

SENSOR PRODUCTS SELECTION MANUAL



Wenzhou Gtric Technology Co., Ltd.
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Company introduction

Wenzhou Gtric Technology Co., Ltd. is located in Yueqing IoT sensors Park, which covers 5,000 square meters, with over 100 employees. We are focuses on intelligent manufacturing and industrial automation, our main businesses are sensors, encoders, button switch, coupling, expansion set and other industrial automation products, providing standard and individual products and solutions for customers.

Our products cover over 20 series, 1000specificatison, which have passed CCC, CE, UL, ISO9001 certification as well as EU RoHS Environmental Directives.

Based on our technical advantages, Gtric can provide industrial automation solution according to customers' requirements.

**We support OEM & ODM, if you need
please feel free to contact us**

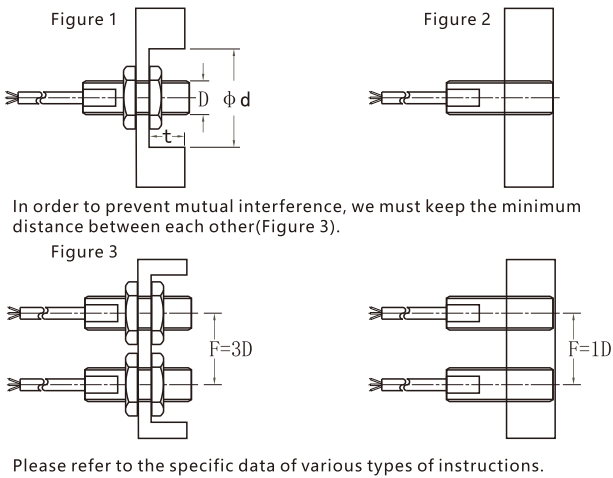


Installation conditions

Non shielded proximity switches can achieve maximum operating distance (with the diameter of the relevant); but in order to prevent the switch around the metal impact on the switch, the sensor head must be in a certain gap with the surrounding metal (Figure 1).

Due to the special shielding effect inside the shield, the radial magnetic field of the side is reduced, and the induction distance is about 60% of the non shield type, because it can be flush mounted in the metal (Figure 2).

The magnetic sensor is not affected by the conditions of installation, as long as the material around the material is not magnetized.



Output mode and electrical characteristics

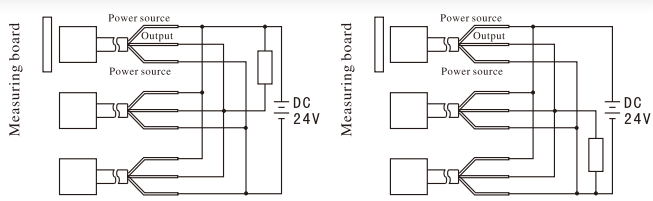
<p>DC 2-wire system NO or NC</p> <p>The load must be connected in series in the sensor to work, there is a polarity and short circuit protection function; in the open circuit state, there is a very small leakage current; in the closed circuit, the switching element has a smaller voltage drop.</p>		<p>Detection object</p> <p>Load</p> <p>Indicator detected</p>	<table><tr><td>Yes</td><td>NO</td><td>NC</td></tr><tr><td>No</td><td></td><td></td></tr><tr><td>Action</td><td></td><td></td></tr><tr><td>Reset</td><td></td><td></td></tr><tr><td>ON</td><td></td><td></td></tr><tr><td>OFF</td><td></td><td></td></tr></table>	Yes	NO	NC	No			Action			Reset			ON			OFF		
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<p>DC 3-wire system(N,P type) NO or NC</p> <p>These switches are connected to the load and power supply separately; the polarity, short circuit and overload protection function, and the residual current can be ignored.</p>		<p>Detection object</p> <p>Load</p> <p>Indicator detected</p>	<table><tr><td>Yes</td><td>NO</td><td>NC</td></tr><tr><td>No</td><td></td><td></td></tr><tr><td>Action</td><td></td><td></td></tr><tr><td>Reset</td><td></td><td></td></tr><tr><td>ON</td><td></td><td></td></tr><tr><td>OFF</td><td></td><td></td></tr></table>	Yes	NO	NC	No			Action			Reset			ON			OFF		
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<p>AC 2-wire system NO or NC</p> <p>The load must be connected in series in the sensor, in the closed circuit, the switching element has a smaller voltage drop.</p>		<p>Detection object</p> <p>Load</p> <p>Indicator detected</p>	<table><tr><td>Yes</td><td>NO</td><td>NC</td></tr><tr><td>No</td><td></td><td></td></tr><tr><td>Action</td><td></td><td></td></tr><tr><td>Reset</td><td></td><td></td></tr><tr><td>ON</td><td></td><td></td></tr><tr><td>OFF</td><td></td><td></td></tr></table>	Yes	NO	NC	No			Action			Reset			ON			OFF		
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<p>DC 4-wire system (NPN,PNP Type) NO+NC</p> <p>Sensor switches can provide 2 groups of output NO+NC</p>		<p>Detection object</p> <p>Load</p> <p>Indicator detected</p>	<table><tr><td>Yes</td><td>NO</td><td>NC</td></tr><tr><td>No</td><td></td><td></td></tr><tr><td>Action</td><td></td><td></td></tr><tr><td>Reset</td><td></td><td></td></tr><tr><td>ON</td><td></td><td></td></tr><tr><td>OFF</td><td></td><td></td></tr></table>	Yes	NO	NC	No			Action			Reset			ON			OFF		
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<p>NO+NC Ac/Dc five wire (relay output) NO + NC</p> <p>These switches can provide to often open, closed two group relay output.</p>		<p>Detection object</p> <p>Load</p> <p>Indicator detected</p>	<table><tr><td>Yes</td><td>NO</td><td>NC</td></tr><tr><td>No</td><td></td><td></td></tr><tr><td>Action</td><td></td><td></td></tr><tr><td>Reset</td><td></td><td></td></tr><tr><td>ON</td><td></td><td></td></tr><tr><td>OFF</td><td></td><td></td></tr></table>	Yes	NO	NC	No			Action			Reset			ON			OFF		
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Sensor characteristics

