

TECHNICAL DATA SHEET

Inductive Proximity Switches Proximity Sensors **M12 Series**

Contents

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



Figure can vary

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



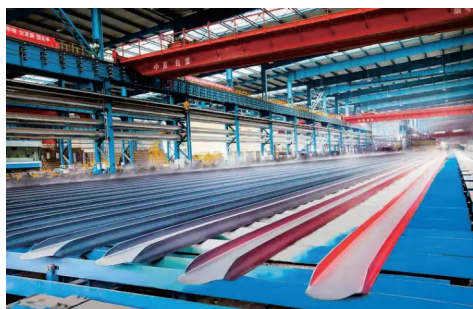
Due to the stainless steel integrated housing, this series of sensors not only has good impact resistance, but also can withstand the corrosion of detergents and solvents. It can be used in environments that require frequent high-pressure washing, and can achieve long-term sealing that meets the IP69K 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.

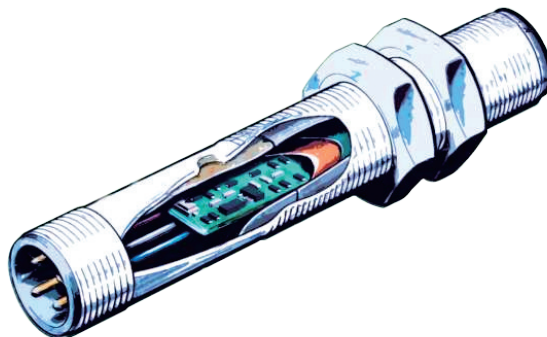
Shoemaking, textile and papermaking machinery series products

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	R	1	2	0	6	N	C	Z	A	A	3	A	H		(ELR12-06NC-ZAA-3A-H)
															Special Instructions
															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): $\phi 3$, $\phi 4$, M4, M5, $\phi 6.5$, 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



M12 Series

Proximity sensors

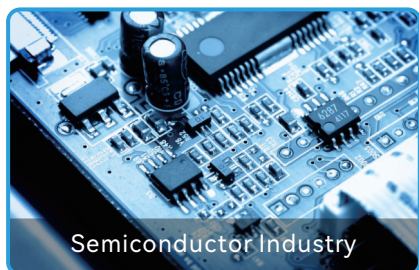
This series features ultra-compact size, long detection distance, and ultra-high precision. It is ideal for small-sized precision instruments and equipment.

Features:

- Features: wide range, long sensing distance, high accuracy
- Sensing distance: 1-50mm
- Frequency: 2-3 KHZ
- Certificates: CE, ROHS



Application Industry



Semiconductor Industry



Logistics Packaging



Electronics Manufacturing



Automation Industry



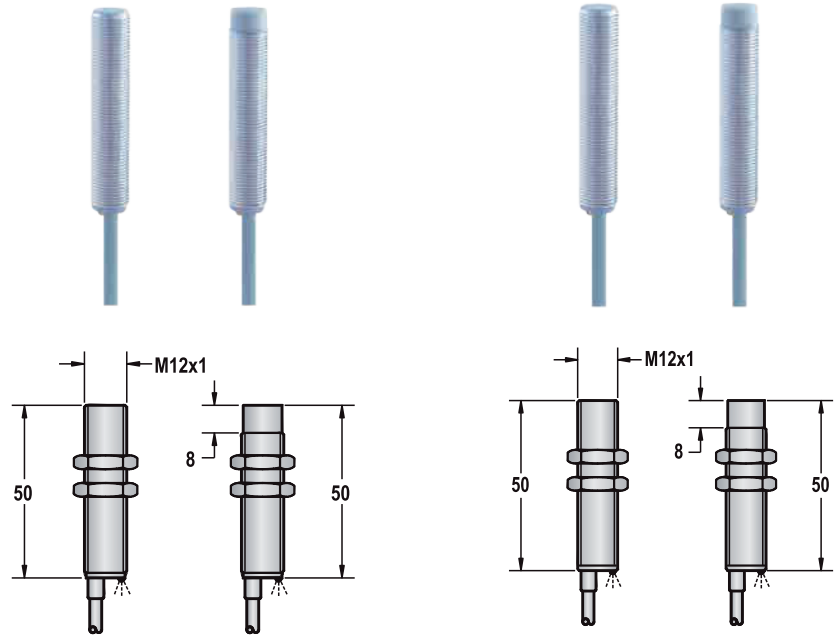
Textile Industry



Printing Industry

Product Parameters

M12 Series



Size category

M12

M12

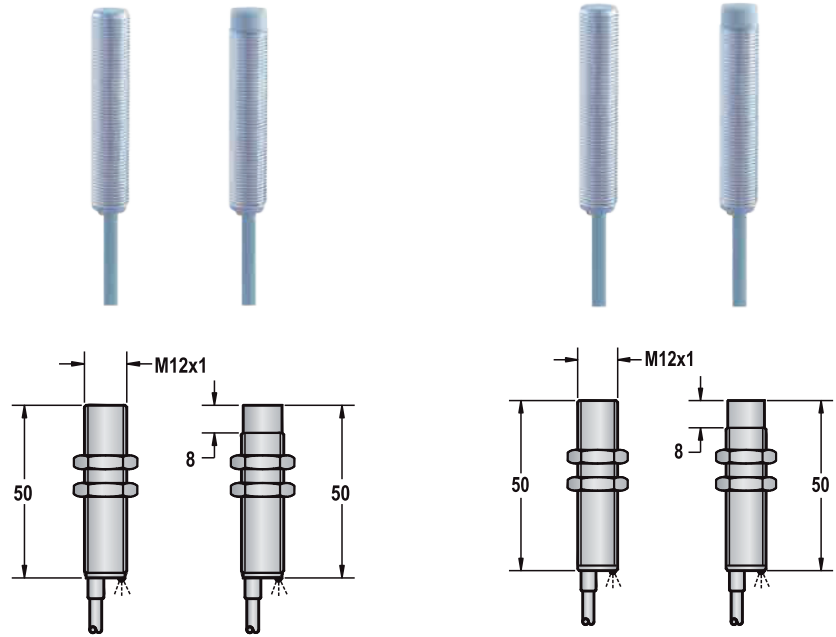
● Shielded ○ Non-shielded	● 2mm	○ 4mm	● 4mm	○ 8 mm
Sn: mm	2mm	4mm	4mm	8 mm
Shell material	Stainless steel/nickel-plated brass		Nickel-plated brass	
● LED display ○ No LED display	●		●	
Operating voltage	10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC		10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC	
Allowable pulsating voltage	<10%		<10%	
No-load current	<10mA		<10mA	
Maximum load current	200mA		200mA	
Leakage current	<0.01mA		<0.01mA	
Voltage drop	<1.5V		<1.5V	
Switching frequency	2KHZ	1KHZ	1KHZ	500HZ
Response time	0.1ms	0.2ms	0.2ms	0.5ms
Switching hysteresis	<15%(Sr)		<15%(Sr)	
Repeat accuracy	<1.0%(Sr)		<1.0%(Sr)	
Protection level	IP67		IP67	
Operating temperature	-25°C - +70°C		-25°C - +70°C	
Temperature drift	<10%(Sr)		<10%(Sr)	
Short circuit protection/reverse polarity protection	Yes		Yes	
Overload protection current	220mA		220mA	
Sensing surface material	PBT		PBT	
Connection method	2m oil-proof PVC cable 4 φ 3x0.15/4 φ 4x0.15		2m oil-proof PVC cable 4 φ 3x0.15/4 φ 4x0.15	

Product Model

DC 3 wire 10-30V NPN NO	ELR12-02NO-ZAA-3A-S	ELR12-04NO-ZBA-3A-H	ELR12-04NO-ZAA-3A-H	ELR12-08NO-ZBA-3A-H
DC 3 wire 10-30V NPN NC	ELR12-02NC-ZAA-3A-S	ELR12-04NC-ZBA-3A-H	ELR12-04NC-ZAA-3A-H	ELR12-08NC-ZBA-3A-H
DC 3 wire 10-30V PNP NO	ELR12-02PO-ZAA-3A-S	ELR12-04PO-ZBA-3A-H	ELR12-04PO-ZAA-3A-H	ELR12-08PO-ZBA-3A-H
DC 3 wire 10-30V PNP NC	ELR12-02PC-ZAA-3A-S	ELR12-04PC-ZBA-3A-H	ELR12-04PC-ZAA-3A-H	ELR12-08PC-ZBA-3A-H
DC 4 wire 10-30V Convertible PNP (NO&NC)	ELR12-02PS-ZAA-4A-S	ELR12-04PS-ZBA-4A-H	ELR12-04PS-ZAA-4A-H	ELR12-08PS-ZBA-4A-H
DC 4 wire 10-30V Convertible NPN (NO&NC)	ELR12-02NS-ZAA-4A-S	ELR12-04NS-ZBA-4A-H	ELR12-04NS-ZAA-4A-H	ELR12-08NS-ZBA-4A-H
DC 2 wire 10-60V NO	ELR12-02SO-ZAD-2A-S	ELR12-04HO-ZBD-2A-H	ELR12-04HO-ZAD-2A-H	ELR12-08HO-ZBD-2A-H
DC 2 wire 10-60V NC	ELR12-02SC-ZAD-2A-S	ELR12-04HC-ZBD-2A-H	ELR12-04HC-ZAD-2A-H	ELR12-08HC-ZBD-2A-H
DC 3 wire 10-55V NPN NO	ELR12-02NO-ZAC-3A-S	ELR12-04NO-ZBC-3A-H	ELR12-04NO-ZAC-3A-H	ELR12-08NO-ZBC-3A-H
DC 3 wire 10-55V NPN NC	ELR12-02NC-ZAC-3A-S	ELR12-04NC-ZBC-3A-H	ELR12-04NC-ZAC-3A-H	ELR12-08NC-ZBC-3A-H
DC 3 wire 10-55V PNP NO	ELR12-02PO-ZAC-3A-S	ELR12-04PO-ZBC-3A-H	ELR12-04PO-ZAC-3A-H	ELR12-08PO-ZBC-3A-H
DC 3 wire 10-55V PNP NC	ELR12-02PC-ZAC-3A-S	ELR12-04PC-ZBC-3A-H	ELR12-04PC-ZAC-3A-H	ELR12-08PC-ZBC-3A-H
DC 3 wire 5-36V NPN NO	ELR12-02NO-ZAB-3A-S	ELR12-04NO-ZBB-3A-H	ELR12-04NO-ZAB-3A-H	ELR12-08NO-ZBB-3A-H
DC 3 wire 5-36V NPN NC	ELR12-02NC-ZAB-3A-S	ELR12-04NC-ZBB-3A-H	ELR12-04NC-ZAB-3A-H	ELR12-08NC-ZBB-3A-H
DC 3 wire 5-36V PNP NO	ELR12-02PO-ZAB-3A-S	ELR12-04PO-ZBB-3A-H	ELR12-04PO-ZAB-3A-H	ELR12-08PO-ZBB-3A-H
DC 3 wire 5-36V PNP NC	ELR12-02PC-ZAB-3A-S	ELR12-04PC-ZBB-3A-H	ELR12-04PC-ZAB-3A-H	ELR12-08PC-ZBB-3A-H
DC 4 wire 5-36V Convertible PNP (NO&NC)	ELR12-02PS-ZAB-4A-S	ELR12-04PS-ZBB-4A-H	ELR12-04PS-ZAB-4A-H	ELR12-08PS-ZBB-4A-H
DC 4 wire 5-36V Convertible NPN (NO&NC)	ELR12-02NS-ZAB-4A-S	ELR12-04NS-ZBB-4A-H	ELR12-04NS-ZAB-4A-H	ELR12-08NS-ZBB-4A-H

