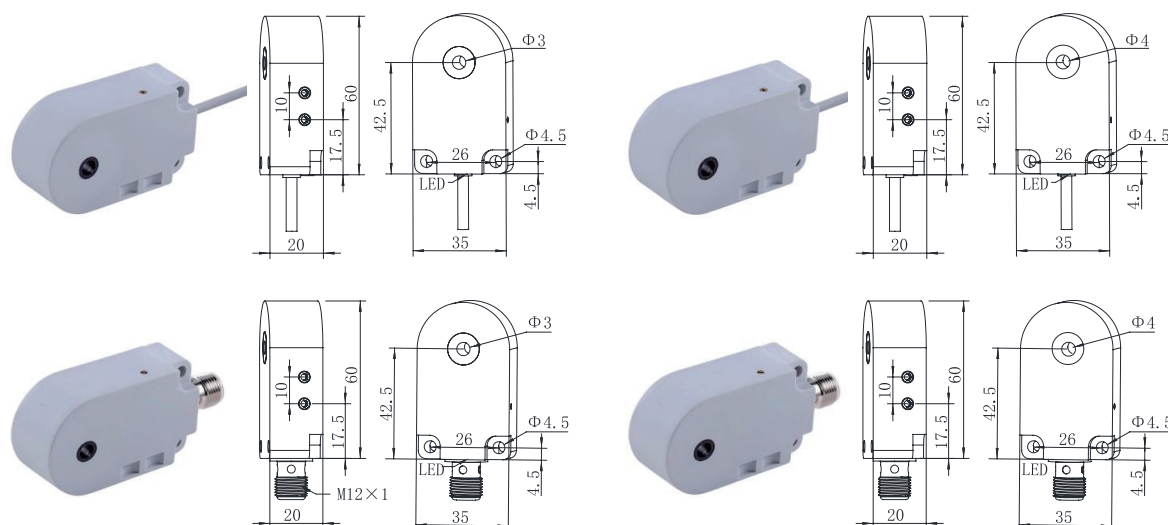


Application Industry



Product Parameters

Ring Shape Series Metal pass type



Inner hole diameter

3mm

4mm

● Shielded ○ Non-shielded

○

○

Detection distance Sn: mm

20

20

Shell material

PBT

PBT

● LED display ○ No LED display

●

●

Working voltage & allowable pulsating voltage

10-30VDC (Ripple<10%)

10-30VDC (Ripple<10%)

Minimum interval time of the object to be detected

0.2ms

0.2ms

No-load current

<10mA

<10mA

Maximum load current

200mA

200mA

Leakage current

<0.01mA

<0.01mA

Shock current

--

--

Minimum load current

--

--

Voltage drop

<1.5V at 200mA

<1.5V at 200mA

Switching frequency

2KHZ

2KHZ

Pulse impedance

1KV

1KV

Switching hysteresis

15%

15%

Repeat accuracy

<2% (Sr)

<2% (Sr)

Protection level

IP67

IP67

Working temperature

-25℃ - +70℃

-25℃ - +70℃

Temperature drift

±10%(sr)

±10%(sr)

Minimum detection object

D=1mm;L=2mm

D=2mm;L=2mm

Reverse polarity protection

Yes

Yes

Short circuit protection

Yes

Yes

Current overload protection

220mA

220mA

EMC

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

Shock/vibration

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

Connection method

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

Product Model

DC 3 wire 10-30V NPN NO

ELI03-20NO-ZBA-3A-P

ELI03-20NO-YBA-TA-P

ELI04-20NO-ZBA-3A-P

ELI04-20NO-YBA-TA-P

DC 3 wire 10-30V NPN NC

ELI03-20NC-ZBA-3A-P

ELI03-20NC-YBA-TA-P

ELI04-20NC-ZBA-3A-P

ELI04-20NC-YBA-TA-P

DC 3 wire 10-30V PNP NO

ELI03-20PO-ZBA-3A-P

ELI03-20PO-YBA-TA-P

ELI04-20PO-ZBA-3A-P

ELI04-20PO-YBA-TA-P

DC 3 wire 10-30V PNP NC

ELI03-20PC-ZBA-3A-P

ELI03-20PC-YBA-TA-P

ELI04-20PC-ZBA-3A-P

ELI04-20PC-YBA-TA-P

DC 4 wire 10-30V Convertible NPN (NO&NC)

ELI03-20NS-ZBA-4A-P

ELI03-20NS-YBA-TA-P

ELI04-20NS-ZBA-4A-P

ELI04-20NS-YBA-TA-P

DC 4 wire 10-30V Convertible PNP (NO&NC)

ELI03-20PS-ZBA-4A-P

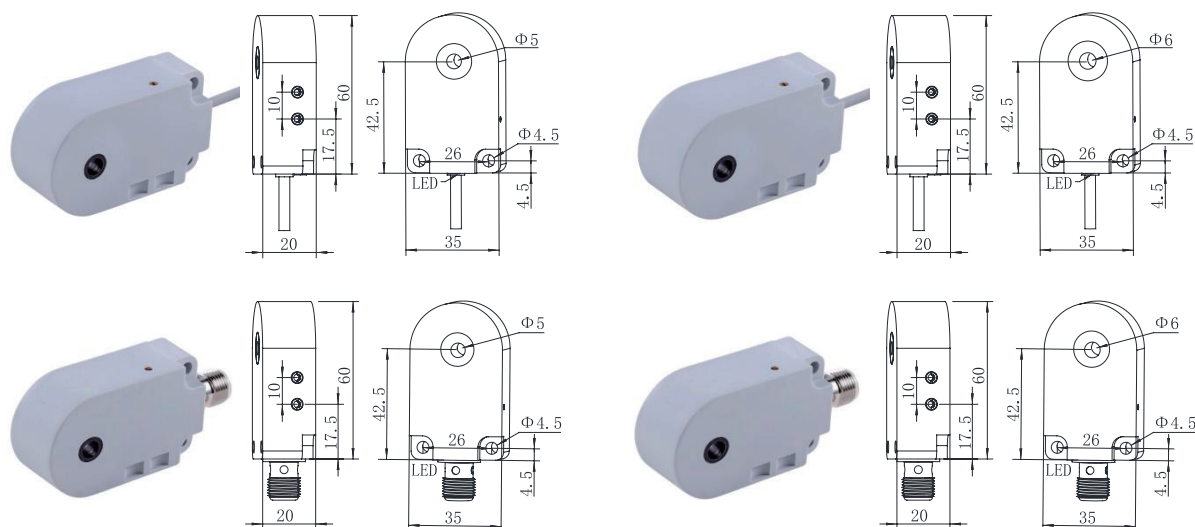
ELI03-20PS-YBA-TA-P

ELI04-20PS-ZBA-4A-P

ELI04-20PS-YBA-TA-P

Product Parameters

Ring Shape Series Metal pass type



Inner hole diameter

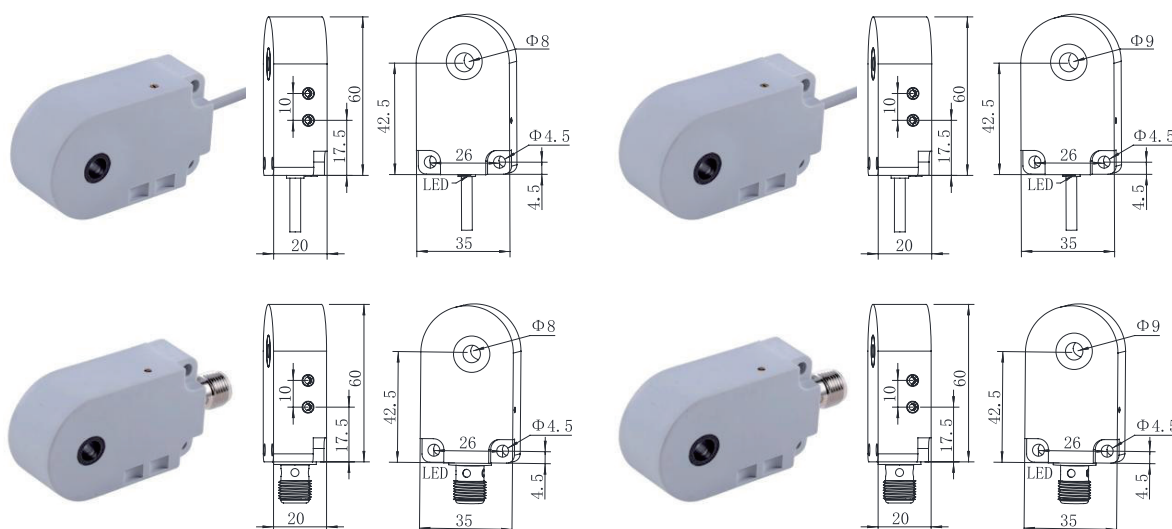
5mm

6mm

● Shielded ○ Non-shielded	○	○		
Detection distance Sn: mm	20	20		
Shell material	PBT	PBT		
● LED display ○ No LED display	●	●		
Working voltage & allowable pulsating voltage	10-30VDC (Ripple<10%)	10-30VDC (Ripple<10%)		
Minimum interval time of the object to be detected	0.2ms	0.2ms		
No-load current	<10mA	<10mA		
Maximum load current	200mA	200mA		
Leakage current	<0.01mA	<0.01mA		
Shock current	--	--		
Minimum load current	--	--		
Voltage drop	<1.5V at 200mA	<1.5V at 200mA		
Switching frequency	2KHZ	2KHZ		
Pulse impedance	1KV	1KV		
Switching hysteresis	15%	15%		
Repeat accuracy	<2% (Sr)	<2% (Sr)		
Protection level	IP67	IP67		
Working temperature	-25℃ - +70℃	-25℃ - +70℃		
Temperature drift	±10%(sr)	±10%(sr)		
Minimum detection object	D=2mm;L=2mm	D=2mm;L=2mm		
Reverse polarity protection	Yes	Yes		
Short circuit protection	Yes	Yes		
Current overload protection	220mA	220mA		
EMC	RFI>3V/m / EFT>1KV / ESD>4KV (contact)	RFI>3V/m / EFT>1KV / ESD>4KV (contact)		
Shock/vibration	IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2	IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2		
Connection method	2m oil-proof PVC cable 4 ϕ 3x0.15	M12 connector 2m oil-proof PVC cable 4 ϕ 3x0.15		
Product Model				
DC 3 wire 10-30V NPN NO	ELI05-20NO-ZBA-3A-P	ELI05-20NO-YBA-TA-P	ELI06-20NO-ZBA-3A-P	ELI06-20NO-YBA-TA-P
DC 3 wire 10-30V NPN NC	ELI05-20NC-ZBA-3A-P	ELI05-20NC-YBA-TA-P	ELI06-20NC-ZBA-3A-P	ELI06-20NC-YBA-TA-P
DC 3 wire 10-30V PNP NO	ELI05-20PO-ZBA-3A-P	ELI05-20PO-YBA-TA-P	ELI06-20PO-ZBA-3A-P	ELI06-20PO-YBA-TA-P
DC 3 wire 10-30V PNP NC	ELI05-20PC-ZBA-3A-P	ELI05-20PC-YBA-TA-P	ELI06-20PC-ZBA-3A-P	ELI06-20PC-YBA-TA-P
DC 4 wire 10-30V Convertible NPN (NO&NC)	ELI05-20NS-ZBA-4A-P	ELI05-20NS-YBA-TA-P	ELI06-20NS-ZBA-4A-P	ELI06-20NS-YBA-TA-P
DC 4 wire 10-30V Convertible PNP (NO&NC)	ELI05-20PS-ZBA-4A-P	ELI05-20PS-YBA-TA-P	ELI06-20PS-ZBA-4A-P	ELI06-20PS-YBA-TA-P

Product Parameters

Ring Shape Series Metal pass type



Inner hole diameter

8mm

9mm

● Shielded ○ Non-shielded

○

○

Detection distance Sn: mm

20

20

Shell material

PBT

PBT

● LED display ○ No LED display

●

●

Working voltage & allowable pulsating voltage

10-30VDC (Ripple<10%)

10-30VDC (Ripple<10%)

Minimum interval time of the object to be detected

0.2ms

0.2ms

No-load current

<10mA

<10mA

Maximum load current

200mA

200mA

Leakage current

<0.01mA

<0.01mA

Shock current

--

--

Minimum load current

--

--

Voltage drop

<1.5V at 200mA

<1.5V at 200mA

Switching frequency

2KHZ

2KHZ

Pulse impedance

1KV

1KV

Switching hysteresis

15%

15%

Repeat accuracy

<2% (Sr)

<2% (Sr)

Protection level

IP67

IP67

Working temperature

-25°C - +70°C

-25°C - +70°C

Temperature drift

±10%(sr)

±10%(sr)

Minimum detection object

D=2mm;L=3mm

D=2.5mm;L=4mm

Reverse polarity protection

Yes

Yes

Short circuit protection

Yes

Yes

Current overload protection

220mA

220mA

EMC

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

Shock/vibration

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

Connection method

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

Product Model

DC 3 wire 10-30V NPN NO

ELI08-20NO-ZBA-3A-P

ELI08-20NO-YBA-TA-P

ELI09-20NO-ZBA-3A-P

ELI09-20NO-YBA-TA-P

DC 3 wire 10-30V NPN NC

ELI08-20NC-ZBA-3A-P

ELI08-20NC-YBA-TA-P

ELI09-20NC-ZBA-3A-P

ELI09-20NC-YBA-TA-P

DC 3 wire 10-30V PNP NO

ELI08-20PO-ZBA-3A-P

ELI08-20PO-YBA-TA-P

ELI09-20PO-ZBA-3A-P

ELI09-20PO-YBA-TA-P

DC 3 wire 10-30V PNP NC

ELI08-20PC-ZBA-3A-P

ELI08-20PC-YBA-TA-P

ELI09-20PC-ZBA-3A-P

ELI09-20PC-YBA-TA-P

DC 4 wire 10-30V Convertible NPN (NO&NC)