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✧ Series and parallel connection of proximity switch

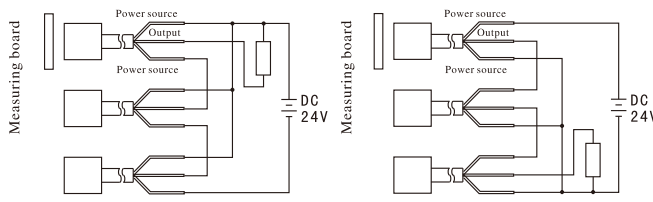
OR connection (NPN and PNP types can be used mixed) series When the proximity switch is OR connected, the action of any proximity switch can drive load. The quantity of the proximity switches depends on the sum of leakage current. More connections are available given that it doesn't affect the loading action.



OR connection of NPN output OR connection of PNP output

✧ AND connection (series)

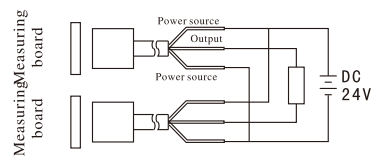
When the proximity switch is AND connected, the action of all proximity switches can drive load. The quantity of the proximity switches depends on the sum of saturation voltage. More connections are available given that it doesn't affect the supply voltage of the proximity switch. The response frequency of the proximity switch is the accumulation of initialized reset of various proximity switch.



NPN connection of AND output PNP connection of AND output

✧ Series and parallel connection of proximity switch

AND connection (series) NPN, PNP mixed–use



Promixity switches matters need attention

✧ Cautions when connected or disconnected with the power supply

When connecting the proximity switch with the counter and the programmable controller, there isn't any problem because of the built–in initialized reset circuit. Please avoid the conditions mentioned below

The detection object lies around the detection distance of the proximity switch; For DC voltage type and DC switch type, when power supply is turned on (turned off), time constant rises (drops) greatly; There is self-excitation and noise when the AC switch type proximity switch is power-on (off)

✧ Capacitor, light load

The proximity switch can't have the capacitor or light that has larger jumping current as the load directly connected to be connected through a relay or series connected with a current-limiting resistance. The peak current set by current-limiting resistance R is within the load current of the proximity switch; Make sure to connect through load.

