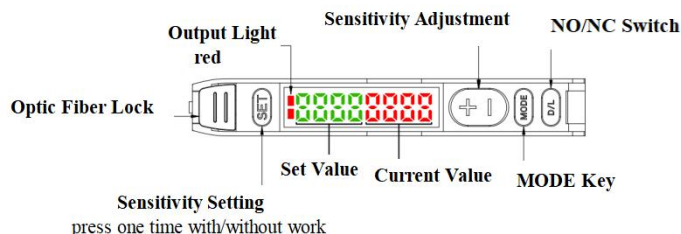


# ER2-22N Dual digital display

## optical fiber sensor manual



### Operation instruction:



### Attentions:

To ensure safety, please follow the below regulations when using sensor:

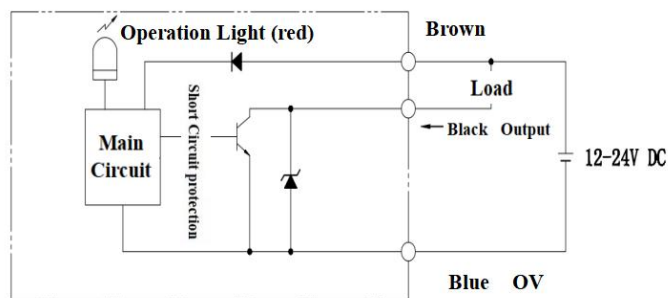
- 1、 This product only use for detecting object. Don't use this for protection our body or parts of body
- 2、 This product can't be used as an explosion-proof product. Please don't use this product in hazardous place or the place with potentially explosive gases.
- 3、 This product input DC power, Prohibit use AC power. Otherwise, it will cause product explosion and be on fire
- 4、 Please don't wire the amplifier along with the power or high-voltage lines, otherwise the sensor be damaged.
- 5、 When using commercial switch voltage regulator, please ensure frame ground terminal and ground terminal ground connection.
- 6、 Please don't use this item outdoor or in the location where external light can enter the receiving surface.

### Specification:

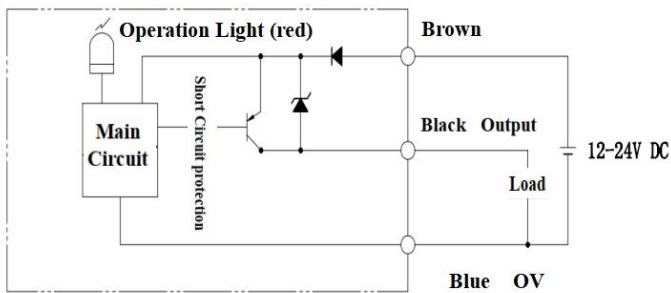
| Model No             | ER2-22N                                                                                                                    | ER2-22NP                                                                                           |
|----------------------|----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| Type                 | NPN                                                                                                                        | PNP                                                                                                |
| Operation Voltage    | 12-24VDC $\pm$ 10%, floating(P-P <10%)                                                                                     |                                                                                                    |
| Current Consumption  | < 40mA                                                                                                                     |                                                                                                    |
| Light Source         | Red 4-element Led                                                                                                          |                                                                                                    |
| Detection Method     | Diffuse reflection or opposite(according fiber type)                                                                       |                                                                                                    |
| Detection Range      | P-1 Diffuse reflection 200mm, opposite 700mm<br>P-2 Diffuse reflection 280mm, opposite 1200mm                              |                                                                                                    |
| Detection Output     | NPN collector open circuit output, Max current 100mA Max input voltage 30VDC, residual voltage <1V                         | PNP collector open circuit output, Max current 100mA Max input voltage 30VDC, residual voltage <2V |
| Output State         | press (D/L) 5S to switch NO/NC                                                                                             |                                                                                                    |
| Delay Function       | 4 output modes available: no delay/single output delay, pull up delay/pull down delay. 3 adjustable delay time: 1ms-9999ms |                                                                                                    |
| Response time        | P--1: <100uS                                                                                                               | P--2: < 200uS                                                                                      |
| LED Display          | Red output indicator light, threshold value(4 digit green Led), lights up with the current value(4 digit red LED)          |                                                                                                    |
| protection circuit   | Reverse polarity protection ; output short circuit and overload protection                                                 |                                                                                                    |
| Ambient Illumination | Incandescent lamp: $\leq$ 20,000lux, Sunlight: $\leq$ 30,000lux                                                            |                                                                                                    |
| Anti-Vibration       | 10-55Hz, 1.5mm double amplitude, X,Y,Z 2hours at each direction                                                            |                                                                                                    |
| Ambient temperature  | -25~+55°C, no freezing                                                                                                     |                                                                                                    |