Product Parameters

M12 Series



Size category

M12

M12

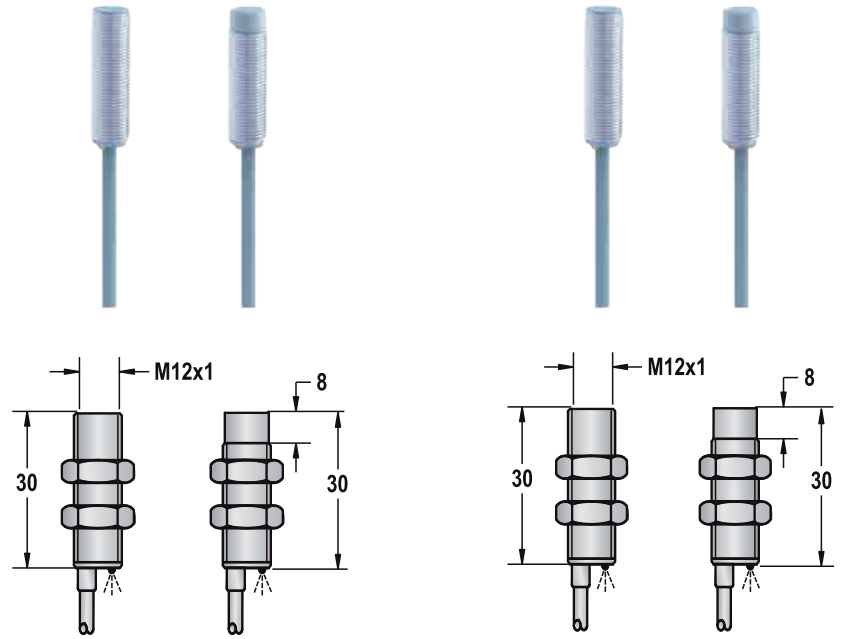
● Shielded ○ Non-shielded ● Semi-shielded	M12		M12	
Sn: mm	6 mm	10mm	8 mm	12 mm
Shell material	Nickel-plated brass		Nickel-plated brass	
● LED display ○ No LED display	●		●	
Operating voltage	10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC		10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC	
Allowable pulsating voltage	<10%		<10%	
No-load current	<10mA		<10mA	
Maximum load current	200mA		200mA	
Leakage current	<0.01mA		<0.01mA	
Voltage drop	<1.5V		<1.5V	
Switching frequency	800HZ	400HZ	800HZ	400HZ
Response time	0.2ms	0.5ms	0.2ms	0.5ms
Switching hysteresis	<15%(Sr)		<15%(Sr)	
Repeat accuracy	<1.0%(Sr)		<1.0%(Sr)	
Protection level	IP67		IP67	
Operating temperature	-25°C - +70°C		-25°C - +70°C	
Temperature drift	<10%(Sr)		<10%(Sr)	
Short circuit protection/reverse polarity protection	Yes		Yes	
Overload protection current	220mA		220mA	
Sensing surface material	PBT		PBT	
Connection method	2m oil-proof PVC cable 4 φ 3x0.15		2m oil-proof PVC cable 4 φ 3x0.15	

Product Model

DC 3 wire 10-30V NPN NO	ELR12-06NO-ZAA-3A-H	ELR12-10NO-ZBA-3A-H	ELR12-08NO-ZAA-3A-H	ELR12-12NO-ZBA-3A-H
DC 3 wire 10-30V NPN NC	ELR12-06NC-ZAA-3A-H	ELR12-10NC-ZBA-3A-H	ELR12-08NC-ZAA-3A-H	ELR12-12NC-ZBA-3A-H
DC 3 wire 10-30V PNP NO	ELR12-06PO-ZAA-3A-H	ELR12-10PO-ZBA-3A-H	ELR12-08PO-ZAA-3A-H	ELR12-12PO-ZBA-3A-H
DC 3 wire 10-30V PNP NC	ELR12-06PC-ZAA-3A-H	ELR12-10PC-ZBA-3A-H	ELR12-08PC-ZAA-3A-H	ELR12-12PC-ZBA-3A-H
DC 4 wire 10-30V Convertible PNP (NO&NC)	ELR12-06PS-ZAA-4A-H	ELR12-10PS-ZBA-4A-H	ELR12-08PS-ZAA-4A-H	ELR12-12PS-ZBA-4A-H
DC 4 wire 10-30V Convertible NPN (NO&NC)	ELR12-06NS-ZAA-4A-H	ELR12-10NS-ZBA-4A-H	ELR12-08NS-ZAA-4A-H	ELR12-12NS-ZBA-4A-H
DC 2 wire 10-60V NO	ELR12-06HO-ZAD-2A-H	ELR12-10HO-ZBD-2A-H	ELR12-08HO-ZAD-2A-H	ELR12-12HO-ZBD-2A-H
DC 2 wire 10-60V NC	ELR12-06HC-ZAD-2A-H	ELR12-10HC-ZBD-2A-H	ELR12-08HC-ZAD-2A-H	ELR12-12HC-ZBD-2A-H
DC 3 wire 10-55V NPN NO	ELR12-06NO-ZAC-3A-H	ELR12-10NO-ZBC-3A-H	ELR12-08NO-ZAC-3A-H	ELR12-12NO-ZBC-3A-H
DC 3 wire 10-55V NPN NC	ELR12-06NC-ZAC-3A-H	ELR12-10NC-ZBC-3A-H	ELR12-08NC-ZAC-3A-H	ELR12-12NC-ZBC-3A-H
DC 3 wire 10-55V PNP NO	ELR12-06PO-ZAC-3A-H	ELR12-10PO-ZBC-3A-H	ELR12-08PO-ZAC-3A-H	ELR12-12PO-ZBC-3A-H
DC 3 wire 10-55V PNP NC	ELR12-06PC-ZAC-3A-H	ELR12-10PC-ZBC-3A-H	ELR12-08PC-ZAC-3A-H	ELR12-12PC-ZBC-3A-H
DC 3 wire 5-36V NPN NO	ELR12-06NO-ZAB-3A-H	ELR12-10NO-ZBB-3A-H	ELR12-08NO-ZAB-3A-H	ELR12-12NO-ZBB-3A-H
DC 3 wire 5-36V NPN NC	ELR12-06NC-ZAB-3A-H	ELR12-10NC-ZBB-3A-H	ELR12-08NC-ZAB-3A-H	ELR12-12NC-ZBB-3A-H
DC 3 wire 5-36V PNP NO	ELR12-06PO-ZAB-3A-H	ELR12-10PO-ZBB-3A-H	ELR12-08PO-ZAB-3A-H	ELR12-12PO-ZBB-3A-H
DC 3 wire 5-36V PNP NC	ELR12-06PC-ZAB-3A-H	ELR12-10PC-ZBB-3A-H	ELR12-08PC-ZAB-3A-H	ELR12-12PC-ZBB-3A-H
DC 4 wire 5-36V Convertible PNP (NO&NC)	ELR12-06PS-ZAB-4A-H	ELR12-10PS-ZBB-4A-H	ELR12-08PS-ZAB-4A-H	ELR12-12PS-ZBB-4A-H
DC 4 wire 5-36V Convertible NPN (NO&NC)	ELR12-06NS-ZAB-4A-H	ELR12-10NS-ZBB-4A-H	ELR12-08NS-ZAB-4A-H	ELR12-12NS-ZBB-4A-H