ELI08-20NS-ZBA-4A-P

ELI08-20NS-YBA-TA-P

ELI09-20NS-ZBA-4A-P

ELI09-20NS-YBA-TA-P

DC 4 wire 10-30V Convertible PNP (NO&NC)

ELI08-20PS-ZBA-4A-P

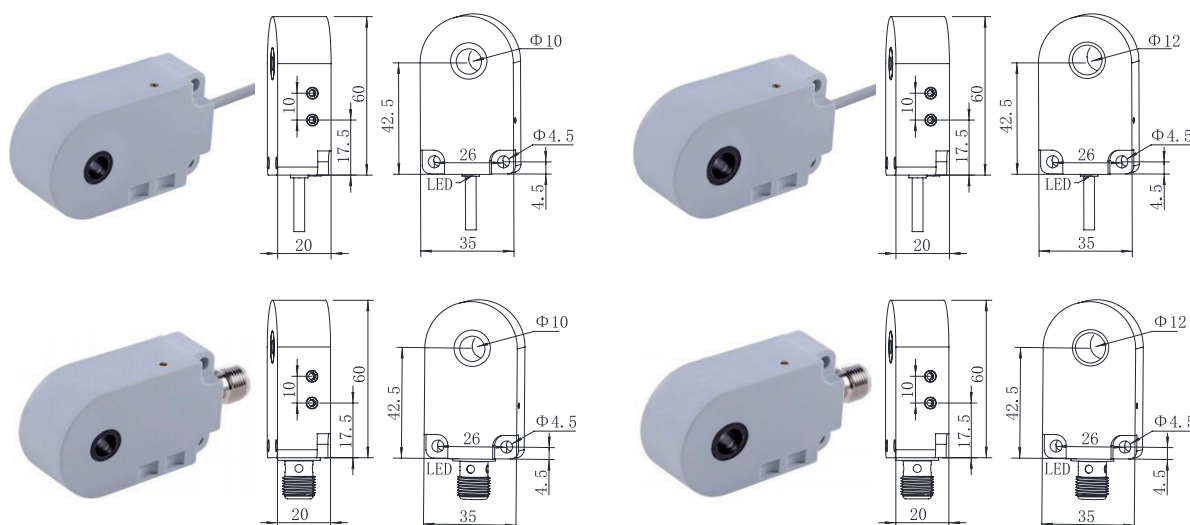
ELI08-20PS-YBA-TA-P

ELI09-20PS-ZBA-4A-P

ELI09-20PS-YBA-TA-P

Product Parameters

Ring Shape Series Metal pass type



Inner hole diameter

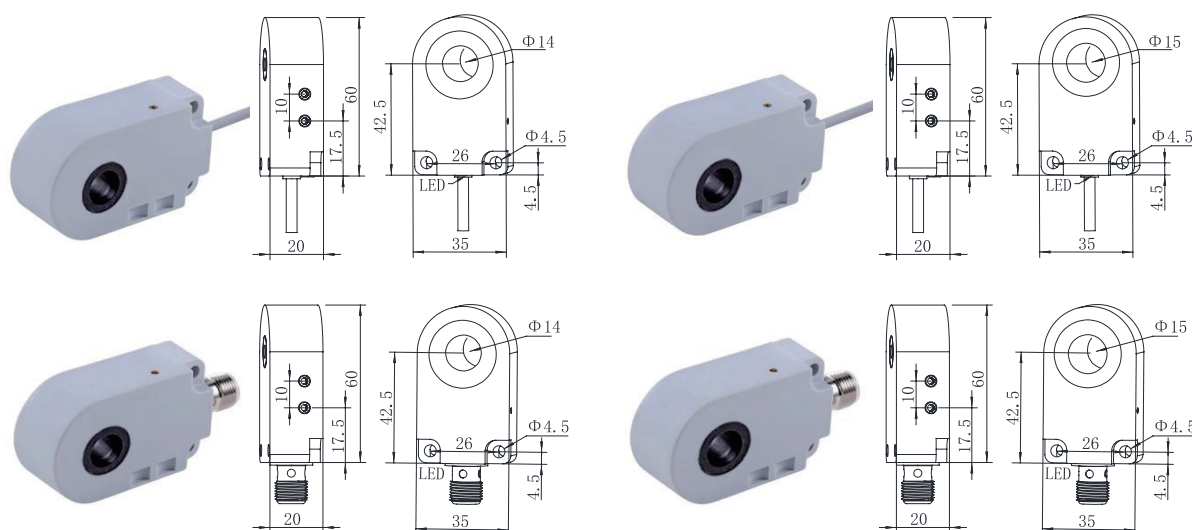
10mm

12mm

● Shielded ○ Non-shielded	○	○		
Detection distance Sn: mm	20	20		
Shell material	PBT	PBT		
● LED display ○ No LED display	●	●		
Working voltage & allowable pulsating voltage	10-30VDC (Ripple<10%)	10-30VDC (Ripple<10%)		
Minimum interval time of the object to be detected	0.2ms	0.2ms		
No-load current	<10mA	<10mA		
Maximum load current	200mA	200mA		
Leakage current	<0.01mA	<0.01mA		
Shock current	--	--		
Minimum load current	--	--		
Voltage drop	<1.5V at 200mA	<1.5V at 200mA		
Switching frequency	2KHZ	2KHZ		
Pulse impedance	1KV	1KV		
Switching hysteresis	15%	15%		
Repeat accuracy	<2% (Sr)	<2% (Sr)		
Protection level	IP67	IP67		
Working temperature	-25℃ - +70℃	-25℃ - +70℃		
Temperature drift	±10%(sr)	±10%(sr)		
Minimum detection object	D=2.5mm;L=4mm	D=2.7mm;L=5mm		
Reverse polarity protection	Yes	Yes		
Short circuit protection	Yes	Yes		
Current overload protection	220mA	220mA		
EMC	RFI>3V/m / EFT>1KV / ESD>4KV (contact)	RFI>3V/m / EFT>1KV / ESD>4KV (contact)		
Shock/vibration	IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2	IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2		
Connection method	2m oil-proof PVC cable 4 ϕ 3x0.15	M12 connector 2m oil-proof PVC cable 4 ϕ 3x0.15		
Product Model				
DC 3 wire 10-30V NPN NO	ELI10-20NO-ZBA-3A-P	ELI10-20NO-YBA-TA-P	ELI12-20NO-ZBA-3A-P	ELI12-20NO-YBA-TA-P
DC 3 wire 10-30V NPN NC	ELI10-20NC-ZBA-3A-P	ELI10-20NC-YBA-TA-P	ELI12-20NC-ZBA-3A-P	ELI12-20NC-YBA-TA-P
DC 3 wire 10-30V PNP NO	ELI10-20PO-ZBA-3A-P	ELI10-20PO-YBA-TA-P	ELI12-20PO-ZBA-3A-P	ELI12-20PO-YBA-TA-P
DC 3 wire 10-30V PNP NC	ELI10-20PC-ZBA-3A-P	ELI10-20PC-YBA-TA-P	ELI12-20PC-ZBA-3A-P	ELI12-20PC-YBA-TA-P
DC 4 wire 10-30V Convertible NPN (NO&NC)	ELI10-20NS-ZBA-4A-P	ELI10-20NS-YBA-TA-P	ELI12-20NS-ZBA-4A-P	ELI12-20NS-YBA-TA-P
DC 4 wire 10-30V Convertible PNP (NO&NC)	ELI10-20PS-ZBA-4A-P	ELI10-20PS-YBA-TA-P	ELI12-20PS-ZBA-4A-P	ELI12-20PS-YBA-TA-P

Product Parameters

Ring Shape Series Metal pass type



Inner hole diameter

14mm

15mm

● Shielded ○ Non-shielded

○

○

Detection distance Sn: mm

20

20

Shell material

PBT

PBT

● LED display ○ No LED display

●

●

Working voltage & allowable pulsating voltage

10-30VDC (Ripple<10%)

10-30VDC (Ripple<10%)

Minimum interval time of the object to be detected

0.2ms

0.2ms

No-load current

<10mA

<10mA

Maximum load current

200mA

200mA

Leakage current

<0.01mA

<0.01mA

Shock current

--

--

Minimum load current

--

--

Voltage drop

<1.5V at 200mA

<1.5V at 200mA

Switching frequency

2KHZ

2KHZ

Pulse impedance

1KV

1KV

Switching hysteresis

15%

15%

Repeat accuracy

<2% (Sr)

<2% (Sr)

Protection level

IP67

IP67

Working temperature

-25°C - +70°C

-25°C - +70°C

Temperature drift

±10%(sr)

±10%(sr)

Minimum detection object

D=2.7mm;L=5mm

D=3mm;L=6mm

Reverse polarity protection

Yes

Yes

Short circuit protection

Yes

Yes

Current overload protection

220mA

220mA

EMC

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

Shock/vibration

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

Connection method

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

Product Model

DC 3 wire 10-30V NPN NO

ELI14-20NO-ZBA-3A-P

ELI14-20NO-YBA-TA-P

ELI15-20NO-ZBA-3A-P

ELI15-20NO-YBA-TA-P

DC 3 wire 10-30V NPN NC

ELI14-20NC-ZBA-3A-P

ELI14-20NC-YBA-TA-P

ELI15-20NC-ZBA-3A-P

ELI15-20NC-YBA-TA-P

DC 3 wire 10-30V PNP NO

ELI14-20PO-ZBA-3A-P

ELI14-20PO-YBA-TA-P

ELI15-20PO-ZBA-3A-P

ELI15-20PO-YBA-TA-P

DC 3 wire 10-30V PNP NC

ELI14-20PC-ZBA-3A-P

ELI14-20PC-YBA-TA-P

ELI15-20PC-ZBA-3A-P

ELI15-20PC-YBA-TA-P

DC 4 wire 10-30V Convertible NPN (NO&NC)

ELI14-20NS-ZBA-4A-P

ELI14-20NS-YBA-TA-P

ELI15-20NS-ZBA-4A-P

ELI15-20NS-YBA-TA-P

DC 4 wire 10-30V Convertible PNP (NO&NC)

ELI14-20PS-ZBA-4A-P

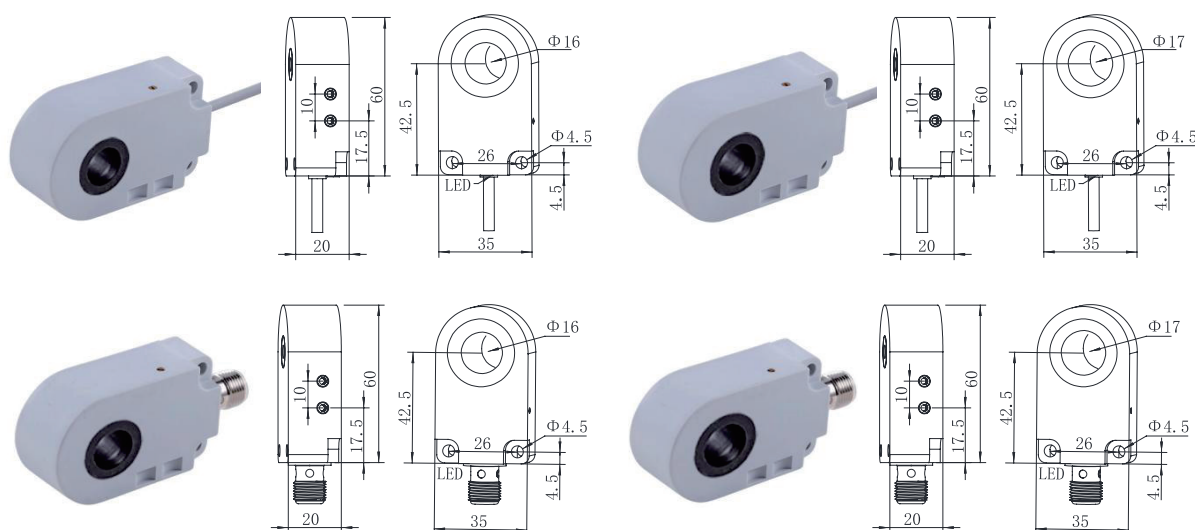
ELI14-20PS-YBA-TA-P

ELI15-20PS-ZBA-4A-P

ELI15-20PS-YBA-TA-P

Product Parameters

Ring Shape Series Metal pass type



Inner hole diameter

16mm

17mm

● Shielded ○ Non-shielded

○

○

Detection distance Sn: mm

20

20

Shell material

PBT

PBT

● LED display ○ No LED display

●

●

Working voltage & allowable pulsating voltage

10-30VDC (Ripple<10%)

10-30VDC (Ripple<10%)

Minimum interval time of the object to be detected

0.2ms

0.2ms

No-load current

<10mA

<10mA

Maximum load current

200mA

200mA

Leakage current

<0.01mA

<0.01mA

Shock current

--

--

Minimum load current

--

--

Voltage drop

<1.5V at 200mA

<1.5V at 200mA

Switching frequency

2KHZ

2KHZ

Pulse impedance

1KV

1KV

Switching hysteresis

15%

15%

Repeat accuracy

<2% (Sr)

<2% (Sr)

Protection level

IP67

IP67

Working temperature

-25°C - +70°C

-25°C - +70°C

Temperature drift

±10%(sr)

±10%(sr)