### Output Circuit:

ER2-22N NPN



ER2-22NP PNP

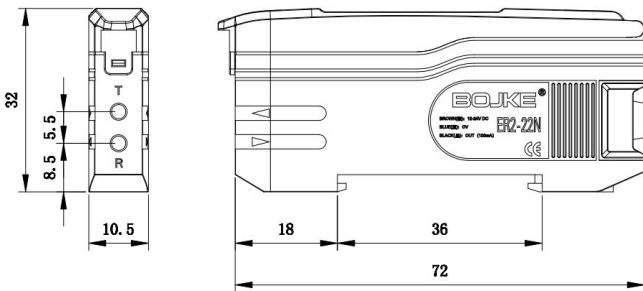


Press "SET" key each when detection with or without product

Display SET when first press, Display threshold value when second press.



Size: (mm)

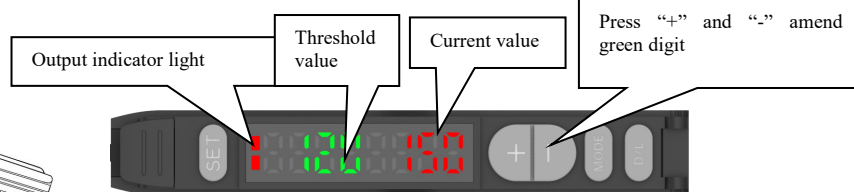


## 2、Amend threshold value by hand:

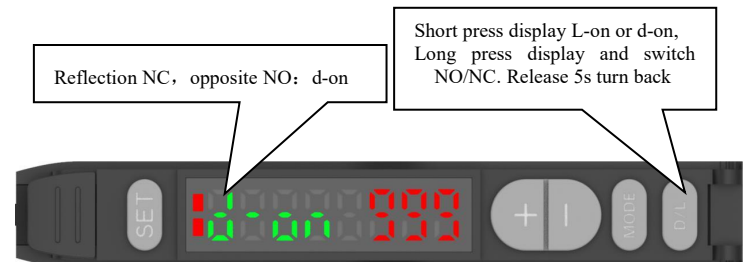
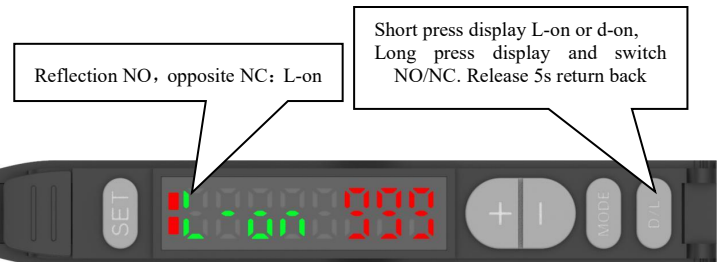
After setting threshold value, we can press "+" and "-" amend the green digit

**Condition of be amended:** red digit (no product be detected) < green digit < red digit (product be detected); Suggest that the current value 20 more than green threshold value ;

Remark: when the red current value digit is less than 100 in P-1 mode, suggest to use P-2 mode instead.



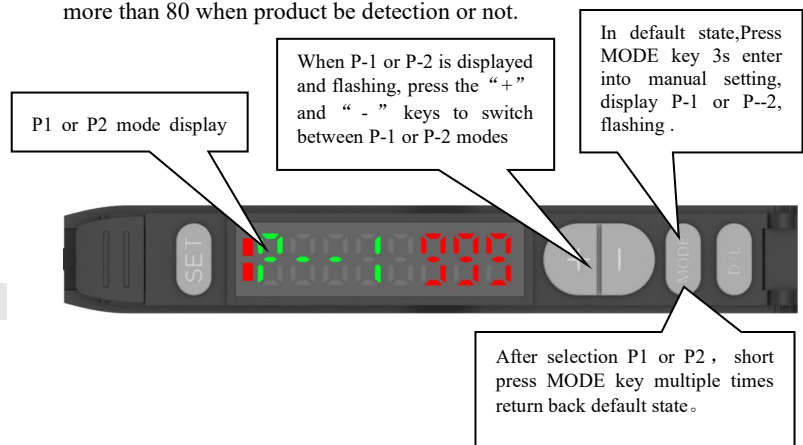
## 3、Switch NO(normally open)/NC(normally close):



## 4、P1 P2 mode:

P--1: Max detection display 4095 suggest that the red digit differ more than 50 when product be detection or not;

P--2: Max detection display 9999 suggest that the red digit differ more than 80 when product be detection or not.



## Install method:

### Install on DIN rails

1、Align the bottom slot with the track. push the console to direction ① meanwhile tilt it in direction ②.