Product Parameters

M12 Series



Size category

M12

M12

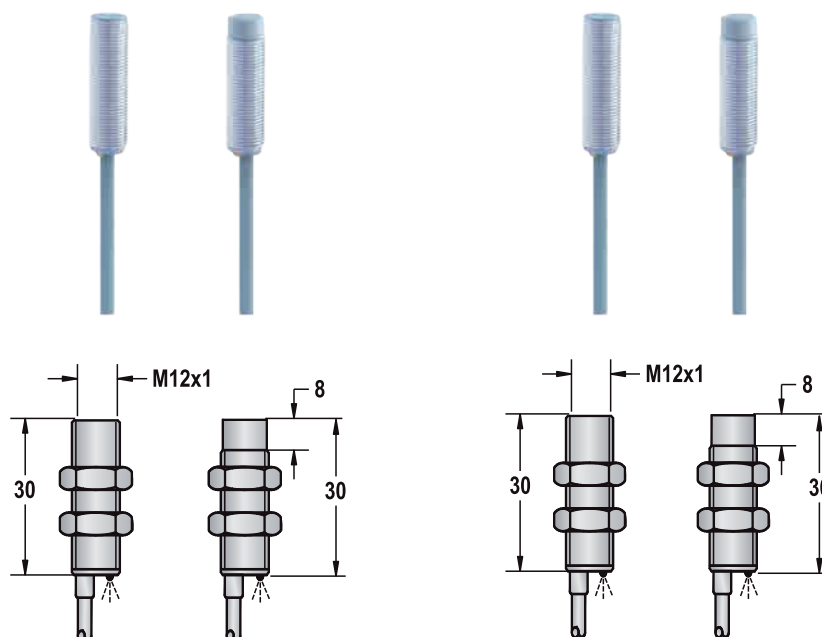
● Shielded ○ Non-shielded	●	○	●	○
Sn: mm	2mm	4mm	4mm	8 mm
Shell material	Stainless steel/nickel-plated brass		Nickel-plated brass	
● LED display ○ No LED display	●		●	
Operating voltage	10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC		10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC	
Allowable pulsating voltage	<10%		<10%	
No-load current	<10mA		<10mA	
Maximum load current	200mA		200mA	
Leakage current	<0.01mA		<0.01mA	
Voltage drop	<1.5V		<1.5V	
Switching frequency	2KHZ	1KHZ	1KHZ	500HZ
Response time	0.1ms	0.2ms	0.2ms	0.5ms
Switching hysteresis	<15%(Sr)		<15%(Sr)	
Repeat accuracy	<1.0%(Sr)		<1.0%(Sr)	
Protection level	IP67		IP67	
Operating temperature	-25°C - +70°C		-25°C - +70°C	
Temperature drift	<10%(Sr)		<10%(Sr)	
Short circuit protection/reverse polarity protection	Yes		Yes	
Overload protection current	220mA		220mA	
Sensing surface material	PBT		PBT	
Connection method	2m oil-proof PVC cable 4 φ 3x0.15/4 φ 4x0.15		2m oil-proof PVC cable 4 φ 3x0.15	

Product Model

DC 3 wire 10-30V NPN NO	ELR12-02NO-ZAA-3M-S	ELR12-04NO-ZBA-3M-H	ELR12-04NO-ZAA-3M-H	ELR12-08NO-ZBA-3M-H
DC 3 wire 10-30V NPN NC	ELR12-02NC-ZAA-3M-S	ELR12-04NC-ZBA-3M-H	ELR12-04NC-ZAA-3M-H	ELR12-08NC-ZBA-3M-H
DC 3 wire 10-30V PNP NO	ELR12-02PO-ZAA-3M-S	ELR12-04PO-ZBA-3M-H	ELR12-04PO-ZAA-3M-H	ELR12-08PO-ZBA-3M-H
DC 3 wire 10-30V PNP NC	ELR12-02PC-ZAA-3M-S	ELR12-04PC-ZBA-3M-H	ELR12-04PC-ZAA-3M-H	ELR12-08PC-ZBA-3M-H
DC 4 wire 10-30V Convertible PNP (NO&NC)	ELR12-02PS-ZAA-4M-S	ELR12-04PS-ZBA-4M-H	ELR12-04PS-ZAA-4M-H	ELR12-08PS-ZBA-4M-H
DC 4 wire 10-30V Convertible NPN (NO&NC)	ELR12-02NS-ZAA-4M-S	ELR12-04NS-ZBA-4M-H	ELR12-04NS-ZAA-4M-H	ELR12-08NS-ZBA-4M-H
DC 2 wire 10-60V NO	ELR12-02SO-ZAD-2M-S	ELR12-04HO-ZBD-2M-H	ELR12-04HO-ZAD-2M-H	ELR12-08HO-ZBD-2M-H
DC 2 wire 10-60V NC	ELR12-02SC-ZAD-2M-S	ELR12-04HC-ZBD-2M-H	ELR12-04HC-ZAD-2M-H	ELR12-08HC-ZBD-2M-H
DC 3 wire 10-55V NPN NO	ELR12-02NO-ZAC-3M-S	ELR12-04NO-ZBC-3M-H	ELR12-04NO-ZAC-3M-H	ELR12-08NO-ZBC-3M-H
DC 3 wire 10-55V NPN NC	ELR12-02NC-ZAC-3M-S	ELR12-04NC-ZBC-3M-H	ELR12-04NC-ZAC-3M-H	ELR12-08NC-ZBC-3M-H
DC 3 wire 10-55V PNP NO	ELR12-02PO-ZAC-3M-S	ELR12-04PO-ZBC-3M-H	ELR12-04PO-ZAC-3M-H	ELR12-08PO-ZBC-3M-H
DC 3 wire 10-55V PNP NC	ELR12-02PC-ZAC-3M-S	ELR12-04PC-ZBC-3M-H	ELR12-04PC-ZAC-3M-H	ELR12-08PC-ZBC-3M-H
DC 3 wire 5-36V NPN NO	ELR12-02NO-ZAB-3M-S	ELR12-04NO-ZBB-3M-H	ELR12-04NO-ZAB-3M-H	ELR12-08NO-ZBB-3M-H
DC 3 wire 5-36V NPN NC	ELR12-02NC-ZAB-3M-S	ELR12-04NC-ZBB-3M-H	ELR12-04NC-ZAB-3M-H	ELR12-08NC-ZBB-3M-H
DC 3 wire 5-36V PNP NO	ELR12-02PO-ZAB-3M-S	ELR12-04PO-ZBB-3M-H	ELR12-04PO-ZAB-3M-H	ELR12-08PO-ZBB-3M-H
DC 3 wire 5-36V PNP NC	ELR12-02PC-ZAB-3M-S	ELR12-04PC-ZBB-3M-H	ELR12-04PC-ZAB-3M-H	ELR12-08PC-ZBB-3M-H
DC 4 wire 5-36V Convertible PNP (NO&NC)	ELR12-02PS-ZAB-4M-S	ELR12-04PS-ZBB-4M-H	ELR12-04PS-ZAB-4M-H	ELR12-08PS-ZBB-4M-H
DC 4 wire 5-36V Convertible NPN (NO&NC)	ELR12-02NS-ZAB-4M-S	ELR12-04NS-ZBB-4M-H	ELR12-04NS-ZAB-4M-H	ELR12-08NS-ZBB-4M-H

Product Parameters

M12 Series



Size category

M12

M12

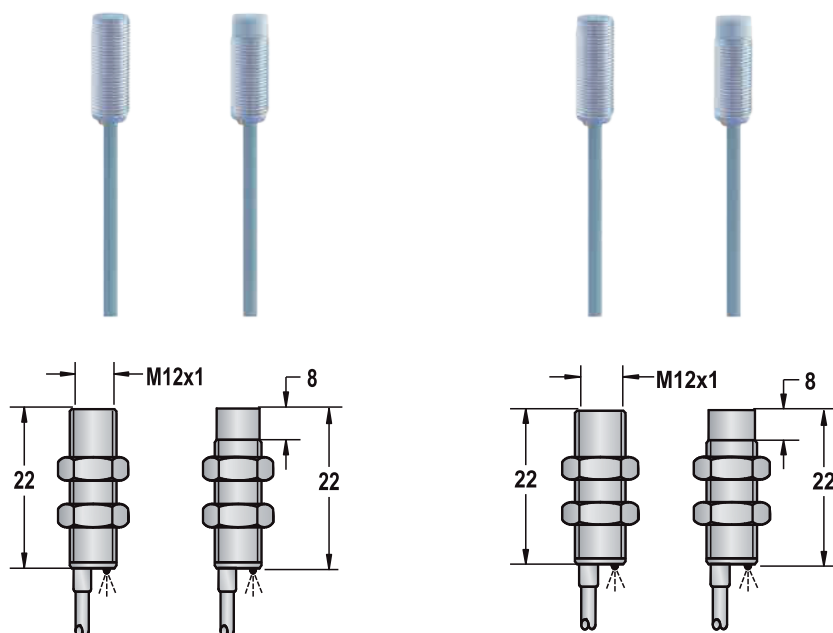
● Shielded ○ Non-shielded ● Semi-shielded	M12		M12	
Sn: mm	6 mm	10mm	8 mm	12 mm
Shell material	Nickel-plated brass		Nickel-plated brass	
● LED display ○ No LED display	●		●	
Operating voltage	10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC		10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC	
Allowable pulsating voltage	<10%		<10%	
No-load current	<10mA		<10mA	
Maximum load current	200mA		200mA	
Leakage current	<0.01mA		<0.01mA	
Voltage drop	<1.5V		<1.5V	
Switching frequency	800HZ	400HZ	800HZ	400HZ
Response time	0.2ms	0.5ms	0.2ms	0.5ms
Switching hysteresis	<15%(Sr)		<15%(Sr)	
Repeat accuracy	<1.0%(Sr)		<1.0%(Sr)	
Protection level	IP67		IP67	
Operating temperature	-25°C - +70°C		-25°C - +70°C	
Temperature drift	<10%(Sr)		<10%(Sr)	
Short circuit protection/reverse polarity protection	Yes		Yes	
Overload protection current	220mA		220mA	
Sensing surface material	PBT		PBT	
Connection method	2m oil-proof PVC cable 4 φ 3x0.15		2m oil-proof PVC cable 4 φ 3x0.15	