Minimum detection object

D=3mm;L=6mm

D=4mm;L=7mm

Reverse polarity protection

Yes

Yes

Short circuit protection

Yes

Yes

Current overload protection

220mA

220mA

EMC

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

Shock/vibration

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

Connection method

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

Product Model

DC 3 wire 10-30V NPN NO

ELI16-20NO-ZBA-3A-P

ELI16-20NO-YBA-TA-P

ELI17-20NO-ZBA-3A-P

ELI17-20NO-YBA-TA-P

DC 3 wire 10-30V NPN NC

ELI16-20NC-ZBA-3A-P

ELI16-20NC-YBA-TA-P

ELI17-20NC-ZBA-3A-P

ELI17-20NC-YBA-TA-P

DC 3 wire 10-30V PNP NO

ELI16-20PO-ZBA-3A-P

ELI16-20PO-YBA-TA-P

ELI17-20PO-ZBA-3A-P

ELI17-20PO-YBA-TA-P

DC 3 wire 10-30V PNP NC

ELI16-20PC-ZBA-3A-P

ELI16-20PC-YBA-TA-P

ELI17-20PC-ZBA-3A-P

ELI17-20PC-YBA-TA-P

DC 4 wire 10-30V Convertible NPN (NO&NC)

ELI16-20NS-ZBA-4A-P

ELI16-20NS-YBA-TA-P

ELI17-20NS-ZBA-4A-P

ELI17-20NS-YBA-TA-P

DC 4 wire 10-30V Convertible PNP (NO&NC)

ELI16-20PS-ZBA-4A-P

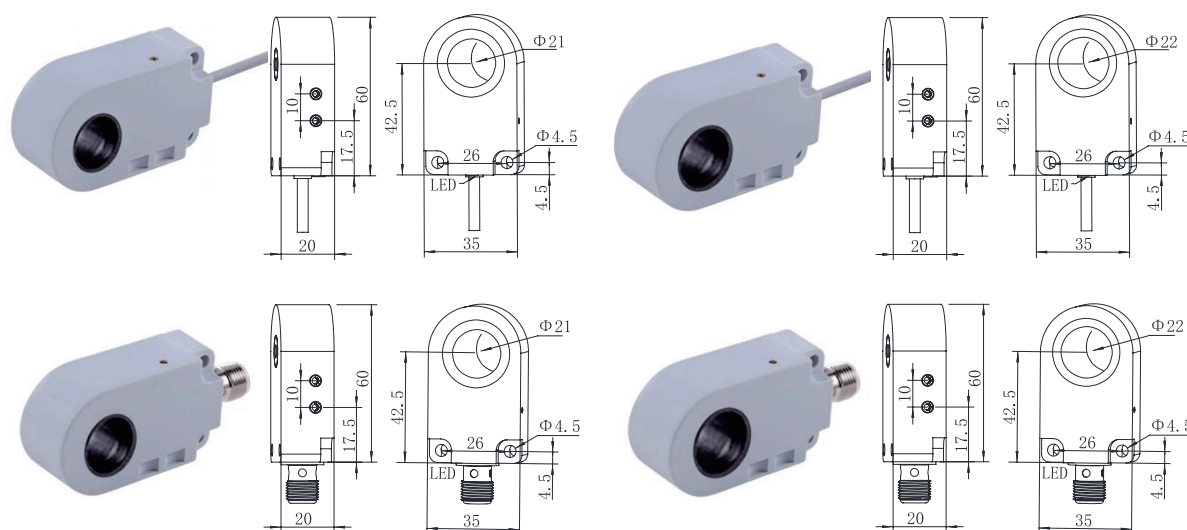
ELI16-20PS-YBA-TA-P

ELI17-20PS-ZBA-4A-P

ELI17-20PS-YBA-TA-P

Product Parameters

Ring Shape Series Metal pass type



Inner hole diameter

21mm

22mm

● Shielded ○ Non-shielded

○

○

Detection distance Sn: mm

20

20

Shell material

PBT

PBT

● LED display ○ No LED display

●

●

Working voltage & allowable pulsating voltage

10-30VDC (Ripple<10%)

10-30VDC (Ripple<10%)

Minimum interval time of the object to be detected

0.2ms

0.2ms

No-load current

<10mA

<10mA

Maximum load current

200mA

200mA

Leakage current

<0.01mA

<0.01mA

Shock current

--

--

Minimum load current

--

--

Voltage drop

<1.5V at 200mA

<1.5V at 200mA

Switching frequency

2KHZ

2KHZ

Pulse impedance

1KV

1KV

Switching hysteresis

15%

15%

Repeat accuracy

<2% (Sr)

<2% (Sr)

Protection level

IP67

IP67

Working temperature

-25°C - +70°C

-25°C - +70°C

Temperature drift

±10%(sr)

±10%(sr)

Minimum detection object

D=6mm;L=12mm

D=6mm;L=12mm

Reverse polarity protection

Yes

Yes

Short circuit protection

Yes

Yes

Current overload protection

220~280mA

220~280mA

EMC

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

Shock/vibration

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

Connection method

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

Product Model

DC 3 wire 10-30V NPN NO

ELI21-20NO-ZBA-3A-P

ELI21-20NO-YBA-TA-P

ELI22-20NO-ZBA-3A-P

ELI22-20NO-YBA-TA-P

DC 3 wire 10-30V NPN NC

ELI21-20NC-ZBA-3A-P

ELI21-20NC-YBA-TA-P

ELI22-20NC-ZBA-3A-P

ELI22-20NC-YBA-TA-P

DC 3 wire 10-30V PNP NO

ELI21-20PO-ZBA-3A-P

ELI21-20PO-YBA-TA-P

ELI22-20PO-ZBA-3A-P

ELI22-20PO-YBA-TA-P

DC 3 wire 10-30V PNP NC

ELI21-20PC-ZBA-3A-P

ELI21-20PC-YBA-TA-P

ELI22-20PC-ZBA-3A-P

ELI22-20PC-YBA-TA-P

DC 4 wire 10-30V Convertible NPN (NO&NC)

ELI21-20NS-ZBA-4A-P

ELI21-20NS-YBA-TA-P

ELI22-20NS-ZBA-4A-P

ELI22-20NS-YBA-TA-P

DC 4 wire 10-30V Convertible PNP (NO&NC)

ELI21-20PS-ZBA-4A-P

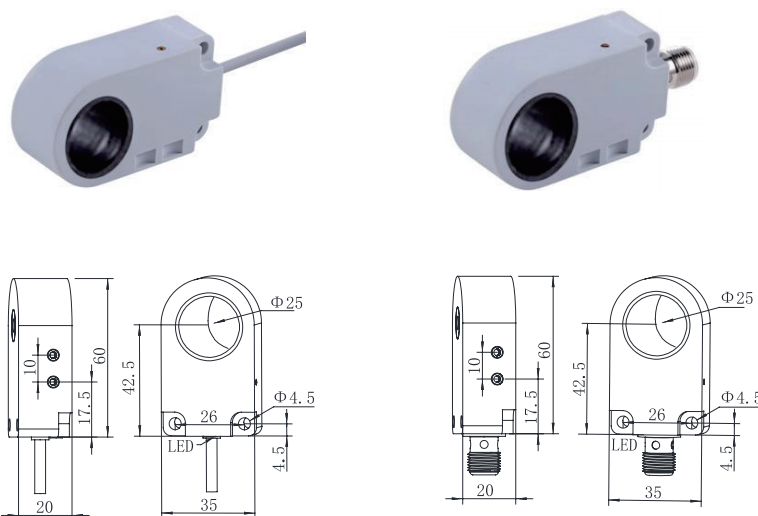
ELI21-20PS-YBA-TA-P

ELI22-20PS-ZBA-4A-P

ELI22-20PS-YBA-TA-P

Product Parameters

Ring Shape Series Metal pass type



Inner hole diameter

25mm

● Shielded ○ Non-shielded

○

Detection distance Sn: mm

20

Shell material

PBT

● LED display ○ No LED display

●

Working voltage & allowable pulsating voltage

10-30VDC (Ripple<10%)

Minimum interval time of the object to be detected

0.2ms

No-load current

<10mA

Maximum load current

200mA

Leakage current

<0.01mA

Shock current

--

Minimum load current

--

Voltage drop

<1.5V at 200mA

Switching frequency

2KHZ

Pulse impedance

1KV

Switching hysteresis

15%

Repeat accuracy

<2% (Sr)

Protection level

IP67

Working temperature

-25°C - +70°C

Temperature drift

±10%(sr)

Minimum detection object

D=7mm;L=13mm

Reverse polarity protection

Yes

Short circuit protection

Yes

Current overload protection

220~280mA

EMC

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

Shock/vibration

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

Connection method

**2m oil-proof PVC cable
4 φ 3x0.15**
M12 connector

Product Model

DC 3 wire 10-30V NPN NO

ELI25-20NO-ZBA-3A-P
ELI25-20NO-YBA-TA-P

DC 3 wire 10-30V NPN NC

ELI25-20NC-ZBA-3A-P
ELI25-20NC-YBA-TA-P

DC 3 wire 10-30V PNP NO

ELI25-20PO-ZBA-3A-P
ELI25-20PO-YBA-TA-P

DC 3 wire 10-30V PNP NC

ELI25-20PC-ZBA-3A-P
ELI25-20PC-YBA-TA-P

DC 4 wire 10-30V Convertible NPN (NO&NC)

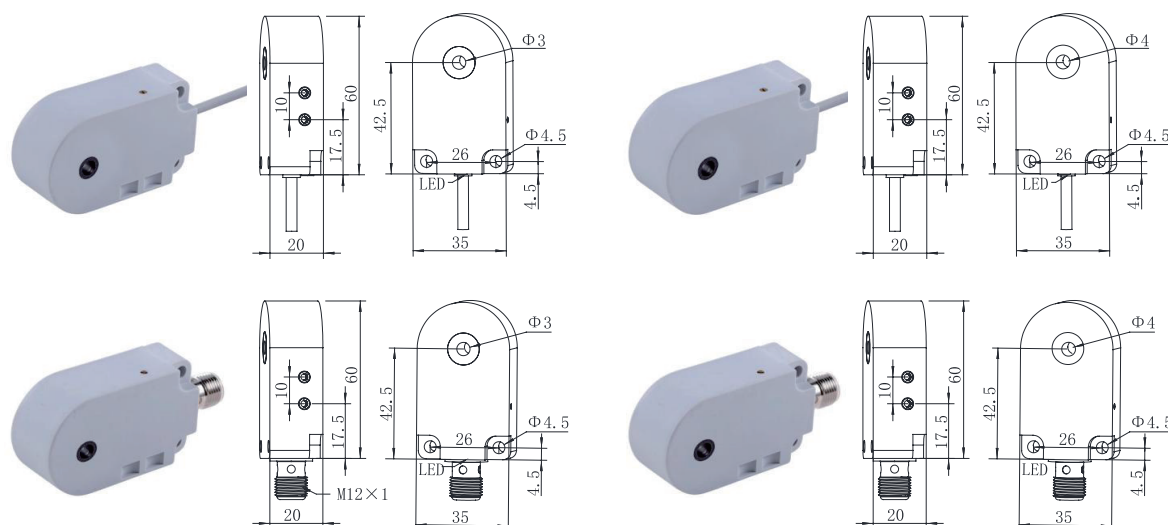
ELI25-20NS-ZBA-4A-P
ELI25-20NS-YBA-TA-P

DC 4 wire 10-30V Convertible PNP (NO&NC)

ELI25-20PS-ZBA-4A-P
ELI25-20PS-YBA-TA-P

Product Parameters

Ring Shape Series
Time-delay dynamic mode



Inner hole diameter

3mm

4mm

● Shielded ○ Non-shielded

Detection distance Sn: mm

Shell material

● LED display ○ No LED display

Working voltage & allowable pulsating voltage

Minimum interval time of the object to be detected

No-load current

Maximum load current

Leakage current

Adjustable pulse width time

Response time

Voltage drop

Switching frequency

Adjustable sensitivity

Switching hysteresis

Repeat accuracy

Protection level

Working temperature

Temperature drift

Minimum detection object

Fastest passing speed

Short circuit protection/reverse polarity protection

Current overload protection

EMC

Shock/vibration

Connection method

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

Product Model

DC 3 wire 10-30V NPN NO

DC 3 wire 10-30V NPN NC

DC 3 wire 10-30V PNP NO

DC 3 wire 10-30V PNP NC

DC 4 wire 10-30V Convertible NPN (NO&NC)

ELI03-20NS-ZBA-4A-PN

ELI03-20NS-YBA-TA-PN

ELI04-20NS-ZBA-4A-PN

ELI04-20NS-YBA-TA-PN

DC 4 wire 10-30V Convertible PNP (NO&NC)