Supply voltage V

Peak load current value of proximity switch mA

≤R(KΩ)

Allowable loss of resistance R (W)

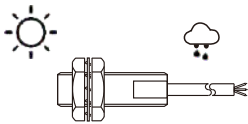
Supply voltage V²

≤R(KΩ)

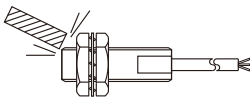
× 2 times above

✧ Installation notice of proximity switch

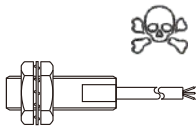
Don't use it in the open air, and use a protective cover, if necessary.



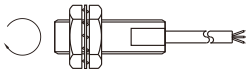
Don't knock the detection surface with hard objects and use a protective cover, if necessary.



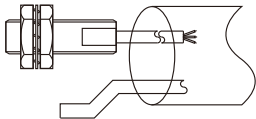
Don't use it in the environment with corrosive objects.



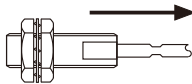
Don't fasten it with a big force, but fasten it with spring washer



The proximity switch must be equipped individually with metal flexible pipe, and don't make it with the electric line and power line in the same metal flexible pipe



Don't stretch the power line of the proximity switch with a big force.



※ There are economical and high-precision types
For use with fiber optic sensors



Specifications



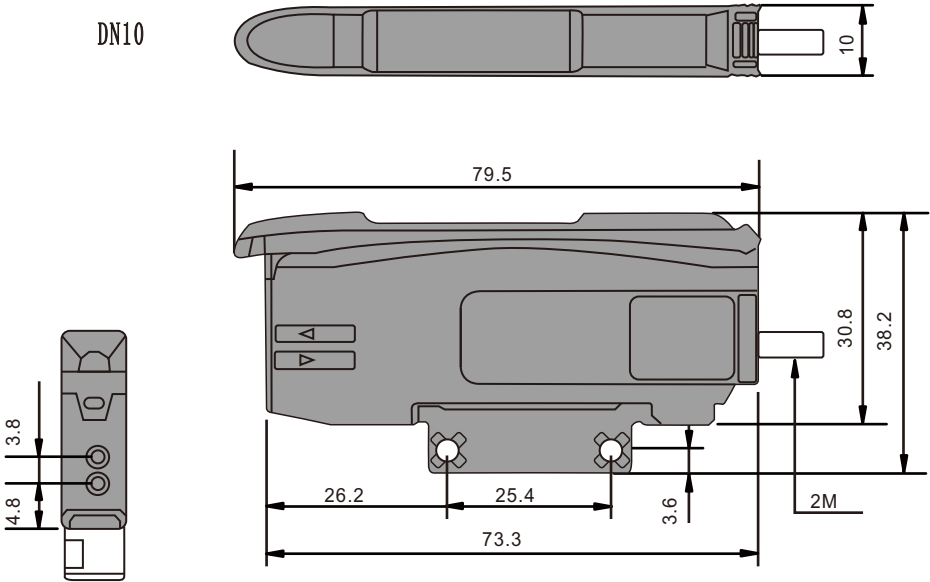
Specifications				
Model	DN10	DP10	NA11	NA41
output type	NPN	PNP	NPN	PNP
operating voltage	12~24VDC			
Light source	Red LED			
Distance regulation	Automatic adjustment		Manually adjust	
Response time	25/50/100/200us		250 us	
ON/OFF Time delay function	1MS-999MS adjustment		40MS	
Max sensing distanceDiffuse reflection	4700MM		2200MM	
Max sensing distanceThrough-beam	11000MM		6000MM	
switch type	Selectable L.on/D.on			
operating temperature	-25°C~55°C			
Operating humidity	35-85% RH			
Ambient luminance	Incandescent lamp:3000 lux, Sunlight:≤1000 lux			
Anti-vibration	10-55 Hz,double amplitude 1.5 mm,XYZ three directions,1 hours each			
Impact resistance	(50G)50cm/S x,Y,z three directions			
Connection	2m 3-Wire cable			