2、Disassembling method: push the console to direction ① meanwhile lift it in direction ③.

### Install on wall (only suitable for console)

Install the console along with frame, and then use 2 piece M3 screw fix them.

### Connection optical fiber component

1, Open the dust cover in the direction ①.

2, Move down the optic fiber locking rod to the direction ②.

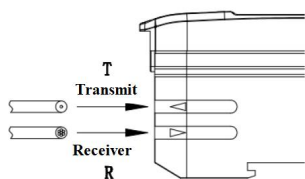
3, Insert the optic fiber component marked length into hole of optical fiber.

4, Move down optic fiber locking rod to direction ④.

5, If the fiber component thinner, must use adapter which provide together

6, If don't connect the suitable adapter, the thinner fiber component can not detection product well (adapter along with the optic fiber component)

7, If connect Amplifier with coaxial reflective type, should connection transmit with single core fiber, connect multi core fiber with receiver.



## Product function setting

### 1、Threshold value setting:

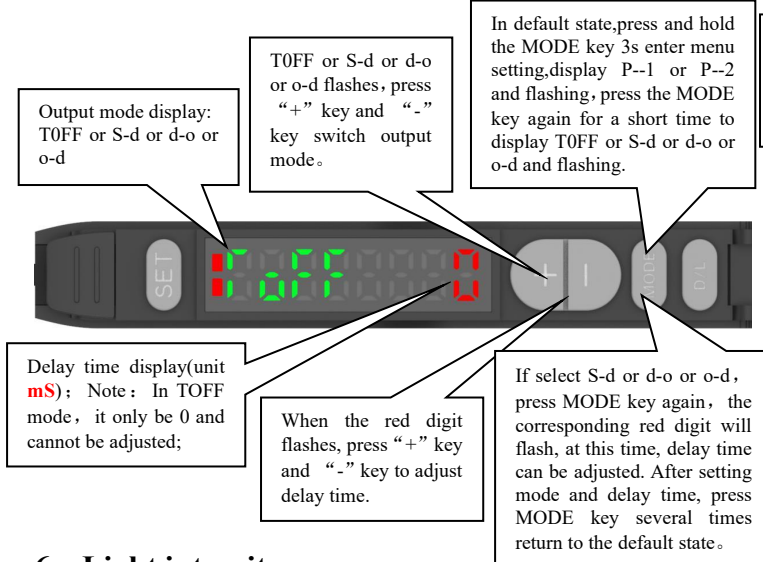
## 5、Output method:

**TOFF (close delay)** : product no delay, output normally;

**S-D (one time output)** : After sensing, regardless of detection time length, only output a width signal of setting delay time.

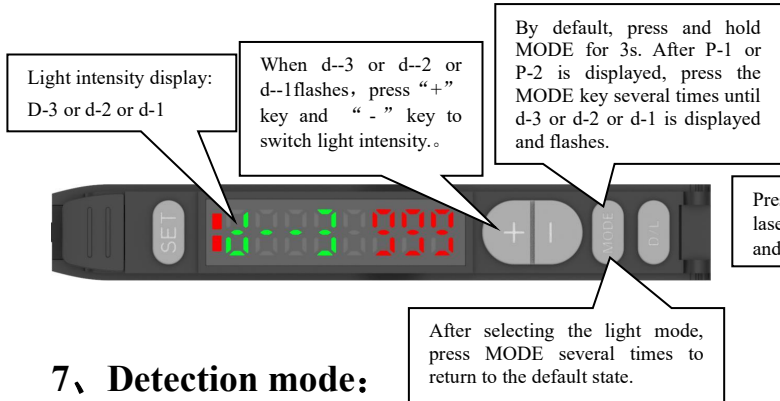
**d-o (pull up delay)** : Output delay, product sensing, delay until set time before outputting, close output after product remove; (if the sensing time is less than the set delay time, there is no output)

**o-d (pull down the delay)** : Output delay, Output a width signal of setting delay time after remove sensing product.



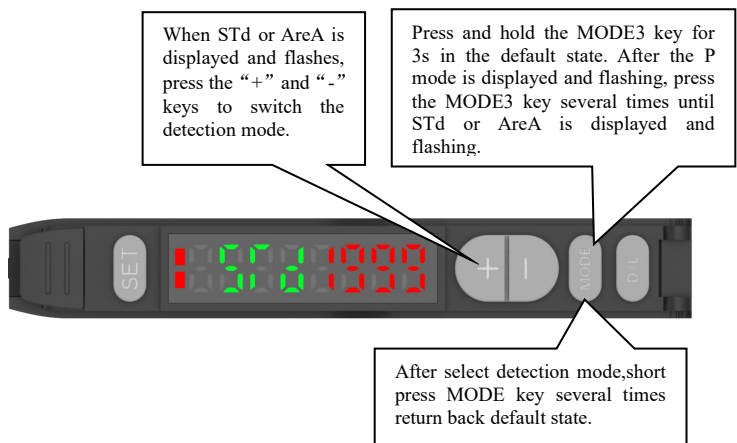
## 6、Light intensity

The light intensity of d-3, d-2 and d-1 decreased gradually;