ELI03-20PS-ZBA-4A-PN

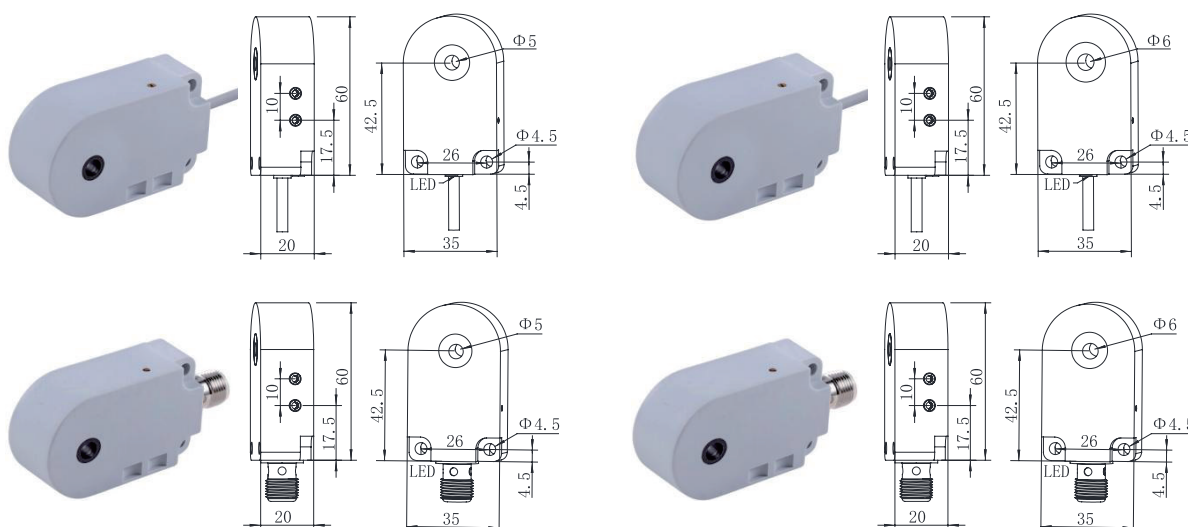
ELI03-20PS-YBA-TA-PN

ELI04-20PS-ZBA-4A-PN

ELI04-20PS-YBA-TA-PN

Product Parameters

Ring Shape Series
Time-delay dynamic mode



Inner hole diameter

5mm

6mm

● Shielded ○ Non-shielded

Detection distance Sn: mm

Shell material

● LED display ○ No LED display

Working voltage & allowable pulsating voltage

Minimum interval time of the object to be detected

No-load current

Maximum load current

Leakage current

Adjustable pulse width time

Response time

Voltage drop

Switching frequency

Adjustable sensitivity

Switching hysteresis

Repeat accuracy

Protection level

Working temperature

Temperature drift

Minimum detection object

Fastest passing speed

Short circuit protection/reverse polarity protection

Current overload protection

EMC

Shock/vibration

Connection method

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

Product Model

DC 3 wire 10-30V NPN NO

DC 3 wire 10-30V NPN NC

DC 3 wire 10-30V PNP NO

DC 3 wire 10-30V PNP NC

DC 4 wire 10-30V Convertible NPN (NO&NC)

ELI05-20NS-ZBA-4A-PN

ELI05-20NS-YBA-TA-PN

ELI06-20NS-ZBA-4A-PN

ELI06-20NS-YBA-TA-PN

DC 4 wire 10-30V Convertible PNP (NO&NC)

ELI05-20PS-ZBA-4A-PN

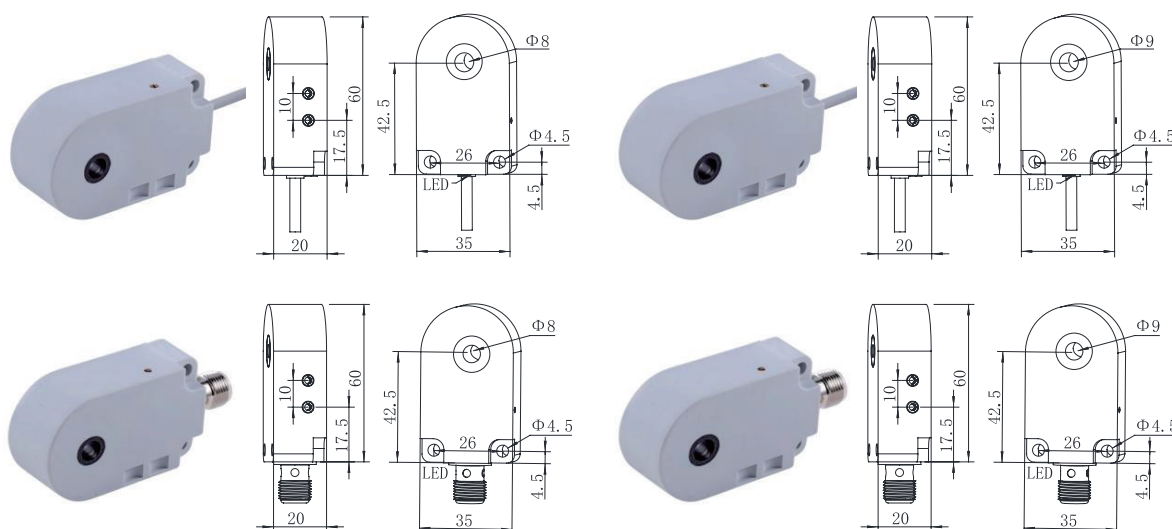
ELI05-20PS-YBA-TA-PN

ELI06-20PS-ZBA-4A-PN

ELI06-20PS-YBA-TA-PN

Product Parameters

Ring Shape Series
Time-delay dynamic mode



Inner hole diameter

8mm

9mm

● Shielded ○ Non-shielded

Detection distance Sn: mm

Shell material

● LED display ○ No LED display

Working voltage & allowable pulsating voltage

Minimum interval time of the object to be detected

No-load current

Maximum load current

Leakage current

Adjustable pulse width time

Response time

Voltage drop

Switching frequency

Adjustable sensitivity

Switching hysteresis

Repeat accuracy

Protection level

Working temperature

Temperature drift

Minimum detection object

Fastest passing speed

Short circuit protection/reverse polarity protection

Current overload protection

EMC

Shock/vibration

Connection method

Product Model

DC 3 wire 10-30V NPN NO

DC 3 wire 10-30V NPN NC

DC 3 wire 10-30V PNP NO

DC 3 wire 10-30V PNP NC

DC 4 wire 10-30V Convertible NPN (NO&NC)

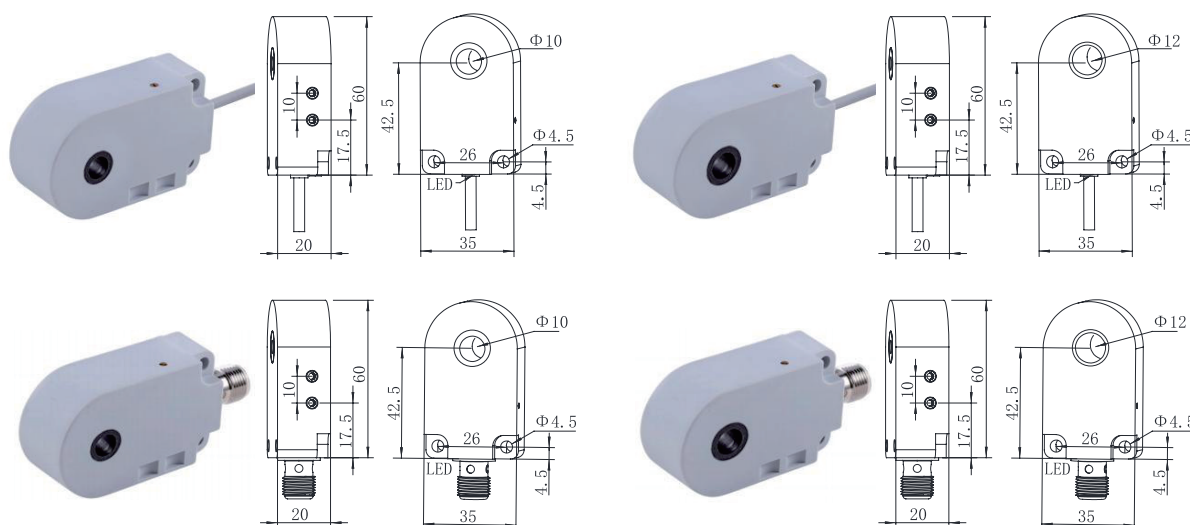
DC 4 wire 10-30V Convertible PNP (NO&NC)

○	○
20	20
PBT	PBT
●	●
10-30VDC (Ripple<10%)	10-30VDC (Ripple<10%)
0.1ms	0.2ms
<10mA	<10mA
200mA	200mA
<0.01mA	<0.01mA
0.1-200ms	0.1-200ms
0.1ms	0.1ms
<1.5V at 200mA	<1.5V at 200mA
2KHZ	2KHZ
Yes	Yes
15%	15%
<2% (Sr)	<2% (Sr)
IP67	IP67
-25℃ - +70℃	-25℃ - +70℃
±10%(sr)	±10%(sr)
Steel ball diameter 2.5mm	Steel ball diameter 2.5mm
40m/s	40m/s
Yes	Yes
220mA	220mA
RFI>3V/m / EFT>1KV / ESD>4KV (contact)	RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2	IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
2m oil-proof PVC cable 4 Φ 3x0.15	M12 connector

○	○
20	20
PBT	PBT
●	●
10-30VDC (Ripple<10%)	10-30VDC (Ripple<10%)
0.2ms	0.2ms
<10mA	<10mA
200mA	200mA
<0.01mA	<0.01mA
0.1-200ms	0.1-200ms
0.1ms	0.1ms
<1.5V at 200mA	<1.5V at 200mA
2KHZ	2KHZ
Yes	Yes
15%	15%
<2% (Sr)	<2% (Sr)
IP67	IP67
-25℃ - +70℃	-25℃ - +70℃
±10%(sr)	±10%(sr)
Steel ball diameter 2.5mm	Steel ball diameter 2.5mm
40m/s	40m/s
Yes	Yes
220mA	220mA
RFI>3V/m / EFT>1KV / ESD>4KV (contact)	RFI>3V/m / EFT>1KV / ESD>4KV (contact)
IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2	IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
2m oil-proof PVC cable 4 Φ 3x0.15	M12 connector

Product Parameters

Ring Shape Series
Time-delay dynamic mode



Inner hole diameter

10mm

12mm

● Shielded ○ Non-shielded

Detection distance Sn: mm

Shell material

● LED display ○ No LED display

Working voltage & allowable pulsating voltage

Minimum interval time of the object to be detected

No-load current

Maximum load current

Leakage current

Adjustable pulse width time

Response time

Voltage drop

Switching frequency

Adjustable sensitivity

Switching hysteresis

Repeat accuracy

Protection level

Working temperature

Temperature drift

Minimum detection object

Fastest passing speed

Short circuit protection/reverse polarity protection

Current overload protection

EMC

Shock/vibration

Connection method

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

Product Model

DC 3 wire 10-30V NPN NO

DC 3 wire 10-30V NPN NC

DC 3 wire 10-30V PNP NO

DC 3 wire 10-30V PNP NC

DC 4 wire 10-30V Convertible NPN (NO&NC)

ELI10-20NS-ZBA-4A-PN

ELI10-20NS-YBA-TA-PN

ELI12-20NS-ZBA-4A-PN

ELI12-20NS-YBA-TA-PN

DC 4 wire 10-30V Convertible PNP (NO&NC)