If you need a detailed amplifier product manual, please contact our company

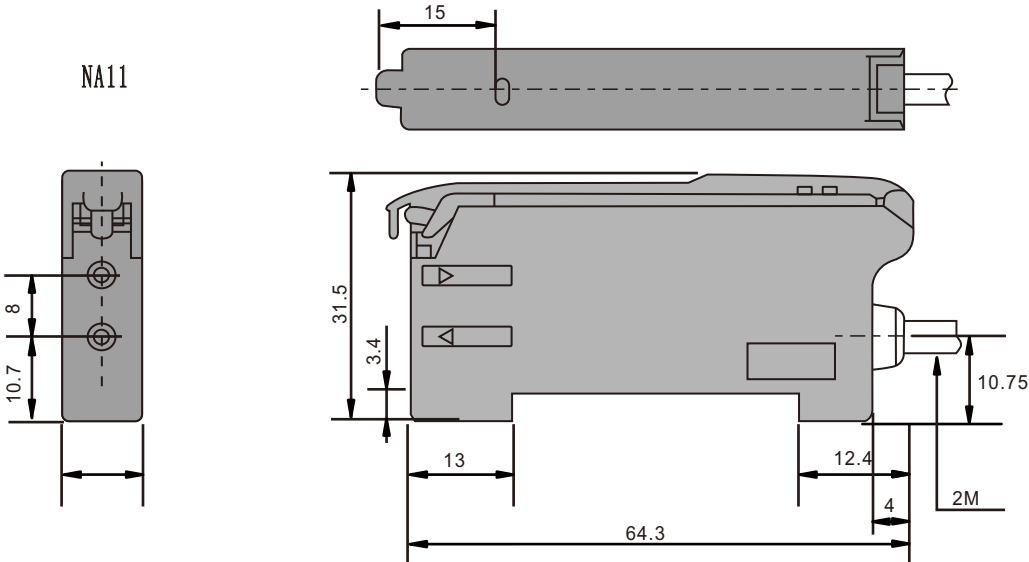
Dimension



DN10




NA11

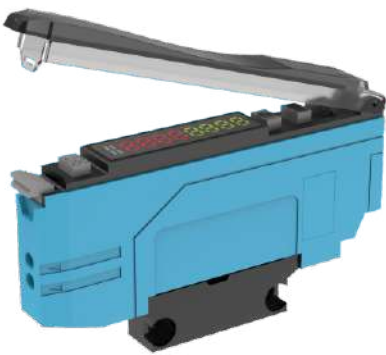


Parameter comparison

The following detection distance is obtained by detecting white A4 paper with M6 diffuse reflection optical fiber sensor, and the actual sensing distance shall be subject to debugging according to the site conditions

	DN10	NA11
		
Adjust	Automatic adjustment	Manual adjustment
Working voltage	12-24V DC	10-30V DC
Response time	25/50/100/200μs	250μs
Delay function	1MS~9999MSadjust	Fixed 40MS
Maximum detection distance of Diffuse reflection	47cm	22cm
Maximum detection distance of Diffuse reflection	110cm	60cm
NO/NC switching	✓	✓
Anti-interference	✓	✗
Regional functions	✓	✗
Prevent accidental contact	✓	✗
Luminous quantity adjustment	✓	✗
Vibration resistance	✓	✗

- ※ 0-5V voltage output
- ※ Brightness percentage can be set,three delay modes can be adjusted