Product Model

DC 3 wire 10-30V NPN NO	ELR12-06NO-ZAA-3M-H	ELR12-10NO-ZBA-3M-H	ELR12-08NO-ZAA-3M-H	ELR12-12NO-ZBA-3M-H
DC 3 wire 10-30V NPN NC	ELR12-06NC-ZAA-3M-H	ELR12-10NC-ZBA-3M-H	ELR12-08NC-ZAA-3M-H	ELR12-12NC-ZBA-3M-H
DC 3 wire 10-30V PNP NO	ELR12-06PO-ZAA-3M-H	ELR12-10PO-ZBA-3M-H	ELR12-08PO-ZAA-3M-H	ELR12-12PO-ZBA-3M-H
DC 3 wire 10-30V PNP NC	ELR12-06PC-ZAA-3M-H	ELR12-10PC-ZBA-3M-H	ELR12-08PC-ZAA-3M-H	ELR12-12PC-ZBA-3M-H
DC 4 wire 10-30V Convertible PNP (NO&NC)	ELR12-06PS-ZAA-4M-H	ELR12-10PS-ZBA-4M-H	ELR12-08PS-ZAA-4M-H	ELR12-12PS-ZBA-4M-H
DC 4 wire 10-30V Convertible NPN (NO&NC)	ELR12-06NS-ZAA-4M-H	ELR12-10NS-ZBA-4M-H	ELR12-08NS-ZAA-4M-H	ELR12-12NS-ZBA-4M-H
DC 2 wire 10-60V NO	ELR12-06HO-ZAD-2M-H	ELR12-10HO-ZBD-2M-H	ELR12-08HO-ZAD-2M-H	ELR12-12HO-ZBD-2M-H
DC 2 wire 10-60V NC	ELR12-06HC-ZAD-2M-H	ELR12-10HC-ZBD-2M-H	ELR12-08HC-ZAD-2M-H	ELR12-12HC-ZBD-2M-H
DC 3 wire 10-55V NPN NO	ELR12-06NO-ZAC-3M-H	ELR12-10NO-ZBC-3M-H	ELR12-08NO-ZAC-3M-H	ELR12-12NO-ZBC-3M-H
DC 3 wire 10-55V NPN NC	ELR12-06NC-ZAC-3M-H	ELR12-10NC-ZBC-3M-H	ELR12-08NC-ZAC-3M-H	ELR12-12NC-ZBC-3M-H
DC 3 wire 10-55V PNP NO	ELR12-06PO-ZAC-3M-H	ELR12-10PO-ZBC-3M-H	ELR12-08PO-ZAC-3M-H	ELR12-12PO-ZBC-3M-H
DC 3 wire 10-55V PNP NC	ELR12-06PC-ZAC-3M-H	ELR12-10PC-ZBC-3M-H	ELR12-08PC-ZAC-3M-H	ELR12-12PC-ZBC-3M-H
DC 3 wire 5-36V NPN NO	ELR12-06NO-ZAB-3M-H	ELR12-10NO-ZBB-3M-H	ELR12-08NO-ZAB-3M-H	ELR12-12NO-ZBB-3M-H
DC 3 wire 5-36V NPN NC	ELR12-06NC-ZAB-3M-H	ELR12-10NC-ZBB-3M-H	ELR12-08NC-ZAB-3M-H	ELR12-12NC-ZBB-3M-H
DC 3 wire 5-36V PNP NO	ELR12-06PO-ZAB-3M-H	ELR12-10PO-ZBB-3M-H	ELR12-08PO-ZAB-3M-H	ELR12-12PO-ZBB-3M-H
DC 3 wire 5-36V PNP NC	ELR12-06PC-ZAB-3M-H	ELR12-10PC-ZBB-3M-H	ELR12-08PC-ZAB-3M-H	ELR12-12PC-ZBB-3M-H
DC 4 wire 5-36V Convertible PNP (NO&NC)	ELR12-06PS-ZAB-4M-H	ELR12-10PS-ZBB-4M-H	ELR12-08PS-ZAB-4M-H	ELR12-12PS-ZBB-4M-H
DC 4 wire 5-36V Convertible NPN (NO&NC)	ELR12-06NS-ZAB-4M-H	ELR12-10NS-ZBB-4M-H	ELR12-08NS-ZAB-4M-H	ELR12-12NS-ZBB-4M-H

Product Parameters

M12 Series



Size category

M12

M12

● Shielded ○ Non-shielded

Sn: mm

2mm

4mm

4mm

8 mm

Shell material

Stainless steel/nickel-plated brass

Nickel-plated brass

● LED display ○ No LED display

Operating voltage

10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC

10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC

Allowable pulsating voltage

<10%

<10%

No-load current

<10mA

<10mA

Maximum load current

200mA

200mA

Leakage current

<0.01mA

<0.01mA

Voltage drop

<1.5V

<1.5V

Switching frequency

2KHZ

1KHZ

1KHZ

500HZ

Response time

0.1ms

0.2ms

0.2ms

0.5ms

Switching hysteresis

<15%(Sr)

<15%(Sr)

Repeat accuracy

<1.0%(Sr)

<1.0%(Sr)

Protection level

IP67

IP67

Operating temperature

-25°C - +70°C

-25°C - +70°C

Temperature drift

<10%(Sr)

<10%(Sr)

Short circuit protection/reverse polarity protection

Yes

Yes

Overload protection current

220mA

220mA

Sensing surface material

PBT

PBT

Connection method

2m oil-proof PVC cable
4 φ 3x0.15/4 φ 4x0.15

2m oil-proof PVC cable
4 φ 3x0.15/4 φ 4x0.15

Product Model

DC 3 wire 10-30V NPN NO

ELR12-02NO-ZAA-3R-S

ELR12-04NO-ZBA-3R-H

ELR12-04NO-ZAA-3R-H

ELR12-08NO-ZBA-3R-H

DC 3 wire 10-30V NPN NC

ELR12-02NC-ZAA-3R-S

ELR12-04NC-ZBA-3R-H

ELR12-04NC-ZAA-3R-H

ELR12-08NC-ZBA-3R-H

DC 3 wire 10-30V PNP NO

ELR12-02PO-ZAA-3R-S

ELR12-04PO-ZBA-3R-H

ELR12-04PO-ZAA-3R-H

ELR12-08PO-ZBA-3R-H

DC 3 wire 10-30V PNP NC

ELR12-02PC-ZAA-3R-S

ELR12-04PC-ZBA-3R-H

ELR12-04PC-ZAA-3R-H

ELR12-08PC-ZBA-3R-H

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

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

DC 2 wire 10-60V NO

DC 2 wire 10-60V NC

DC 3 wire 10-55V NPN NO

DC 3 wire 10-55V NPN NC

DC 3 wire 10-55V PNP NO

DC 3 wire 10-55V PNP NC

DC 3 wire 5-36V NPN NO

DC 3 wire 5-36V NPN NC

DC 3 wire 5-36V PNP NO

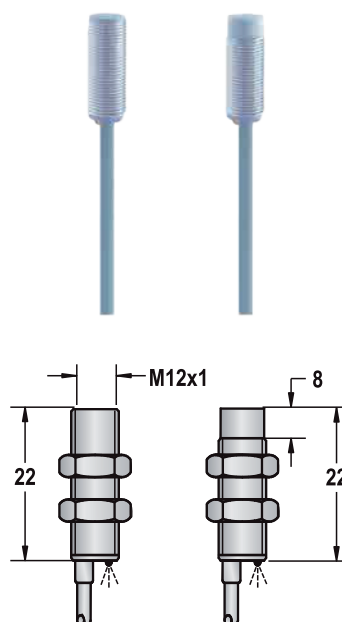
DC 3 wire 5-36V PNP NC

DC 4 wire 5-36V Convertible PNP (NO&NC)

DC 4 wire 5-36V Convertible NPN (NO&NC)

Product Parameters

M12 Series



Size category

M12

● Shielded ○ Non-shielded ● Semi-shielded

Sn: mm

6 mm

10mm

Shell material

Nickel-plated brass

● LED display ○ No LED display

Operating voltage

10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC

Allowable pulsating voltage

<10%

No-load current

<10mA

Maximum load current

200mA

Leakage current

<0.01mA

Voltage drop

<1.5V

Switching frequency

800HZ

400HZ

Response time

0.2ms

0.5ms

Switching hysteresis

<15%(Sr)

Repeat accuracy

<1.0%(Sr)

Protection level

IP67

Operating temperature

-25°C - +70°C

Temperature drift

<10%(Sr)

Short circuit protection/reverse polarity protection

Yes

Overload protection current

220mA

Sensing surface material

PBT

Connection method

2m oil-proof PVC cable
4 φ 3x0.15

Product Model

DC 3 wire 10-30V NPN NO

ELR12-06NO-ZAA-3R-H

ELR12-10NO-ZBA-3R-H

DC 3 wire 10-30V NPN NC

ELR12-06NC-ZAA-3R-H

ELR12-10NC-ZBA-3R-H

DC 3 wire 10-30V PNP NO

ELR12-06PO-ZAA-3R-H

ELR12-10PO-ZBA-3R-H

DC 3 wire 10-30V PNP NC

ELR12-06PC-ZAA-3R-H

ELR12-10PC-ZBA-3R-H

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

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

DC 2 wire 10-60V NO

DC 2 wire 10-60V NC

DC 3 wire 10-55V NPN NO

DC 3 wire 10-55V NPN NC

DC 3 wire 10-55V PNP NO

DC 3 wire 10-55V PNP NC

DC 3 wire 5-36V NPN NO

DC 3 wire 5-36V NPN NC

DC 3 wire 5-36V PNP NO

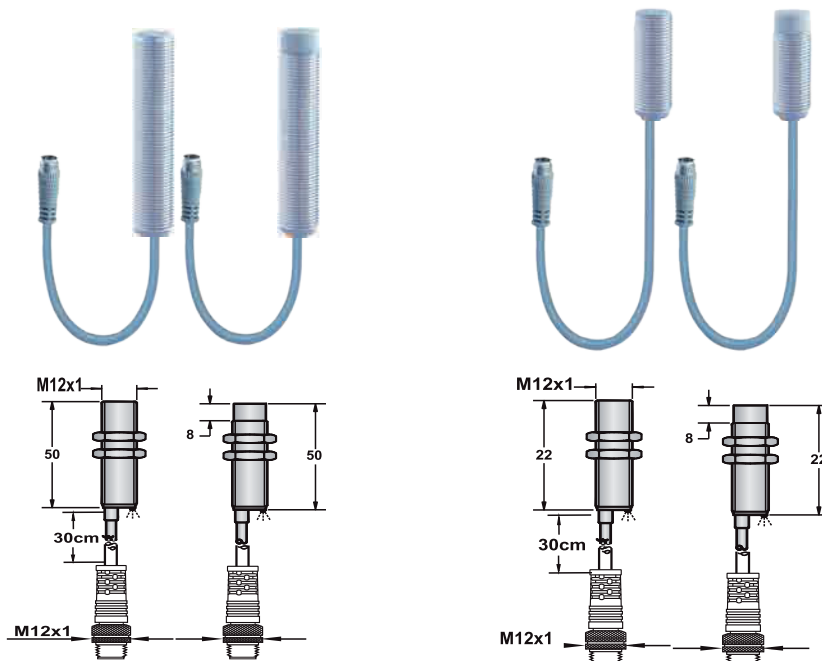
DC 3 wire 5-36V PNP NC

DC 4 wire 5-36V Convertible PNP (NO&NC)