ELI10-20PS-ZBA-4A-PN

ELI10-20PS-YBA-TA-PN

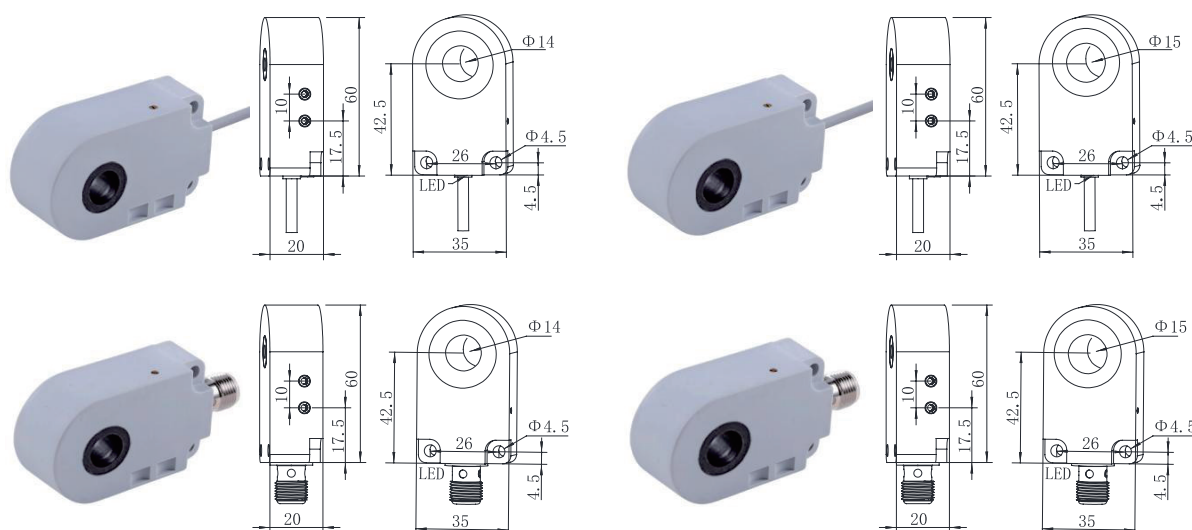
ELI12-20PS-ZBA-4A-PN

ELI12-20PS-YBA-TA-PN

Product Parameters

Ring Shape Series

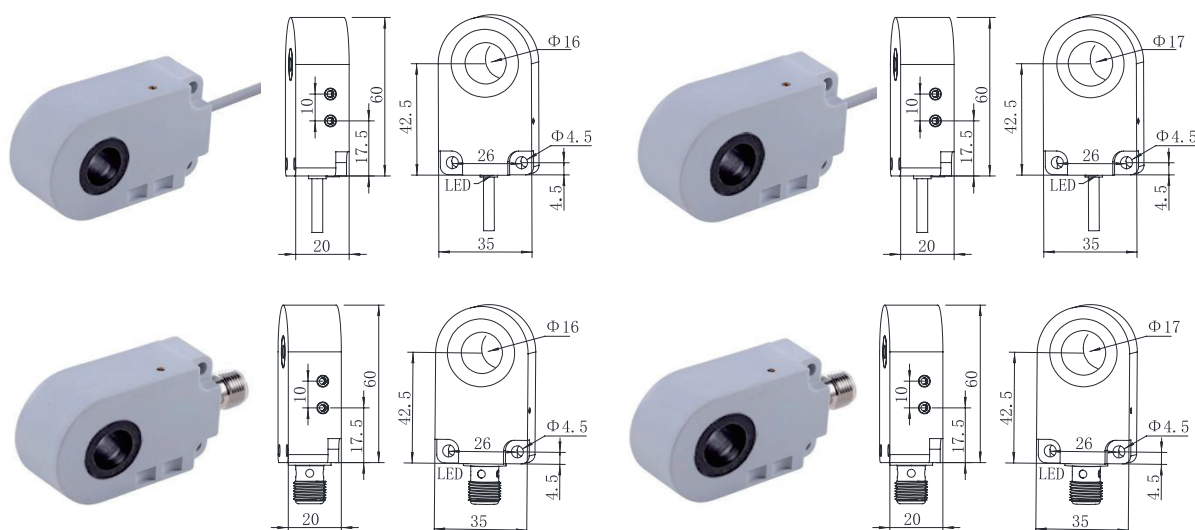
Time-delay dynamic mode



Inner hole diameter	14mm		15mm	
● Shielded ○ Non-shielded	○		○	
Detection distance Sn: mm	20		20	
Shell material	PBT		PBT	
● LED display ○ No LED display	●		●	
Working voltage & allowable pulsating voltage	10-30VDC (Ripple<10%)		10-30VDC (Ripple<10%)	
Minimum interval time of the object to be detected	0.2ms		0.2ms	
No-load current	<10mA		<10mA	
Maximum load current	200mA		200mA	
Leakage current	<0.01mA		<0.01mA	
Adjustable pulse width time	0.1-200ms		0.1-200ms	
Response time	0.1ms		0.1ms	
Voltage drop	<1.5V at 200mA		<1.5V at 200mA	
Switching frequency	2KHZ		2KHZ	
Adjustable sensitivity	Yes		Yes	
Switching hysteresis	15%		15%	
Repeat accuracy	<2% (Sr)		<2% (Sr)	
Protection level	IP67		IP67	
Working temperature	-25℃ - +70℃		-25℃ - +70℃	
Temperature drift	±10%(sr)		±10%(sr)	
Minimum detection object	Steel ball diameter 4.0mm		Steel ball diameter 4.5mm	
Fastest passing speed	40m/s		40m/s	
Short circuit protection/reverse polarity protection	Yes		Yes	
Current overload protection	220mA		220mA	
EMC	RFI>3V/m / EFT>1KV / ESD>4KV (contact)		RFI>3V/m / EFT>1KV / ESD>4KV (contact)	
Shock/vibration	IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2		IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2	
Connection method	2m oil-proof PVC cable 4 Φ 3x0.15	M12 connector	2m oil-proof PVC cable 4 Φ 3x0.15	M12 connector
Product Model				
DC 3 wire 10-30V NPN NO				
DC 3 wire 10-30V NPN NC				
DC 3 wire 10-30V PNP NO				
DC 3 wire 10-30V PNP NC				
DC 4 wire 10-30V Convertible NPN (NO&NC)	ELI14-20NS-ZBA-4A-PN	ELI14-20NS-YBA-TA-PN	ELI15-20NS-ZBA-4A-PN	ELI15-20NS-YBA-TA-PN
DC 4 wire 10-30V Convertible PNP (NO&NC)	ELI14-20PS-ZBA-4A-PN	ELI14-20PS-YBA-TA-PN	ELI15-20PS-ZBA-4A-PN	ELI15-20PS-YBA-TA-PN

Product Parameters

Ring Shape Series
Time-delay dynamic mode



Inner hole diameter

16mm

17mm

● Shielded ○ Non-shielded

Detection distance Sn: mm

Shell material

● LED display ○ No LED display

Working voltage & allowable pulsating voltage

Minimum interval time of the object to be detected

No-load current

Maximum load current

Leakage current

Adjustable pulse width time

Response time

Voltage drop

Switching frequency

Adjustable sensitivity

Switching hysteresis

Repeat accuracy

Protection level

Working temperature

Temperature drift

Minimum detection object

Fastest passing speed

Short circuit protection/reverse polarity protection

Current overload protection

EMC

Shock/vibration

Connection method

2m oil-proof PVC cable
4 φ 3x0.15

M12 connector

2m oil-proof PVC cable
4 φ 3x0.15

M12 connector

Product Model

DC 3 wire 10-30V NPN NO

DC 3 wire 10-30V NPN NC

DC 3 wire 10-30V PNP NO

DC 3 wire 10-30V PNP NC

DC 4 wire 10-30V Convertible NPN (NO&NC)

ELI16-20NS-ZBA-4A-PN

ELI16-20NS-YBA-TA-PN

ELI17-20NS-ZBA-4A-PN

ELI17-20NS-YBA-TA-PN

DC 4 wire 10-30V Convertible PNP (NO&NC)

ELI16-20PS-ZBA-4A-PN

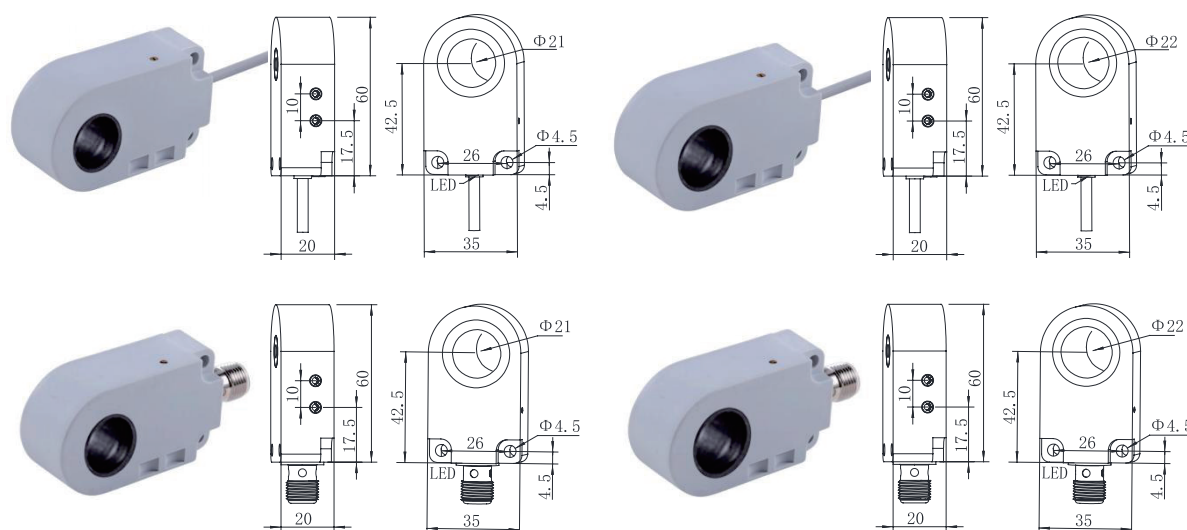
ELI16-20PS-YBA-TA-PN

ELI17-20PS-ZBA-4A-PN

ELI17-20PS-YBA-TA-PN

Product Parameters

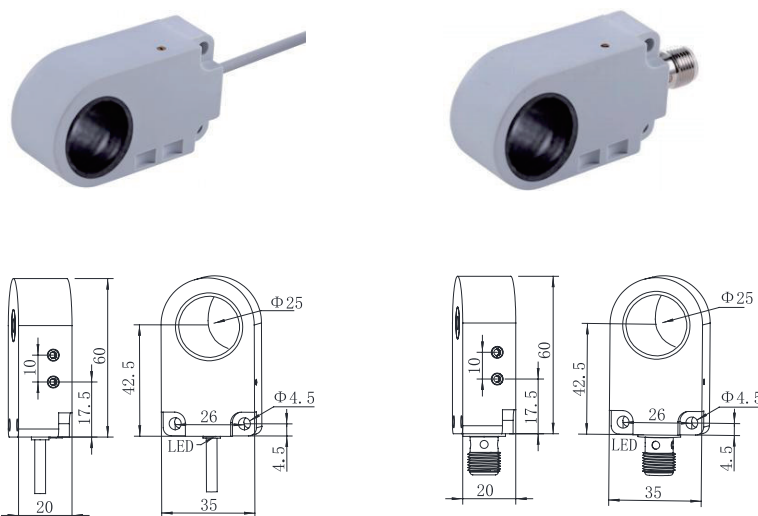
Ring Shape Series
Time-delay dynamic mode



Inner hole diameter	21mm		22mm	
● Shielded ○ Non-shielded	○		○	
Detection distance Sn: mm	20		20	
Shell material	PBT		PBT	
● LED display ○ No LED display	●		●	
Working voltage & allowable pulsating voltage	10-30VDC (Ripple<10%)		10-30VDC (Ripple<10%)	
Minimum interval time of the object to be detected	0.2ms		0.2ms	
No-load current	<10mA		<10mA	
Maximum load current	200mA		200mA	
Leakage current	<0.01mA		<0.01mA	
Adjustable pulse width time	0.1-200ms		0.1-200ms	
Response time	0.1ms		0.1ms	
Voltage drop	<1.5V at 200mA		<1.5V at 200mA	
Switching frequency	2KHZ		2KHZ	
Adjustable sensitivity	Yes		Yes	
Switching hysteresis	15%		15%	
Repeat accuracy	<2% (Sr)		<2% (Sr)	
Protection level	IP67		IP67	
Working temperature	-25℃ - +70℃		-25℃ - +70℃	
Temperature drift	±10%(sr)		±10%(sr)	
Minimum detection object	Steel ball diameter 6.0mm		Steel ball diameter 6.5mm	
Fastest passing speed	40m/s		40m/s	
Short circuit protection/reverse polarity protection	Yes		Yes	
Current overload protection	220mA		220mA	
EMC	RFI>3V/m / EFT>1KV / ESD>4KV (contact)		RFI>3V/m / EFT>1KV / ESD>4KV (contact)	
Shock/vibration	IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2		IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2	
Connection method	2m oil-proof PVC cable 4 Φ 3x0.15	M12 connector	2m oil-proof PVC cable 4 Φ 3x0.15	M12 connector
Product Model				
DC 3 wire 10-30V NPN NO				
DC 3 wire 10-30V NPN NC				
DC 3 wire 10-30V PNP NO				
DC 3 wire 10-30V PNP NC				
DC 4 wire 10-30V Convertible NPN (NO&NC)	ELI21-20NS-ZBA-4A-PN	ELI21-20NS-YBA-TA-PN	ELI22-20NS-ZBA-4A-PN	ELI22-20NS-YBA-TA-PN
DC 4 wire 10-30V Convertible PNP (NO&NC)	ELI21-20PS-ZBA-4A-PN	ELI21-20PS-YBA-TA-PN	ELI22-20PS-ZBA-4A-PN	ELI22-20PS-YBA-TA-PN

Product Parameters

Ring Shape Series
Time-delay dynamic mode



Inner hole diameter

25mm

● Shielded ○ Non-shielded

○

Detection distance Sn: mm

20

Shell material

PBT

● LED display ○ No LED display

●

Working voltage & allowable pulsating voltage

10-30VDC (Ripple<10%)

Minimum interval time of the object to be detected

0.2ms

No-load current

<10mA

Maximum load current

200mA

Leakage current

<0.01mA

Adjustable pulse width time

0.1-200ms

Response time

0.1ms

Voltage drop

<1.5V at 200mA

Switching frequency

2KHZ

Adjustable sensitivity

Yes

Switching hysteresis

15%

Repeat accuracy

<2% (Sr)

Protection level

IP67

Working temperature

-25°C - +70°C

Temperature drift

±10%(sr)

Minimum detection object

Steel ball diameter 7.5mm

Fastest passing speed

40m/s

Short circuit protection/reverse polarity protection

Yes

Current overload protection

220mA

EMC

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

Shock/vibration

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

Connection method

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

Product Model

DC 3 wire 10-30V NPN NO

DC 3 wire 10-30V NPN NC

DC 3 wire 10-30V PNP NO

DC 3 wire 10-30V PNP NC

DC 4 wire 10-30V Convertible NPN (NO&NC)

ELI25-20NS-ZBA-4A-PN

ELI25-20NS-YBA-TA-PN

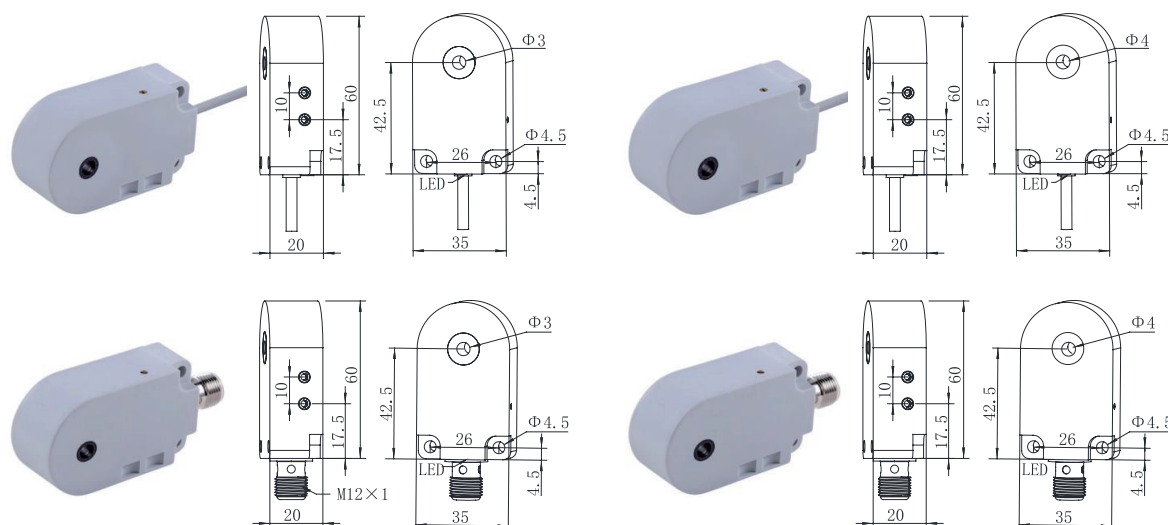
DC 4 wire 10-30V Convertible PNP (NO&NC)