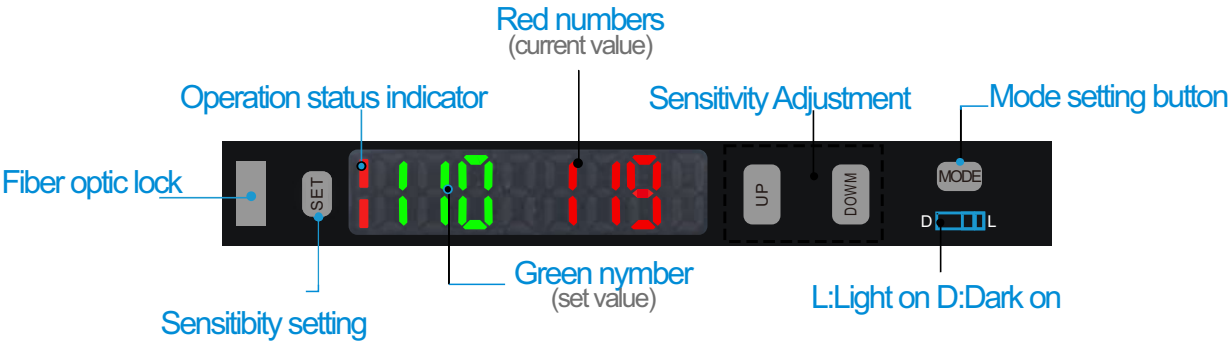


Specifications

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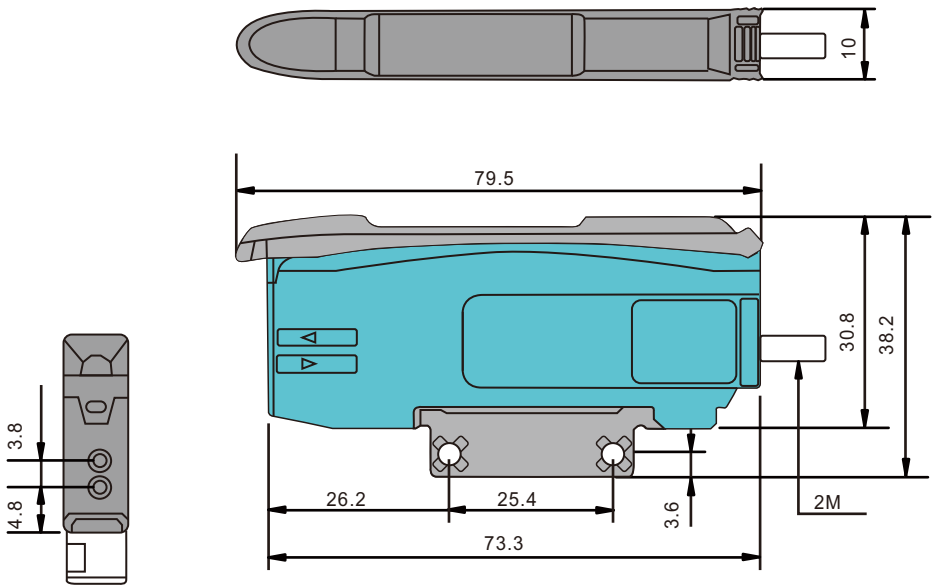
Specifications		
Model	DN10-MN	DP10-MN
Output type	NPN	PNP
Control output	Two output ports 1 output port/black wire, 1 analog voltage output/white wire, Analog voltage 0-5000MV	
Light source	Red,4-element LED body	
Corresponding time	P-0:25μs P-1:100μs P-2:400μs P-3:800μs P-4:3.2ms	
Output selection	Light on/Dark on	
Display indicator	Operation Indicator:Red LED,Dual Digital Monito Threshold value (4-digit green LED body indicator) current value (4-digit red LED body indicator) light up together.Value range:0-9999	
Detection method	Light intensity (area detection possible, automatic sensitive tracking available)	
Delay function	Four ways to choose off-delay timer/on-delay timer/one-shot timer/on-delay one-shot timer	
Delay time selection	1MS-9999MS	
Control output	NPN/PNP open collector 24V,100mAmax	
Power supply	12-24VDC±10%	
Ambient luminance	Incandescent lamp:≤3000 lux Sunlight:≤1000 lux	
Power consumption	Standard Mode:Max 300mW,Max Voltage 24V	
Anti-vibration	10-55 Hz,double amplitude 1.5 mm,XYZ three directions,1 hours each	
Impact resistance	(50G)500m/S2 X,Y,Z three directions	
Operating temperature	-25°C~55°C	
Operating humidity	35-85% RH	
Connection	2MPVC Cable	
Sensing side	PBT	

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Dimension

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- ※ Three-color light source, using RGB light source to identify a variety of targets High stability
- ※ For use with fiber optic sensors