DC 4 wire 5-36V Convertible NPN (NO&NC)

Product Parameters

M12 Series



Size category

M12

M12

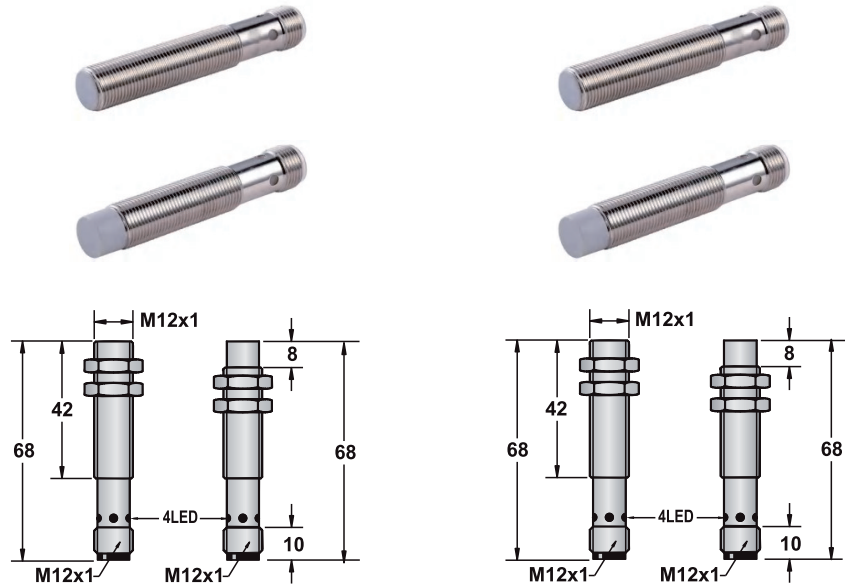
	M12		M12	
	● Shielded	○ Non-shielded	● Shielded	○ Non-shielded
Sn: mm	2mm	4mm	2mm	4mm
Shell material	Stainless steel/nickel-plated brass		Stainless steel/nickel-plated brass	
● LED display ○ No LED display	●		●	
Operating voltage	10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC		10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC	
Allowable pulsating voltage	<10%		<10%	
No-load current	<10mA		<10mA	
Maximum load current	200mA		200mA	
Leakage current	<0.01mA		<0.01mA	
Voltage drop	<1.5V		<1.5V	
Switching frequency	2KHZ	1KHZ	2KHZ	1KHZ
Response time	0.1ms	0.2ms	0.1ms	0.2ms
Switching hysteresis	<15%(Sr)		<15%(Sr)	
Repeat accuracy	<1.0%(Sr)		<1.0%(Sr)	
Protection level	IP67		IP67	
Operating temperature	-25°C - +70°C		-25°C - +70°C	
Temperature drift	<10%(Sr)		<10%(Sr)	
Short circuit protection/reverse polarity protection	Yes		Yes	
Overload protection current	220mA		220mA	
Sensing surface material	PBT		PBT	
Connection method	0.3m oil-proof PVC cable 4 φ 3x0.15+M12 Connectors		0.3m oil-proof PVC cable 4 φ 3x0.15+M12 Connectors	

Product Model

DC 3 wire 10-30V NPN NO	ELR12-02NO-ZAA-3TA-S	ELR12-04NO-ZBA-3TA-H	ELR12-02NO-ZAA-3TR-S	ELR12-04NO-ZBA-3TR-H
DC 3 wire 10-30V NPN NC	ELR12-02NC-ZAA-3TA-S	ELR12-04NC-ZBA-3TA-H	ELR12-02NC-ZAA-3TR-S	ELR12-04NC-ZBA-3TR-H
DC 3 wire 10-30V PNP NO	ELR12-02PO-ZAA-3TA-S	ELR12-04PO-ZBA-3TA-H	ELR12-02PO-ZAA-3TR-S	ELR12-04PO-ZBA-3TR-H
DC 3 wire 10-30V PNP NC	ELR12-02PC-ZAA-3TA-S	ELR12-04PC-ZBA-3TA-H	ELR12-02PC-ZAA-3TR-S	ELR12-04PC-ZBA-3TR-H
DC 4 wire 10-30V Convertible PNP (NO&NC)	ELR12-02PS-ZAA-4TA-S	ELR12-04PS-ZBA-4TA-H		
DC 4 wire 10-30V Convertible NPN (NO&NC)	ELR12-02NS-ZAA-4TA-S	ELR12-04NS-ZBA-4TA-H		
DC 2 wire 10-60V NO	ELR12-02SO-ZAD-2TA-S	ELR12-04HO-ZBD-2TA-H		
DC 2 wire 10-60V NC	ELR12-02SC-ZAD-2TA-S	ELR12-04HC-ZBD-2TA-H		
DC 3 wire 10-55V NPN NO	ELR12-02NO-ZAC-3TA-S	ELR12-04NO-ZBC-3TA-H		
DC 3 wire 10-55V NPN NC	ELR12-02NC-ZAC-3TA-S	ELR12-04NC-ZBC-3TA-H		
DC 3 wire 10-55V PNP NO	ELR12-02PO-ZAC-3TA-S	ELR12-04PO-ZBC-3TA-H		
DC 3 wire 10-55V PNP NC	ELR12-02PC-ZAC-3TA-S	ELR12-04PC-ZBC-3TA-H		
DC 3 wire 5-36V NPN NO	ELR12-02NO-ZAB-3TA-S	ELR12-04NO-ZBB-3TA-H		
DC 3 wire 5-36V NPN NC	ELR12-02NC-ZAB-3TA-S	ELR12-04NC-ZBB-3TA-H		
DC 3 wire 5-36V PNP NO	ELR12-02PO-ZAB-3TA-S	ELR12-04PO-ZBB-3TA-H		
DC 3 wire 5-36V PNP NC	ELR12-02PC-ZAB-3TA-S	ELR12-04PC-ZBB-3TA-H		
DC 4 wire 5-36V Convertible PNP (NO&NC)	ELR12-02PS-ZAB-4TA-S	ELR12-04PS-ZBB-4TA-H		
DC 4 wire 5-36V Convertible NPN (NO&NC)	ELR12-02NS-ZAB-4TA-S	ELR12-04NS-ZBB-4TA-H		