ELI25-20PS-ZBA-4A-PN

ELI25-20PS-YBA-TA-PN

Product Parameters

Ring Shape Series Delayed static mode



Inner hole diameter

3mm

4mm

● Shielded ○ Non-shielded

Detection distance Sn: mm

Shell material

● LED display ○ No LED display

Working voltage & allowable pulsating voltage

Minimum interval time of the object to be detected

No-load current

Maximum load current

Leakage current

Adjustable pulse width time

Response time

Voltage drop

Switching frequency

Adjustable sensitivity

Switching hysteresis

Repeat accuracy

Protection level

Working temperature

Temperature drift

Minimum detection object

Fastest passing speed

Short circuit protection/reverse polarity protection

Current overload protection

EMC

Shock/vibration

Connection method

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

Product Model

DC 3 wire 10-30V NPN NO

DC 3 wire 10-30V NPN NC

DC 3 wire 10-30V PNP NO

DC 3 wire 10-30V PNP NC

DC 4 wire 10-30V Convertible NPN (NO&NC)

ELI03-20NS-ZBA-4A-PT

ELI03-20NS-YBA-TA-PT

ELI04-20NS-ZBA-4A-PT

ELI04-20NS-YBA-TA-PT

DC 4 wire 10-30V Convertible PNP (NO&NC)

ELI03-20PS-ZBA-4A-PT

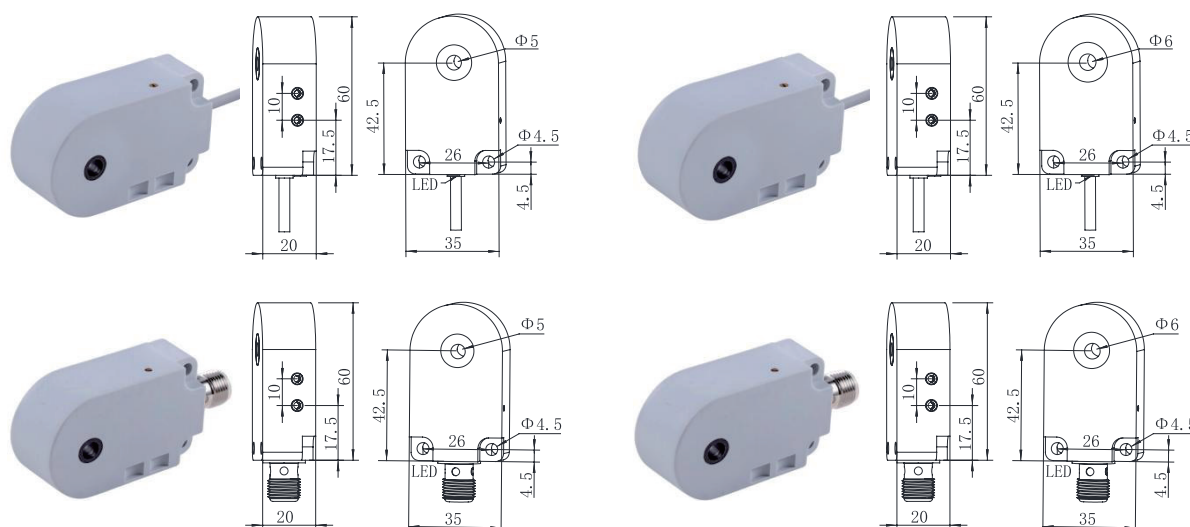
ELI03-20PS-YBA-TA-PT

ELI04-20PS-ZBA-4A-PT

ELI04-20PS-YBA-TA-PT

Product Parameters

Ring Shape Series Delayed static mode



Inner hole diameter

5mm

6mm

● Shielded ○ Non-shielded

Detection distance Sn: mm

Shell material

● LED display ○ No LED display

Working voltage & allowable pulsating voltage

Minimum interval time of the object to be detected

No-load current

Maximum load current

Leakage current

Adjustable pulse width time

Response time

Voltage drop

Switching frequency

Adjustable sensitivity

Switching hysteresis

Repeat accuracy

Protection level

Working temperature

Temperature drift

Minimum detection object

Fastest passing speed

Short circuit protection/reverse polarity protection

Current overload protection

EMC

Shock/vibration

Connection method

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

Product Model

DC 3 wire 10-30V NPN NO

DC 3 wire 10-30V NPN NC

DC 3 wire 10-30V PNP NO

DC 3 wire 10-30V PNP NC

DC 4 wire 10-30V Convertible NPN (NO&NC)

ELI05-20NS-ZBA-4A-PT

ELI05-20NS-YBA-TA-PT

ELI06-20NS-ZBA-4A-PT

ELI06-20NS-YBA-TA-PT

DC 4 wire 10-30V Convertible PNP (NO&NC)

ELI05-20PS-ZBA-4A-PT

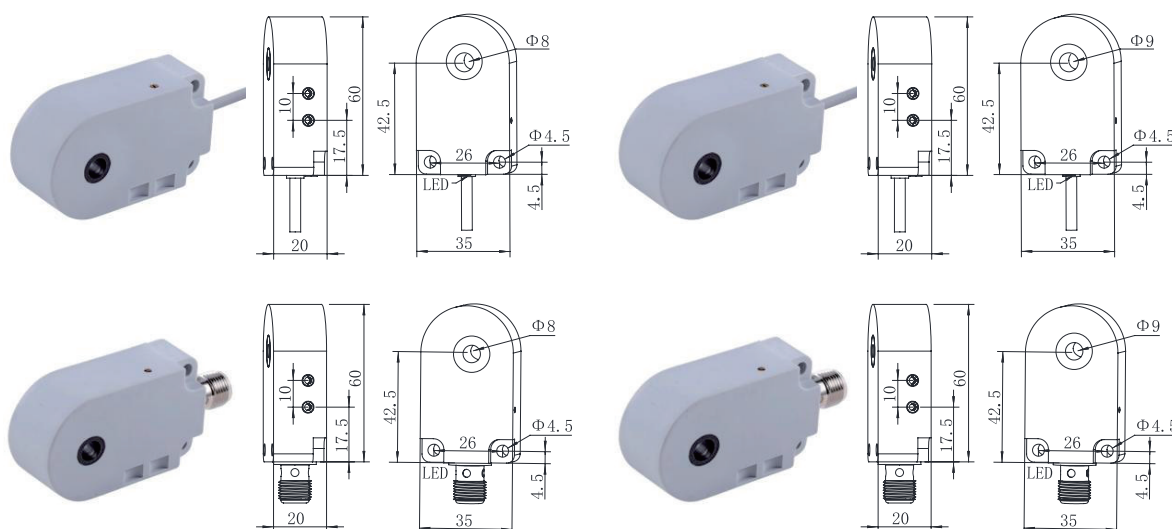
ELI05-20PS-YBA-TA-PT

ELI06-20PS-ZBA-4A-PT

ELI06-20PS-YBA-TA-PT

Product Parameters

Ring Shape Series Delayed static mode



Inner hole diameter

8mm

9mm

● Shielded ○ Non-shielded

Detection distance Sn: mm

Shell material

● LED display ○ No LED display

Working voltage & allowable pulsating voltage

Minimum interval time of the object to be detected

No-load current

Maximum load current

Leakage current

Adjustable pulse width time

Response time

Voltage drop

Switching frequency

Adjustable sensitivity

Switching hysteresis

Repeat accuracy

Protection level

Working temperature

Temperature drift

Minimum detection object

Fastest passing speed

Short circuit protection/reverse polarity protection

Current overload protection

EMC

Shock/vibration

Connection method

Product Model

DC 3 wire 10-30V NPN NO

DC 3 wire 10-30V NPN NC

DC 3 wire 10-30V PNP NO

DC 3 wire 10-30V PNP NC

DC 4 wire 10-30V Convertible NPN (NO&NC)

DC 4 wire 10-30V Convertible PNP (NO&NC)

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

ELI08-20NS-ZBA-4A-PT

ELI08-20NS-YBA-TA-PT

ELI09-20NS-ZBA-4A-PT

ELI09-20NS-YBA-TA-PT

ELI08-20PS-ZBA-4A-PT

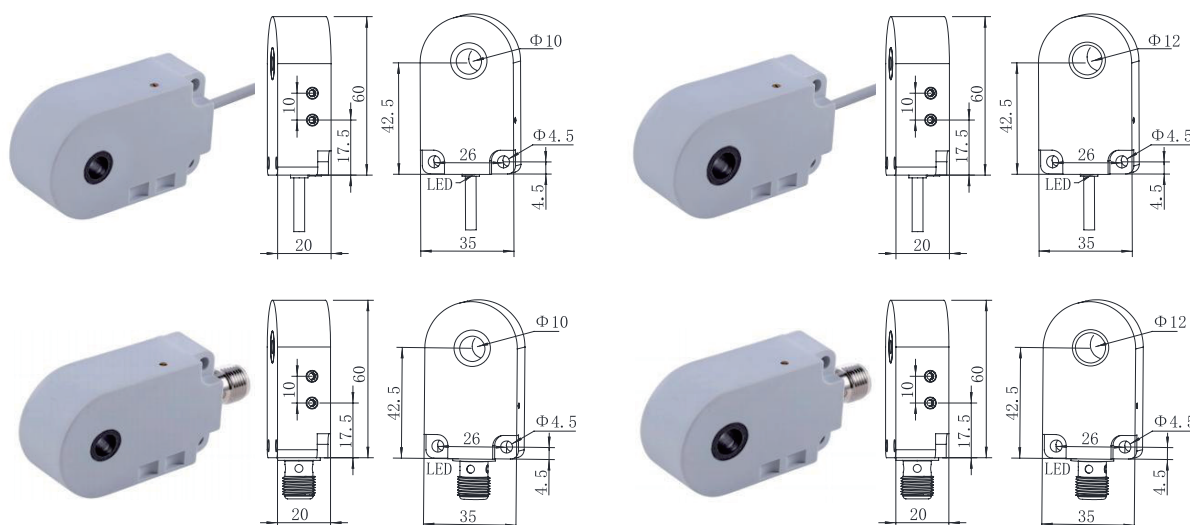
ELI08-20PS-YBA-TA-PT

ELI09-20PS-ZBA-4A-PT

ELI09-20PS-YBA-TA-PT

Product Parameters

Ring Shape Series Delayed static mode



Inner hole diameter

10mm

12mm

● Shielded ○ Non-shielded

Detection distance Sn: mm

Shell material

● LED display ○ No LED display

Working voltage & allowable pulsating voltage

Minimum interval time of the object to be detected

No-load current

Maximum load current

Leakage current

Adjustable pulse width time

Response time

Voltage drop

Switching frequency

Adjustable sensitivity

Switching hysteresis

Repeat accuracy

Protection level

Working temperature

Temperature drift

Minimum detection object

Fastest passing speed

Short circuit protection/reverse polarity protection

Current overload protection

EMC

Shock/vibration

Connection method

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

Product Model

DC 3 wire 10-30V NPN NO

DC 3 wire 10-30V NPN NC

DC 3 wire 10-30V PNP NO

DC 3 wire 10-30V PNP NC

DC 4 wire 10-30V Convertible NPN (NO&NC)

ELI10-20NS-ZBA-4A-PT

ELI10-20NS-YBA-TA-PT

ELI12-20NS-ZBA-4A-PT

ELI12-20NS-YBA-TA-PT

DC 4 wire 10-30V Convertible PNP (NO&NC)

ELI10-20PS-ZBA-4A-PT

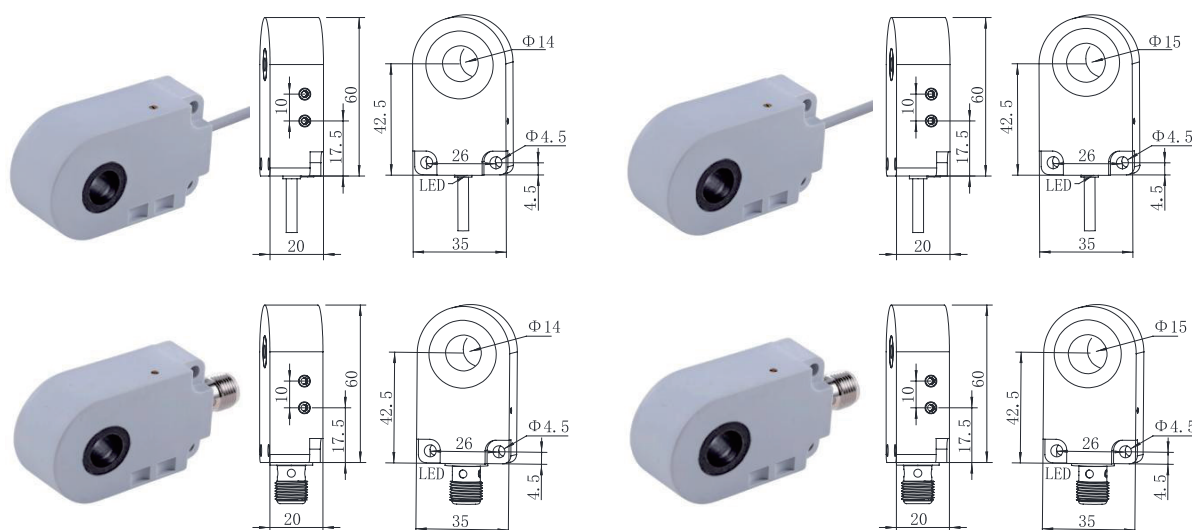
ELI10-20PS-YBA-TA-PT

ELI12-20PS-ZBA-4A-PT

ELI12-20PS-YBA-TA-PT

Product Parameters

Ring Shape Series Delayed static mode



Inner hole diameter

14mm

15mm

● Shielded ○ Non-shielded

Detection distance Sn: mm

Shell material

● LED display ○ No LED display

Working voltage & allowable pulsating voltage

Minimum interval time of the object to be detected

No-load current

Maximum load current

Leakage current

Adjustable pulse width time

Response time

Voltage drop

Switching frequency

Adjustable sensitivity

Switching hysteresis

Repeat accuracy

Protection level

Working temperature

Temperature drift

Minimum detection object

Fastest passing speed

Short circuit protection/reverse polarity protection

Current overload protection

EMC

Shock/vibration

Connection method

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

Product Model

DC 3 wire 10-30V NPN NO

DC 3 wire 10-30V NPN NC

DC 3 wire 10-30V PNP NO

DC 3 wire 10-30V PNP NC

DC 4 wire 10-30V Convertible NPN (NO&NC)