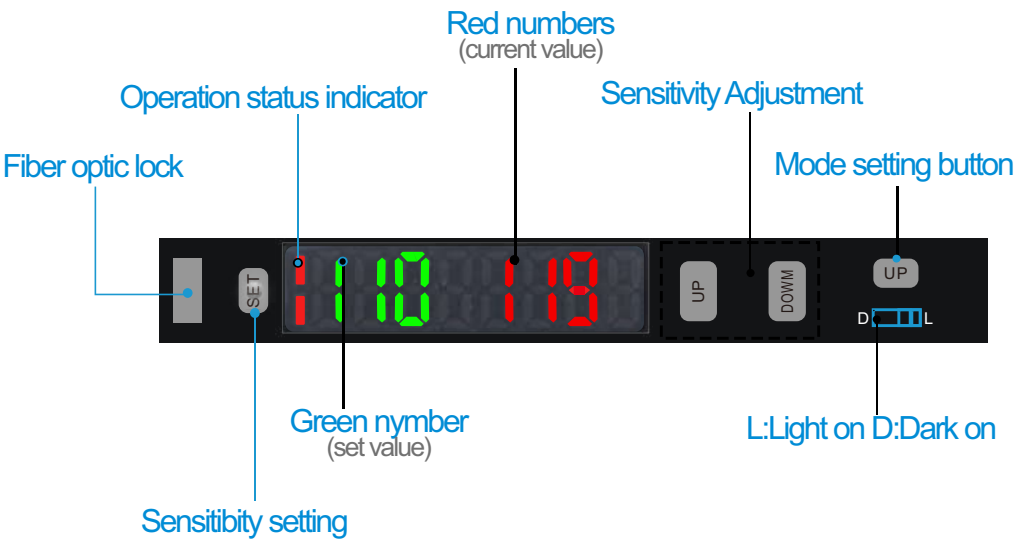


Specifications

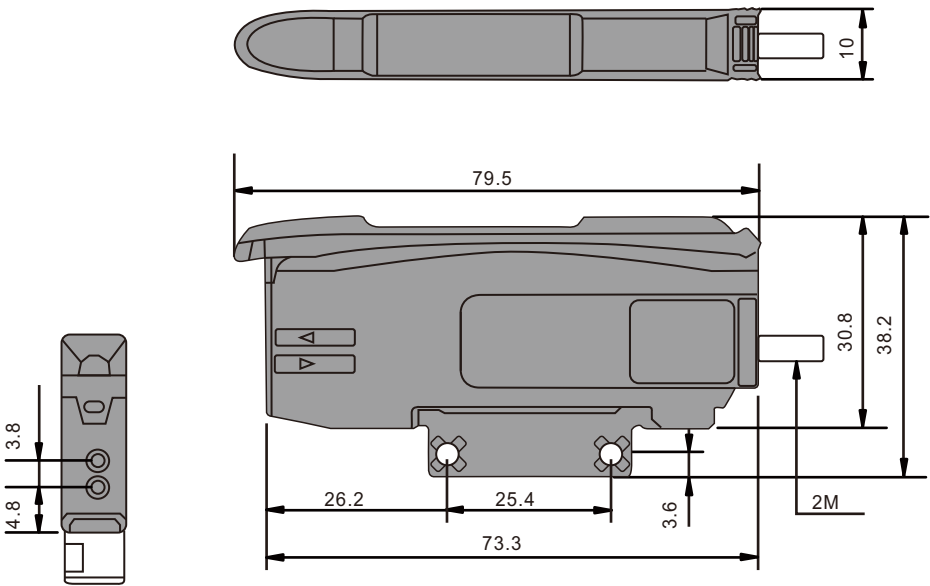


Specifications		
Model	DN10-YS	DP10-YS
Output type	NPN	PNP
Control output	one output	
Light source	Three primary colors,4 elements light-emitting diode body	
Response time	50us in MARK mode, 130us in C and C1 mode	
output selection	Light on/Dark on	
Display indicator	Operation Indicator:Red LED,Dual Digital Monitor Threshold value(4-digit green LED body indicator) current value(4-digit red LED body indicator) light up together.Value range:0-9999	
Detection mode	Light intensity detection MARK and automatic color matching detection Ccolor+brightness value detection CI	
Delay function	Four ways to choose off-delay timer/on-delay timer/one-shot timer/on-delay one-shot timer	
Delay time selection	1MS-9999MS	
Control output	NPN/PNP open collector 24V,100mAmax	
Power supply	12-24VDC±10%	
Ambient luminance	Incandescent lamp:≤3000 lux Sunlight:≤1000 lux	
Power consumption	Max 300MW	
Anti-vibration	10-55 Hz,double amplitude 1.5 mm,XYZ three directions,1 hours each	
Impact resistance	(50G)500m/S2 X,Y,Z three directions	
Operating temperature	-25 ~55	
Operating humidity	35-85%RH	

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Dimension



- ※ Accurate identification of subtle color differences, 4-channel design, saving space and cost
- ※ Accurately identify more than 1000 colors, multiple detection modes
- ※ Suitable for various application scenarios, can be equipped with color-specific probes, and compatible with all fiber optic probes
- ※ Suitable for detecting objects that do not emit light by themselves
- ※