Product Parameters

M12 Series



Size category

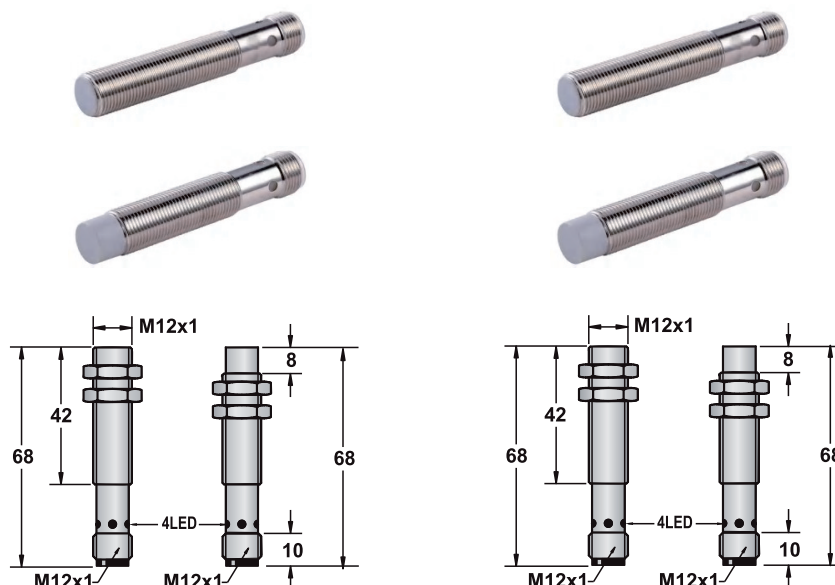
M12

M12

● Shielded ○ Non-shielded	● ○		● ○	
Sn: mm	2mm	4mm	4mm	8 mm
Shell material	Nickel-plated brass		Stainless steel/nickel-plated brass	
● LED display ○ No LED display	●		●	
Operating voltage	10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC		10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC	
Allowable pulsating voltage	<10%		<10%	
No-load current	<10mA		<10mA	
Maximum load current	200mA		200mA	
Leakage current	<0.01mA		<0.01mA	
Voltage drop	<1.5V		<1.5V	
Switching frequency	2KHZ	1KHZ	1KHZ	500HZ
Response time	0.1ms	0.2ms	0.2ms	0.5ms
Switching hysteresis	<15%(Sr)		<15%(Sr)	
Repeat accuracy	<1.0%(Sr)		<1.0%(Sr)	
Protection level	IP67		IP67	
Operating temperature	-25℃ - +70℃		-25℃ - +70℃	
Temperature drift	<10%(Sr)		<10%(Sr)	
Short circuit protection/reverse polarity protection	Yes		Yes	
Overload protection current	220mA		220mA	
Sensing surface material	PBT		PBT	
Connection method	M12 Connectors		M12 Connectors	
Product Model				
DC 3 wire 10-30V NPN NO	ELR12-02NO-YAA-TA-H	ELR12-04NO-YBA-TA-H	ELR12-04NO-YAA-TA-H	ELR12-08NO-YBA-TA-H
DC 3 wire 10-30V NPN NC	ELR12-02NC-YAA-TA-H	ELR12-04NC-YBA-TA-H	ELR12-04NC-YAA-TA-H	ELR12-08NC-YBA-TA-H
DC 3 wire 10-30V PNP NO	ELR12-02PO-YAA-TA-H	ELR12-04PO-YBA-TA-H	ELR12-04PO-YAA-TA-H	ELR12-08PO-YBA-TA-H
DC 3 wire 10-30V PNP NC	ELR12-02PC-YAA-TA-H	ELR12-04PC-YBA-TA-H	ELR12-04PC-YAA-TA-H	ELR12-08PC-YBA-TA-H
DC 4 wire 10-30V Convertible PNP (NO&NC)	ELR12-02PS-YAA-TA-H	ELR12-04PS-YBA-TA-H	ELR12-04PS-YAA-TA-H	ELR12-08PS-YBA-TA-H
DC 4 wire 10-30V Convertible NPN (NO&NC)	ELR12-02NS-YAA-TA-H	ELR12-04NS-YBA-TA-H	ELR12-04NS-YAA-TA-H	ELR12-08NS-YBA-TA-H
DC 2 wire 10-60V NO	ELR12-02HO-YAD-TA-H	ELR12-04HO-YBD-TA-H	ELR12-04HO-YAD-TA-H	ELR12-08HO-YBD-TA-H
DC 2 wire 10-60V NC	ELR12-02HC-YAD-TA-H	ELR12-04HC-YBD-TA-H	ELR12-04HC-YAD-TA-H	ELR12-08HC-YBD-TA-H
DC 3 wire 10-55V NPN NO	ELR12-02NO-YAC-TA-H	ELR12-04NO-YBC-TA-H	ELR12-04NO-YAC-TA-H	ELR12-08NO-YBC-TA-H
DC 3 wire 10-55V NPN NC	ELR12-02NC-YAC-TA-H	ELR12-04NC-YBC-TA-H	ELR12-04NC-YAC-TA-H	ELR12-08NC-YBC-TA-H
DC 3 wire 10-55V PNP NO	ELR12-02PO-YAC-TA-H	ELR12-04PO-YBC-TA-H	ELR12-04PO-YAC-TA-H	ELR12-08PO-YBC-TA-H
DC 3 wire 10-55V PNP NC	ELR12-02PC-YAC-TA-H	ELR12-04PC-YBC-TA-H	ELR12-04PC-YAC-TA-H	ELR12-08PC-YBC-TA-H
DC 3 wire 5-36V NPN NO	ELR12-02NO-YAB-TA-H	ELR12-04NO-YBB-TA-H	ELR12-04NO-YAB-TA-H	ELR12-08NO-YBB-TA-H
DC 3 wire 5-36V NPN NC	ELR12-02NC-YAB-TA-H	ELR12-04NC-YBB-TA-H	ELR12-04NC-YAB-TA-H	ELR12-08NC-YBB-TA-H
DC 3 wire 5-36V PNP NO	ELR12-02PO-YAB-TA-H	ELR12-04PO-YBB-TA-H	ELR12-04PO-YAB-TA-H	ELR12-08PO-YBB-TA-H
DC 3 wire 5-36V PNP NC	ELR12-02PC-YAB-TA-H	ELR12-04PC-YBB-TA-H	ELR12-04PC-YAB-TA-H	ELR12-08PC-YBB-TA-H
DC 4 wire 5-36V Convertible PNP (NO&NC)	ELR12-02PS-YAB-TA-H	ELR12-04PS-YBB-TA-H	ELR12-04PS-YAB-TA-H	ELR12-08PS-YBB-TA-H
DC 4 wire 5-36V Convertible NPN (NO&NC)	ELR12-02NS-YAB-TA-H	ELR12-04NS-YBB-TA-H	ELR12-04NS-YAB-TA-H	ELR12-08NS-YBB-TA-H

Product Parameters

M12 Series

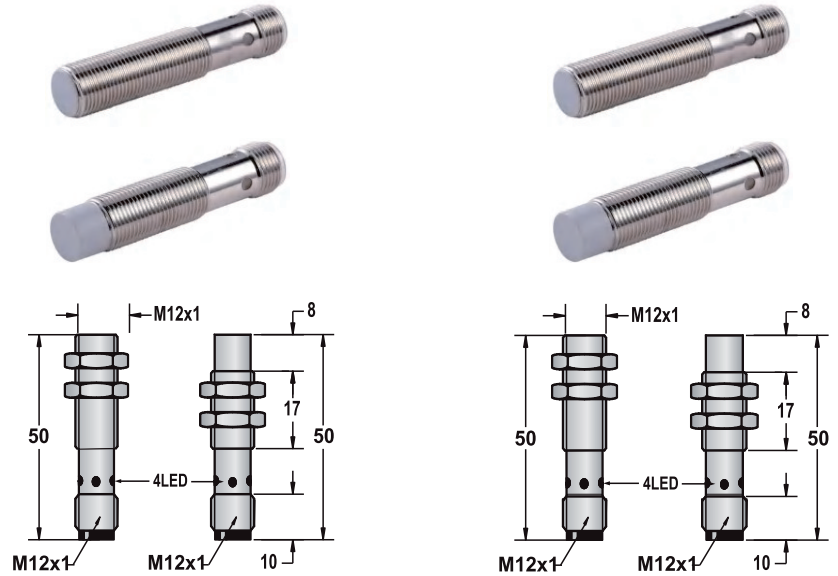


Size category

● Shielded ○ Non-shielded ● Semi-shielded	●	○	●	○
Sn: mm	6 mm	10mm	8 mm	12 mm
Shell material	Nickel-plated brass		Nickel-plated brass	
● LED display ○ No LED display	●		●	
Operating voltage	10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC		10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC	
Allowable pulsating voltage	<10%		<10%	
No-load current	<10mA		<10mA	
Maximum load current	200mA		200mA	
Leakage current	<0.01mA		<0.01mA	
Voltage drop	<1.5V		<1.5V	
Switching frequency	800HZ	400HZ	800HZ	400HZ
Response time	0.2ms	0.5ms	0.2ms	0.5ms
Switching hysteresis	<15%(Sr)		<15%(Sr)	
Repeat accuracy	<1.0%(Sr)		<1.0%(Sr)	
Protection level	IP67		IP67	
Operating temperature	-25℃ - +70℃		-25℃ - +70℃	
Temperature drift	<10%(Sr)		<10%(Sr)	
Short circuit protection/reverse polarity protection	Yes		Yes	
Overload protection current	220mA		220mA	
Sensing surface material	PBT		PBT	
Connection method	M12 Connectors		M12 Connectors	
Product Model				
DC 3 wire 10-30V NPN NO	ELR12-06NO-YAA-TA-H	ELR12-10NO-YBA-TA-H	ELR12-08NO-YAA-TA-H	ELR12-12NO-YBA-TA-H
DC 3 wire 10-30V NPN NC	ELR12-06NC-YAA-TA-H	ELR12-10NC-YBA-TA-H	ELR12-08NC-YAA-TA-H	ELR12-12NC-YBA-TA-H
DC 3 wire 10-30V PNP NO	ELR12-06PO-YAA-TA-H	ELR12-10PO-YBA-TA-H	ELR12-08PO-YAA-TA-H	ELR12-12PO-YBA-TA-H
DC 3 wire 10-30V PNP NC	ELR12-06PC-YAA-TA-H	ELR12-10PC-YBA-TA-H	ELR12-08PC-YAA-TA-H	ELR12-12PC-YBA-TA-H
DC 4 wire 10-30V Convertible PNP (NO&NC)	ELR12-06PS-YAA-TA-H	ELR12-10PS-YBA-TA-H	ELR12-08PS-YAA-TA-H	ELR12-12PS-YBA-TA-H
DC 4 wire 10-30V Convertible NPN (NO&NC)	ELR12-06NS-YAA-TA-H	ELR12-10NS-YBA-TA-H	ELR12-08NS-YAA-TA-H	ELR12-12NS-YBA-TA-H
DC 2 wire 10-60V NO	ELR12-06HO-YAD-TA-H	ELR12-10HO-YBD-TA-H	ELR12-08HO-YAD-TA-H	ELR12-12HO-YBD-TA-H
DC 2 wire 10-60V NC	ELR12-06HC-YAD-TA-H	ELR12-10HC-YBD-TA-H	ELR12-08HC-YAD-TA-H	ELR12-12HC-YBD-TA-H
DC 3 wire 10-55V NPN NO	ELR12-06NO-YAC-TA-H	ELR12-10NO-YBC-TA-H	ELR12-08NO-YAC-TA-H	ELR12-12NO-YBC-TA-H
DC 3 wire 10-55V NPN NC	ELR12-06NC-YAC-TA-H	ELR12-10NC-YBC-TA-H	ELR12-08NC-YAC-TA-H	ELR12-12NC-YBC-TA-H
DC 3 wire 10-55V PNP NO	ELR12-06PO-YAC-TA-H	ELR12-10PO-YBC-TA-H	ELR12-08PO-YAC-TA-H	ELR12-12PO-YBC-TA-H
DC 3 wire 10-55V PNP NC	ELR12-06PC-YAC-TA-H	ELR12-10PC-YBC-TA-H	ELR12-08PC-YAC-TA-H	ELR12-12PC-YBC-TA-H
DC 3 wire 5-36V NPN NO	ELR12-06NO-YAB-TA-H	ELR12-10NO-YBB-TA-H	ELR12-08NO-YAB-TA-H	ELR12-12NO-YBB-TA-H
DC 3 wire 5-36V NPN NC	ELR12-06NC-YAB-TA-H	ELR12-10NC-YBB-TA-H	ELR12-08NC-YAB-TA-H	ELR12-12NC-YBB-TA-H
DC 3 wire 5-36V PNP NO	ELR12-06PO-YAB-TA-H	ELR12-10PO-YBB-TA-H	ELR12-08PO-YAB-TA-H	ELR12-12PO-YBB-TA-H
DC 3 wire 5-36V PNP NC	ELR12-06PC-YAB-TA-H	ELR12-10PC-YBB-TA-H	ELR12-08PC-YAB-TA-H	ELR12-12PC-YBB-TA-H
DC 4 wire 5-36V Convertible PNP (NO&NC)	ELR12-06PS-YAB-TA-H	ELR12-10PS-YBB-TA-H	ELR12-08PS-YAB-TA-H	ELR12-12PS-YBB-TA-H
DC 4 wire 5-36V Convertible NPN (NO&NC)	ELR12-06NS-YAB-TA-H	ELR12-10NS-YBB-TA-H	ELR12-08NS-YAB-TA-H	ELR12-12NS-YBB-TA-H