ELI14-20NS-ZBA-4A-PT

ELI14-20NS-YBA-TA-PT

ELI15-20NS-ZBA-4A-PT

ELI15-20NS-YBA-TA-PT

DC 4 wire 10-30V Convertible PNP (NO&NC)

ELI14-20PS-ZBA-4A-PT

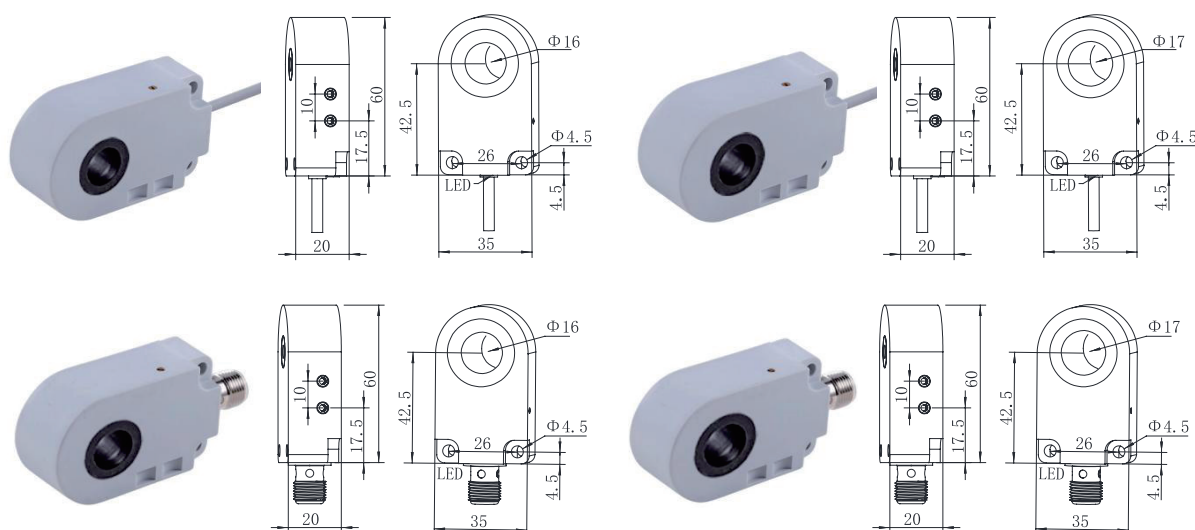
ELI14-20PS-YBA-TA-PT

ELI15-20PS-ZBA-4A-PT

ELI15-20PS-YBA-TA-PT

Product Parameters

Ring Shape Series Delayed static mode



Inner hole diameter

16mm

17mm

● Shielded ○ Non-shielded

○

○

Detection distance Sn: mm

20

20

Shell material

PBT

PBT

● LED display ○ No LED display

●

●

Working voltage & allowable pulsating voltage

10-30VDC (Ripple<10%)

10-30VDC (Ripple<10%)

Minimum interval time of the object to be detected

0.1ms

0.1ms

No-load current

<10mA

<10mA

Maximum load current

200mA

200mA

Leakage current

<0.01mA

<0.01mA

Adjustable pulse width time

0.1-200ms

0.1-200ms

Response time

0.1ms

0.1ms

Voltage drop

<1.5V at 200mA

<1.5V at 200mA

Switching frequency

2KHZ

2KHZ

Adjustable sensitivity

Yes

Yes

Switching hysteresis

15%

15%

Repeat accuracy

<2% (Sr)

<2% (Sr)

Protection level

IP67

IP67

Working temperature

-25°C - +70°C

-25°C - +70°C

Temperature drift

±10%(sr)

±10%(sr)

Minimum detection object

D=3mm;L=6mm

D=4mm;L=7mm

Fastest passing speed

40m/s

40m/s

Short circuit protection/reverse polarity protection

Yes

Yes

Current overload protection

220mA

220mA

EMC

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

Shock/vibration

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

Connection method

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

2m oil-proof PVC cable
4 Φ 3x0.15

M12 connector

Product Model

DC 3 wire 10-30V NPN NO

DC 3 wire 10-30V NPN NC

DC 3 wire 10-30V PNP NO

DC 3 wire 10-30V PNP NC

DC 4 wire 10-30V Convertible NPN (NO&NC)

ELI16-20NS-ZBA-4A-PT

ELI16-20NS-YBA-TA-PT

ELI17-20NS-ZBA-4A-PT

ELI17-20NS-YBA-TA-PT

DC 4 wire 10-30V Convertible PNP (NO&NC)

ELI16-20PS-ZBA-4A-PT

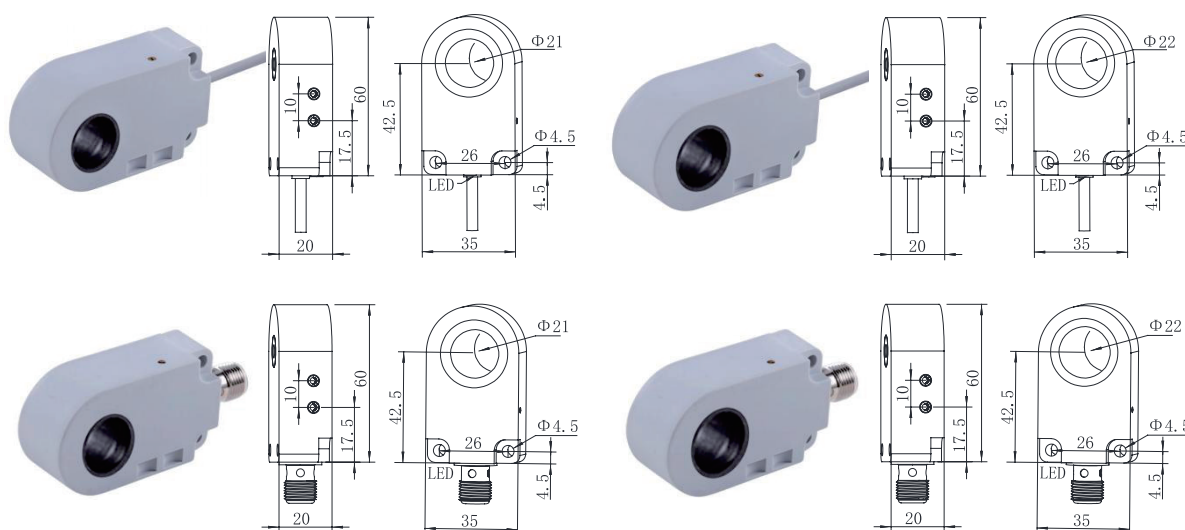
ELI16-20PS-YBA-TA-PT

ELI17-20PS-ZBA-4A-PT

ELI17-20PS-YBA-TA-PT

Product Parameters

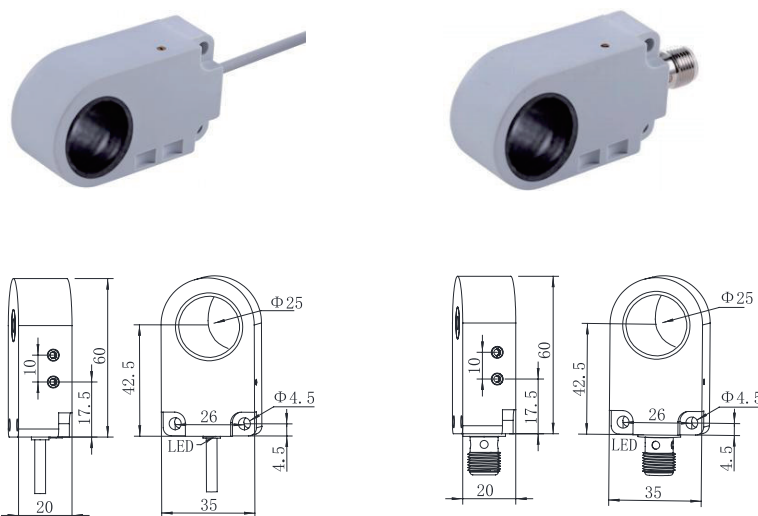
Ring Shape Series Delayed static mode



Inner hole diameter	21mm		22mm	
● Shielded ○ Non-shielded	○		○	
Detection distance Sn: mm	20		20	
Shell material	PBT		PBT	
● LED display ○ No LED display	●		●	
Working voltage & allowable pulsating voltage	10-30VDC (Ripple<10%)		10-30VDC (Ripple<10%)	
Minimum interval time of the object to be detected	0.1ms		0.1ms	
No-load current	<10mA		<10mA	
Maximum load current	200mA		200mA	
Leakage current	<0.01mA		<0.01mA	
Adjustable pulse width time	0.1-200ms		0.1-200ms	
Response time	0.1ms		0.1ms	
Voltage drop	<1.5V at 200mA		<1.5V at 200mA	
Switching frequency	2KHZ		2KHZ	
Adjustable sensitivity	Yes		Yes	
Switching hysteresis	15%		15%	
Repeat accuracy	<2% (Sr)		<2% (Sr)	
Protection level	IP67		IP67	
Working temperature	-25℃ - +70℃		-25℃ - +70℃	
Temperature drift	±10%(sr)		±10%(sr)	
Minimum detection object	D=6mm;L=12mm		D=6mm;L=12mm	
Fastest passing speed	40m/s		40m/s	
Short circuit protection/reverse polarity protection	Yes		Yes	
Current overload protection	220mA		220mA	
EMC	RFI>3V/m / EFT>1KV / ESD>4KV (contact)		RFI>3V/m / EFT>1KV / ESD>4KV (contact)	
Shock/vibration	IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2		IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2	
Connection method	2m oil-proof PVC cable 4 Φ 3x0.15	M12 connector	2m oil-proof PVC cable 4 Φ 3x0.15	M12 connector
Product Model				
DC 3 wire 10-30V NPN NO				
DC 3 wire 10-30V NPN NC				
DC 3 wire 10-30V PNP NO				
DC 3 wire 10-30V PNP NC				
DC 4 wire 10-30V Convertible NPN (NO&NC)	ELI21-20NS-ZBA-4A-PT	ELI21-20NS-YBA-TA-PT	ELI22-20NS-ZBA-4A-PT	ELI22-20NS-YBA-TA-PT
DC 4 wire 10-30V Convertible PNP (NO&NC)	ELI21-20PS-ZBA-4A-PT	ELI21-20PS-YBA-TA-PT	ELI22-20PS-ZBA-4A-PT	ELI22-20PS-YBA-TA-PT

Product Parameters

Ring Shape Series Delayed static mode



Inner hole diameter

25mm

● Shielded ○ Non-shielded

○

Detection distance Sn: mm

20

Shell material

PBT

● LED display ○ No LED display

●

Working voltage & allowable pulsating voltage

10-30VDC (Ripple<10%)

Minimum interval time of the object to be detected

0.1ms

No-load current

<10mA

Maximum load current

200mA

Leakage current

<0.01mA

Adjustable pulse width time

0.1-200ms

Response time

0.1ms

Voltage drop

<1.5V at 200mA

Switching frequency

2KHZ

Adjustable sensitivity

Yes

Switching hysteresis

15%

Repeat accuracy

<2% (Sr)

Protection level

IP67

Working temperature

-25°C - +70°C

Temperature drift

±10%(sr)

Minimum detection object

D=6mm;L=12mm

Fastest passing speed

40m/s

Short circuit protection/reverse polarity protection

Yes

Current overload protection

220mA

EMC

RFI>3V/m / EFT>1KV / ESD>4KV (contact)

Shock/vibration

IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2

Connection method

**2m oil-proof PVC cable
4 Φ 3x0.15**
M12 connector

Product Model

DC 3 wire 10-30V NPN NO

DC 3 wire 10-30V NPN NC

DC 3 wire 10-30V PNP NO

DC 3 wire 10-30V PNP NC

DC 4 wire 10-30V Convertible NPN (NO&NC)

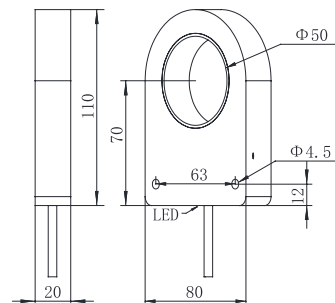
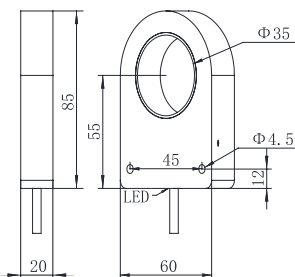
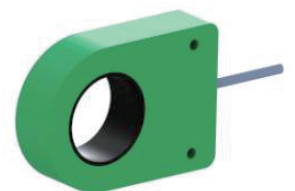
ELI25-20NS-ZBA-4A-PT
ELI25-20NS-YBA-TA-PT