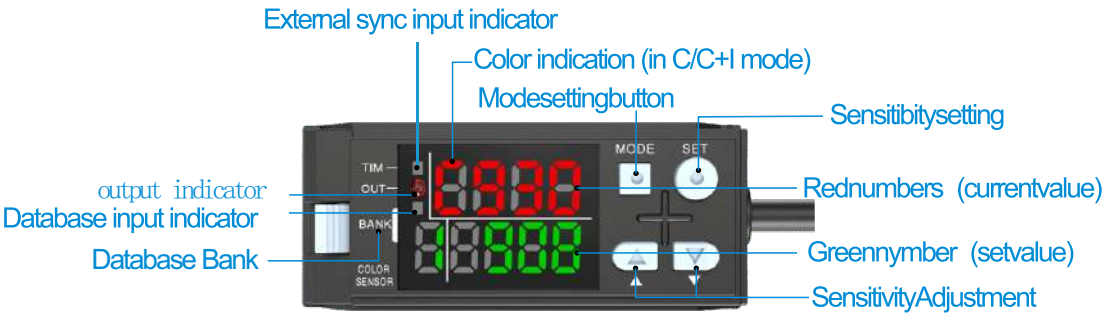


Specifications

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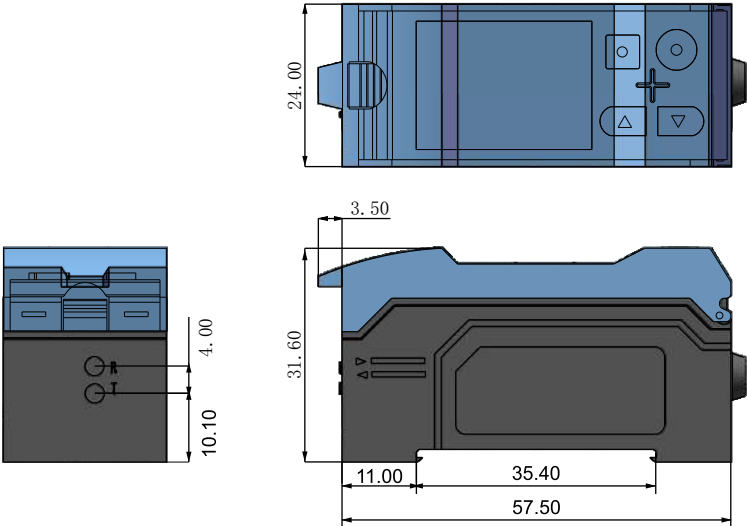
Specifications		
Model	EB-C1	EB-C1P
Output type	NPN	PNP
Light source	Red LED, Green LED, Blue LED	
Response time	200μs(HSP)/1ms(FINE)	
Indicator light	Output: Red LED, External sync input: Red LED Matching rate/received light intensity: LED(green/red)	
Error display	Excessive light intensity, insufficient light intensity, insufficient chromatic aberration	
Calibration method	One-point/two-point calibration	
Error adjustment	Digital display value setting	
Differential recognition Mode	Cmode/C+Imode/Imode	Cmode/C+Imode/Imode
Timer function	Timer OFF/ON Delay/OFF Delay/One-shot Shot	
output selection	Matching output: Turn on when the target color matches the memory color Mismatch output: Turn on when the color of the target object is different from the recorded color	
External sync input	Response speed: maximum 500us	
External Calibration Input	Input response time: minimum 20ms	
Record color choices	Library selection(operated by external input or key), no voltage input	
Control Output	NPN(PNP):Max 40VDC Max(100mA),Residual voltage: Max 1.0V	
protection circuit	Reverse electrode protection, overcurrent protection, overvoltage	
power supply	12 to 24VDC±10%, Ripple(P-P): 10%max	
Consumption current	75mAmax	
Ambient Luminosity	Incandescent: Max. 5,000lux, Daylight: Max. 10,000lux	
ambient temperature	-10~55°C	
Relative humidity	35-85%RH	
Anti-vibration	10-55 Hz, double amplitude 1.5 mm, XYZ three directions, 1 hours each	
Impact resistance	(50G)500m/S2 X, Y, Z three directions	
Sensing side	PC	
Connection	2MPVC Cable	

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Dimension

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