Product Parameters

M12 Series



Size category

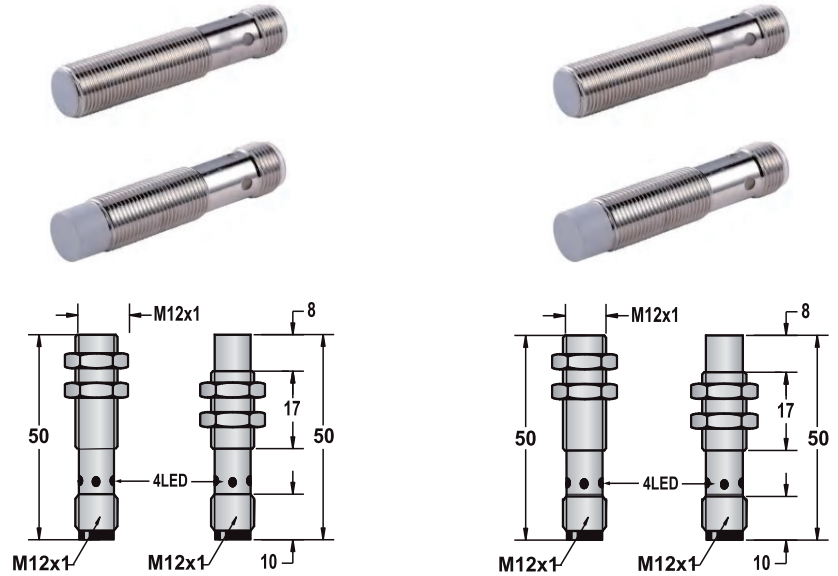
M12

M12

● Shielded ○ Non-shielded	● ○		● ○	
Sn: mm	2mm	4mm	4mm	8 mm
Shell material	Nickel-plated brass		Nickel-plated brass	
● LED display ○ No LED display	●		●	
Operating voltage	10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC		10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC	
Allowable pulsating voltage	<10%		<10%	
No-load current	<10mA		<10mA	
Maximum load current	200mA		200mA	
Leakage current	<0.01mA		<0.01mA	
Voltage drop	<1.5V		<1.5V	
Switching frequency	2KHZ	1KHZ	1KHZ	500HZ
Response time	0.1ms	0.2ms	0.2ms	0.5ms
Switching hysteresis	<15%(Sr)		<15%(Sr)	
Repeat accuracy	<1.0%(Sr)		<1.0%(Sr)	
Protection level	IP67		IP67	
Operating temperature	-25℃ - +70℃		-25℃ - +70℃	
Temperature drift	<10%(Sr)		<10%(Sr)	
Short circuit protection/reverse polarity protection	Yes		Yes	
Overload protection current	220mA		220mA	
Sensing surface material	PBT		PBT	
Connection method	M12 Connectors		M12 Connectors	
Product Model				
DC 3 wire 10-30V NPN NO	ELR12-02NO-YAA-TM-H	ELR12-04NO-YBA-TM-H	ELR12-04NO-YAA-TM-H	ELR12-08NO-YBA-TM-H
DC 3 wire 10-30V NPN NC	ELR12-02NC-YAA-TM-H	ELR12-04NC-YBA-TM-H	ELR12-04NC-YAA-TM-H	ELR12-08NC-YBA-TM-H
DC 3 wire 10-30V PNP NO	ELR12-02PO-YAA-TM-H	ELR12-04PO-YBA-TM-H	ELR12-04PO-YAA-TM-H	ELR12-08PO-YBA-TM-H
DC 3 wire 10-30V PNP NC	ELR12-02PC-YAA-TM-H	ELR12-04PC-YBA-TM-H	ELR12-04PC-YAA-TM-H	ELR12-08PC-YBA-TM-H
DC 4 wire 10-30V Convertible PNP (NO&NC)	ELR12-02PS-YAA-TM-H	ELR12-04PS-YBA-TM-H	ELR12-04PS-YAA-TM-H	ELR12-08PS-YBA-TM-H
DC 4 wire 10-30V Convertible NPN (NO&NC)	ELR12-02NS-YAA-TM-H	ELR12-04NS-YBA-TM-H	ELR12-04NS-YAA-TM-H	ELR12-08NS-YBA-TM-H
DC 2 wire 10-60V NO	ELR12-02HO-YAD-TM-H	ELR12-04HO-YBD-TM-H	ELR12-04HO-YAD-TM-H	ELR12-08HO-YBD-TM-H
DC 2 wire 10-60V NC	ELR12-02HC-YAD-TM-H	ELR12-04HC-YBD-TM-H	ELR12-04HC-YAD-TM-H	ELR12-08HC-YBD-TM-H
DC 3 wire 10-55V NPN NO	ELR12-02NO-YAC-TM-H	ELR12-04NO-YBC-TM-H	ELR12-04NO-YAC-TM-H	ELR12-08NO-YBC-TM-H
DC 3 wire 10-55V NPN NC	ELR12-02NC-YAC-TM-H	ELR12-04NC-YBC-TM-H	ELR12-04NC-YAC-TM-H	ELR12-08NC-YBC-TM-H
DC 3 wire 10-55V PNP NO	ELR12-02PO-YAC-TM-H	ELR12-04PO-YBC-TM-H	ELR12-04PO-YAC-TM-H	ELR12-08PO-YBC-TM-H
DC 3 wire 10-55V PNP NC	ELR12-02PC-YAC-TM-H	ELR12-04PC-YBC-TM-H	ELR12-04PC-YAC-TM-H	ELR12-08PC-YBC-TM-H
DC 3 wire 5-36V NPN NO	ELR12-02NO-YAB-TM-H	ELR12-04NO-YBB-TM-H	ELR12-04NO-YAB-TM-H	ELR12-08NO-YBB-TM-H
DC 3 wire 5-36V NPN NC	ELR12-02NC-YAB-TM-H	ELR12-04NC-YBB-TM-H	ELR12-04NC-YAB-TM-H	ELR12-08NC-YBB-TM-H
DC 3 wire 5-36V PNP NO	ELR12-02PO-YAB-TM-H	ELR12-04PO-YBB-TM-H	ELR12-04PO-YAB-TM-H	ELR12-08PO-YBB-TM-H
DC 3 wire 5-36V PNP NC	ELR12-02PC-YAB-TM-H	ELR12-04PC-YBB-TM-H	ELR12-04PC-YAB-TM-H	ELR12-08PC-YBB-TM-H
DC 4 wire 5-36V Convertible PNP (NO&NC)	ELR12-02PS-YAB-TM-H	ELR12-04PS-YBB-TM-H	ELR12-04PS-YAB-TM-H	ELR12-08PS-YBB-TM-H
DC 4 wire 5-36V Convertible NPN (NO&NC)	ELR12-02NS-YAB-TM-H	ELR12-04NS-YBB-TM-H	ELR12-04NS-YAB-TM-H	ELR12-08NS-YBB-TM-H

Product Parameters

M12 Series



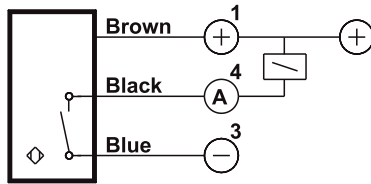
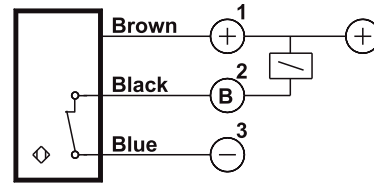
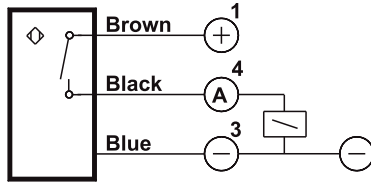
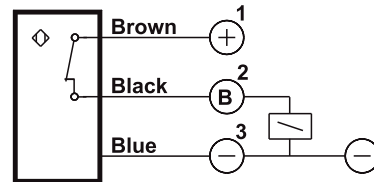
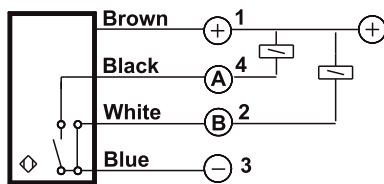
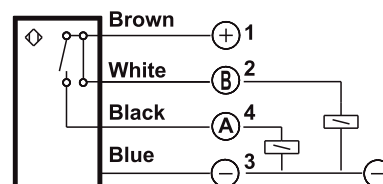
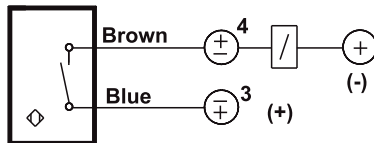
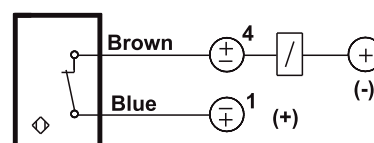
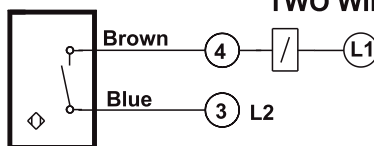
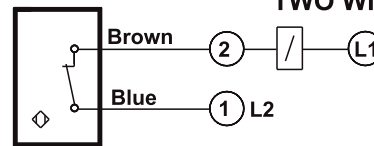
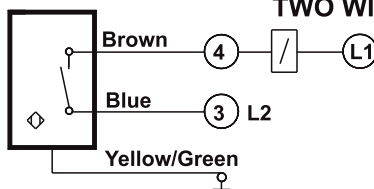
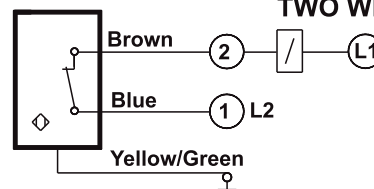
Size category