DC 4 wire 10-30V Convertible PNP (NO&NC)

ELI25-20PS-ZBA-4A-PT
ELI25-20PS-YBA-TA-PT

Product Parameters

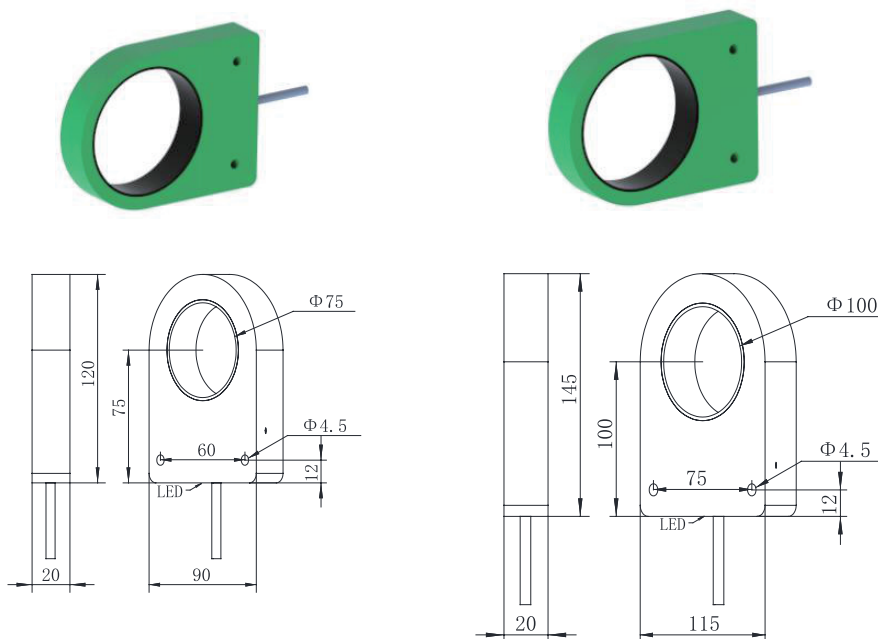
Ring Shape Series Delayed static mode



Inner hole diameter	35mm	50mm
● Shielded ○ Non-shielded	○	○
Detection distance Sn: mm	20	20
Shell material	PBT	PBT
● LED display ○ No LED display	●	●
Working voltage & allowable pulsating voltage	10-30VDC (Ripple<10%)	10-30VDC (Ripple<10%)
Minimum interval time of the object to be detected	0.1ms	0.1ms
No-load current	<10mA	<10mA
Maximum load current	200mA	200mA
Leakage current	<0.01mA	<0.01mA
Adjustable pulse width time	0.1-200ms	0.1-200ms
Response time	0.1ms	0.1ms
Voltage drop	<1.5V at 200mA	<1.5V at 200mA
Switching frequency	2KHZ	2KHZ
Adjustable sensitivity	Yes	Yes
Switching hysteresis	15%	15%
Repeat accuracy	<2% (Sr)	<2% (Sr)
Protection level	IP67	IP67
Working temperature	-25℃ - +70℃	-25℃ - +70℃
Temperature drift	±10%(sr)	±10%(sr)
Minimum detection object	D=3mm;L=6mm	D=4mm;L=7mm
Fastest passing speed	40m/s	40m/s
Short circuit protection/reverse polarity protection	Yes	Yes
Current overload protection	220mA	220mA
EMC	RFI>3V/m / EFT>1KV / ESD>4KV (contact)	RFI>3V/m / EFT>1KV / ESD>4KV (contact)
Shock/vibration	IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2	IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
Connection method	2m oil-proof PVC cable 4. 8 φ 3x0.15	2m oil-proof PVC cable 4. 8 φ 3x0.15
Product Model		
DC 3 wire 10-30V NPN NO	ELI35-20NO-ZBA-3A-PT	ELI50-20NO-ZBA-3A-PT
DC 3 wire 10-30V NPN NC	ELI35-20NC-ZBA-3A-PT	ELI50-20NC-ZBA-3A-PT
DC 3 wire 10-30V PNP NO	ELI35-20PO-ZBA-3A-PT	ELI50-20PO-ZBA-3A-PT
DC 3 wire 10-30V PNP NC	ELI35-20PC-ZBA-3A-PT	ELI50-20PC-ZBA-3A-PT
DC 4 wire 10-30V Convertible NPN (NO&NC)		
DC 4 wire 10-30V Convertible PNP (NO&NC)		

Product Parameters

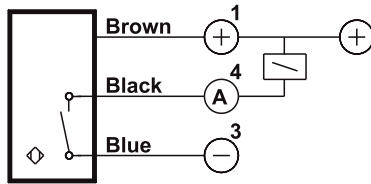
Ring Shape Series Delayed static mode



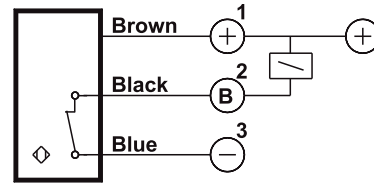
Inner hole diameter	75mm	100mm
● Shielded ○ Non-shielded	○	○
Detection distance Sn: mm	20	20
Shell material	PBT	PBT
● LED display ○ No LED display	●	●
Working voltage & allowable pulsating voltage	10-30VDC (Ripple<10%)	10-30VDC (Ripple<10%)
Minimum interval time of the object to be detected	0.1ms	0.1ms
No-load current	<10mA	<10mA
Maximum load current	200mA	200mA
Leakage current	<0.01mA	<0.01mA
Adjustable pulse width time	0.1-200ms	0.1-200ms
Response time	0.1ms	0.1ms
Voltage drop	<1.5V at 200mA	<1.5V at 200mA
Switching frequency	2KHZ	2KHZ
Adjustable sensitivity	Yes	Yes
Switching hysteresis	15%	15%
Repeat accuracy	<2% (Sr)	<2% (Sr)
Protection level	IP67	IP67
Working temperature	-25℃ - +70℃	-25℃ - +70℃
Temperature drift	±10%(sr)	±10%(sr)
Minimum detection object	D=6mm;L=12mm	D=6mm;L=12mm
Fastest passing speed	40m/s	40m/s
Short circuit protection/reverse polarity protection	Yes	Yes
Current overload protection	220mA	220mA
EMC	RFI>3V/m / EFT>1KV / ESD>4KV (contact)	RFI>3V/m / EFT>1KV / ESD>4KV (contact)
Shock/vibration	IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2	IEC 60947-5-2,Part 7.4.1 / IEC 60947-5-2,Part 7.4.2
Connection method	2m oil-proof PVC cable 4. 8 φ 3x0.15	2m oil-proof PVC cable 4. 8 φ 3x0.15
Product Model		
DC 3 wire 10-30V NPN NO	ELI75-20NO-ZBA-3A-PT	ELI100-20NO-ZBA-3A-PT
DC 3 wire 10-30V NPN NC	ELI75-20NC-ZBA-3A-PT	ELI100-20NC-ZBA-3A-PT
DC 3 wire 10-30V PNP NO	ELI75-20PO-ZBA-3A-PT	ELI100-20PO-ZBA-3A-PT
DC 3 wire 10-30V PNP NC	ELI75-20PC-ZBA-3A-PT	ELI100-20PC-ZBA-3A-PT
DC 4 wire 10-30V Convertible NPN (NO&NC)		
DC 4 wire 10-30V Convertible PNP (NO&NC)		

Wiring Diagram

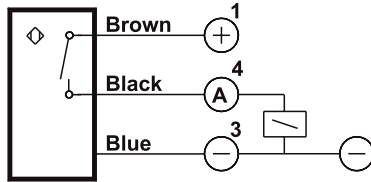
DC NPN NO



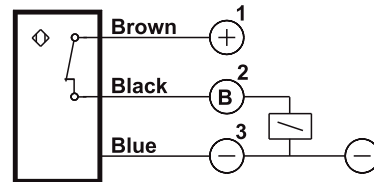
DC NPN NC



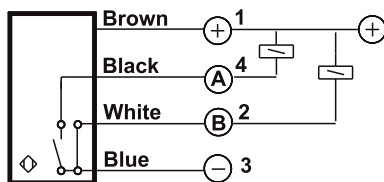
DC PNP NO



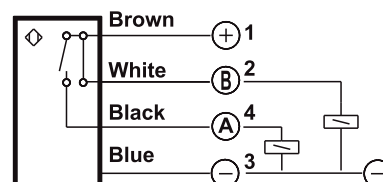
DC PNP NC



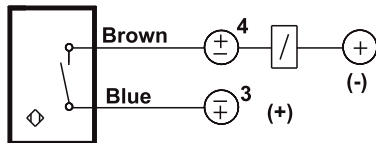
DC NPN NO&NC



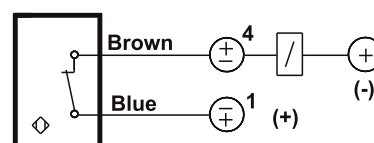
DC PNP NO&NC



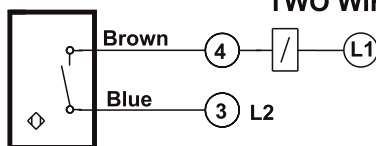
DC 2 wire NO



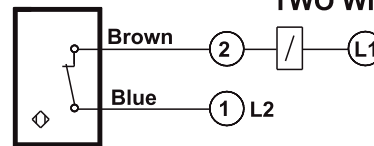
DC 2 wire NC



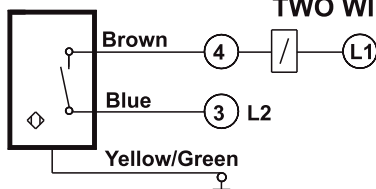
Plastic housing AC/DC 20-250V or AC 20-250V TWO WIRE-NO



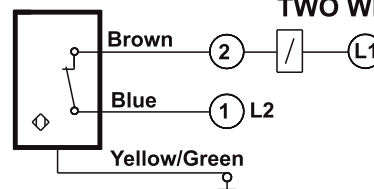
Plastic housing AC/DC 20-250V or AC 20-250V TWO WIRE-NC



Metal housing AC/DC 20-250V or AC 20-250V TWO WIRE-NO

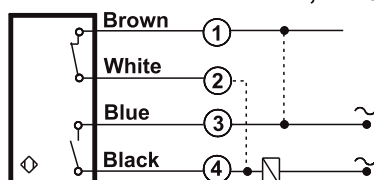


Metal housing AC/DC 20-250V or AC 20-250V TWO WIRE-NC

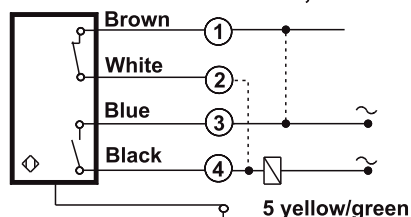


Wiring Diagram

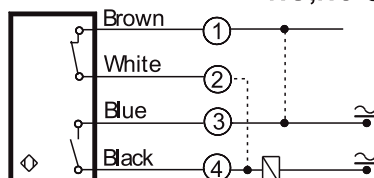
Plastic housing **AC 20-250V**
NO,NC Changeable



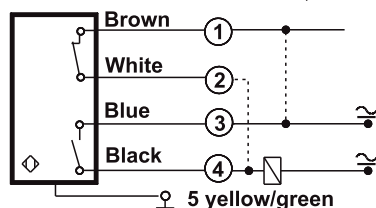
Metal housing **AC 20-250V**
NO,NC Changeable



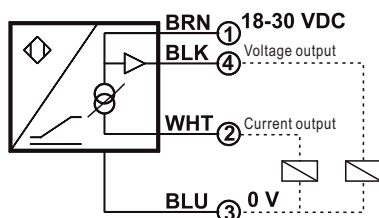
Plastic housing **AC 20-250V**
NO,NC Changeable



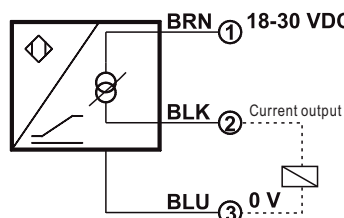
Metal housing **AC 20-250V**
NO,NC Changeable



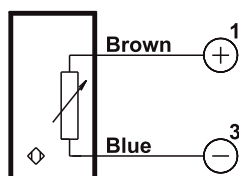
Analog (current + voltage output type)



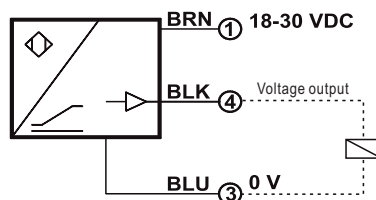
Analog (current output type)



Riot-proof DC 6-12V

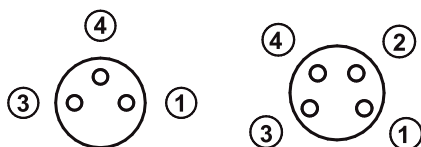


Analog (voltage output type)

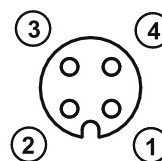


Connector Diagram

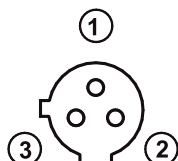
Used for M8 DC
M8



Used for M12 DC
M12



Used for M12 AC
M12



Used for M18 M30 DC or AC