M12

M12

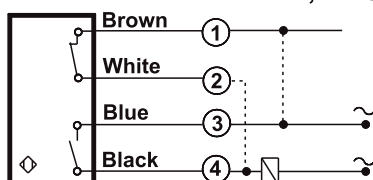
● Shielded ○ Non-shielded ● Semi-shielded	 6 mm		 10mm		 8 mm		 12 mm	
Sn: mm								
Shell material	Nickel-plated brass				Nickel-plated brass			
● LED display ○ No LED display	●				●			
Operating voltage	10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC				10-30VDC / 5-36VDC / 10-55VDC / 10-60VDC			
Allowable pulsating voltage	<10%				<10%			
No-load current	<10mA				<10mA			
Maximum load current	200mA				200mA			
Leakage current	<0.01mA				<0.01mA			
Voltage drop	<1.5V				<1.5V			
Switching frequency	800HZ		400HZ		800HZ		400HZ	
Response time	0.2ms		0.5ms		0.2ms		0.5ms	
Switching hysteresis	<15%(Sr)				<15%(Sr)			
Repeat accuracy	<1.0%(Sr)				<1.0%(Sr)			
Protection level	IP67				IP67			
Operating temperature	-25℃ - +70℃				-25℃ - +70℃			
Temperature drift	<10%(Sr)				<10%(Sr)			
Short circuit protection/reverse polarity protection	Yes				Yes			
Overload protection current	220mA				220mA			
Sensing surface material	PBT				PBT			
Connection method	M12 Connectors				M12 Connectors			
Product Model								
DC 3 wire 10-30V NPN NO	ELR12-06NO-YAA-TM-H		ELR12-10NO-YBA-TM-H		ELR12-08NO-YAA-TM-H		ELR12-12NO-YBA-TM-H	
DC 3 wire 10-30V NPN NC	ELR12-06NC-YAA-TM-H		ELR12-10NC-YBA-TM-H		ELR12-08NC-YAA-TM-H		ELR12-12NC-YBA-TM-H	
DC 3 wire 10-30V PNP NO	ELR12-06PO-YAA-TM-H		ELR12-10PO-YBA-TM-H		ELR12-08PO-YAA-TM-H		ELR12-12PO-YBA-TM-H	
DC 3 wire 10-30V PNP NC	ELR12-06PC-YAA-TM-H		ELR12-10PC-YBA-TM-H		ELR12-08PC-YAA-TM-H		ELR12-12PC-YBA-TM-H	
DC 4 wire 10-30V Convertible PNP (NO&NC)	ELR12-06PS-YAA-TM-H		ELR12-10PS-YBA-TM-H		ELR12-08PS-YAA-TM-H		ELR12-12PS-YBA-TM-H	
DC 4 wire 10-30V Convertible NPN (NO&NC)	ELR12-06NS-YAA-TM-H		ELR12-10NS-YBA-TM-H		ELR12-08NS-YAA-TM-H		ELR12-12NS-YBA-TM-H	
DC 2 wire 10-60V NO	ELR12-06HO-YAD-TM-H		ELR12-10HO-YBD-TM-H		ELR12-08HO-YAD-TM-H		ELR12-12HO-YBD-TM-H	
DC 2 wire 10-60V NC	ELR12-06HC-YAD-TM-H		ELR12-10HC-YBD-TM-H		ELR12-08HC-YAD-TM-H		ELR12-12HC-YBD-TM-H	
DC 3 wire 10-55V NPN NO	ELR12-06NO-YAC-TM-H		ELR12-10NO-YBC-TM-H		ELR12-08NO-YAC-TM-H		ELR12-12NO-YBC-TM-H	
DC 3 wire 10-55V NPN NC	ELR12-06NC-YAC-TM-H		ELR12-10NC-YBC-TM-H		ELR12-08NC-YAC-TM-H		ELR12-12NC-YBC-TM-H	
DC 3 wire 10-55V PNP NO	ELR12-06PO-YAC-TM-H		ELR12-10PO-YBC-TM-H		ELR12-08PO-YAC-TM-H		ELR12-12PO-YBC-TM-H	
DC 3 wire 10-55V PNP NC	ELR12-06PC-YAC-TM-H		ELR12-10PC-YBC-TM-H		ELR12-08PC-YAC-TM-H		ELR12-12PC-YBC-TM-H	
DC 3 wire 5-36V NPN NO	ELR12-06NO-YAB-TM-H		ELR12-10NO-YBB-TM-H		ELR12-08NO-YAB-TM-H		ELR12-12NO-YBB-TM-H	
DC 3 wire 5-36V NPN NC	ELR12-06NC-YAB-TM-H		ELR12-10NC-YBB-TM-H		ELR12-08NC-YAB-TM-H		ELR12-12NC-YBB-TM-H	
DC 3 wire 5-36V PNP NO	ELR12-06PO-YAB-TM-H		ELR12-10PO-YBB-TM-H		ELR12-08PO-YAB-TM-H		ELR12-12PO-YBB-TM-H	
DC 3 wire 5-36V PNP NC	ELR12-06PC-YAB-TM-H		ELR12-10PC-YBB-TM-H		ELR12-08PC-YAB-TM-H		ELR12-12PC-YBB-TM-H	
DC 4 wire 5-36V Convertible PNP (NO&NC)	ELR12-06PS-YAB-TM-H		ELR12-10PS-YBB-TM-H		ELR12-08PS-YAB-TM-H		ELR12-12PS-YBB-TM-H	
DC 4 wire 5-36V Convertible NPN (NO&NC)	ELR12-06NS-YAB-TM-H		ELR12-10NS-YBB-TM-H		ELR12-08NS-YAB-TM-H		ELR12-12NS-YBB-TM-H	

Wiring Diagram

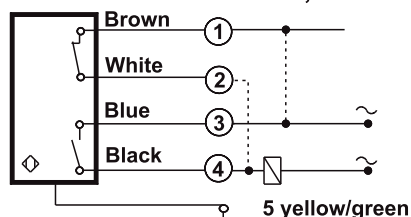
DC NPN NO

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

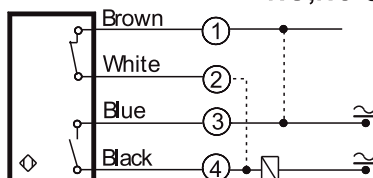
Plastic housing **AC 20-250V**
NO,NC Changeable



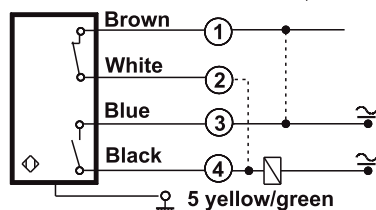
Metal housing **AC 20-250V**
NO,NC Changeable



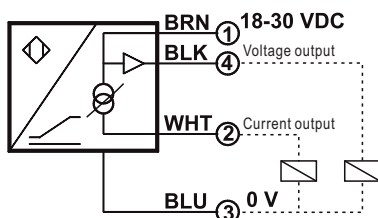
Plastic housing **AC 20-250V**
NO,NC Changeable



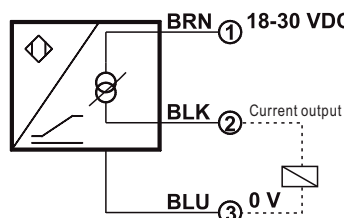
Metal housing **AC 20-250V**
NO,NC Changeable



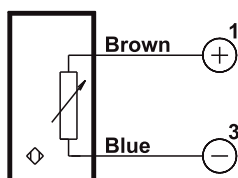
Analog (current + voltage output type)



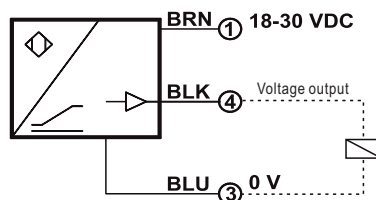
Analog (current output type)



Riot-proof DC 6-12V

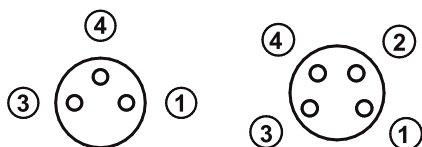


Analog (voltage output type)

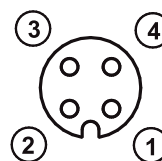


Connector Diagram

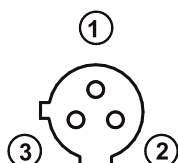
Used for M8 DC
M8



Used for M12 DC
M12



Used for M12 AC
M12



Used for M18 M30 DC or AC