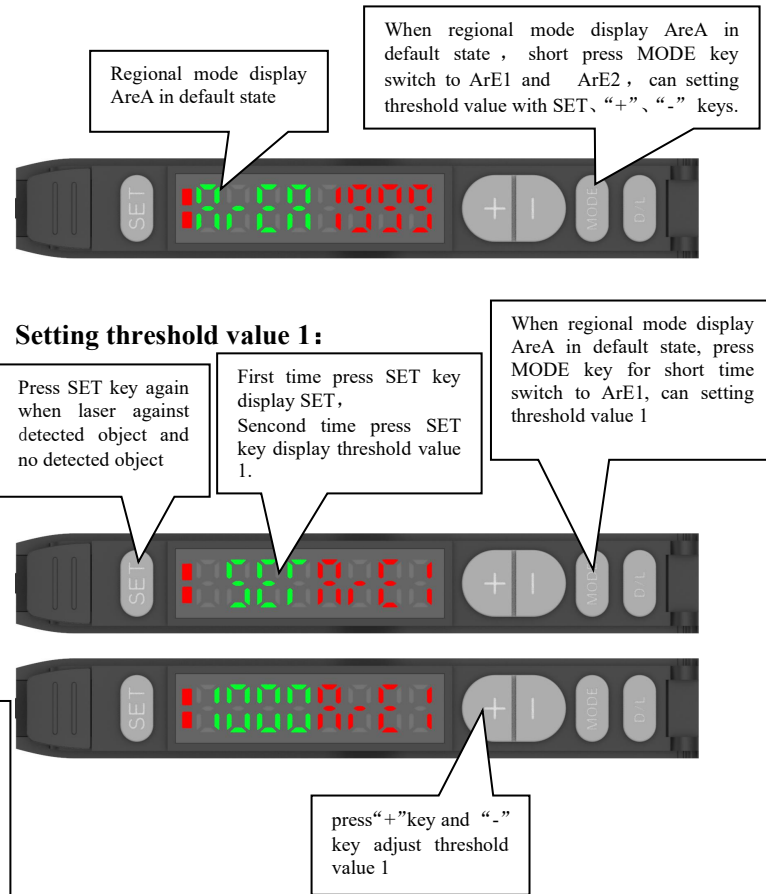


## 7、Detection mode:

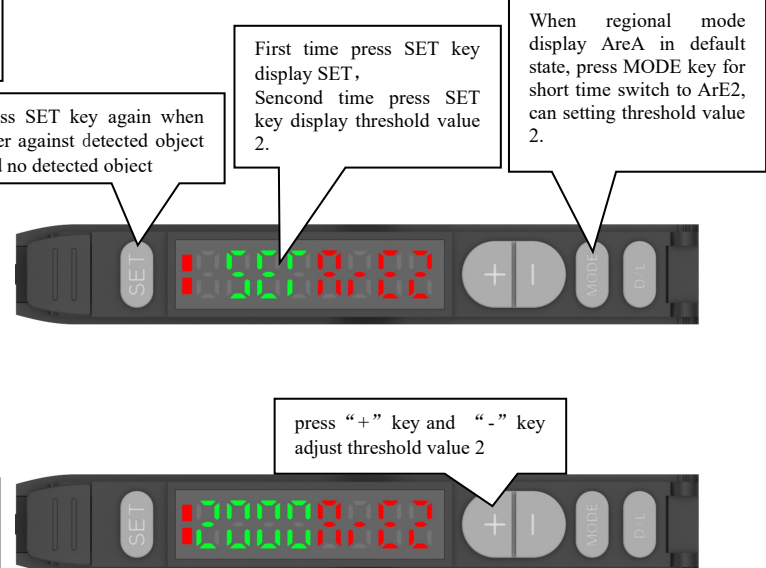
| Detection mode | Mode description    |
|----------------|---------------------|
| STd            | Normal mode         |
| AreA           | Area detection mode |



After select AreA in detection mode, it's will display AreA when return back default state.



## Setting threshold value 2:



**Note: The threshold value 1 and threshold value 2 are not high or low. The product will automatically identify the high threshold value and the low threshold value. There is a gradient difference between the threshold value 1 and the threshold value 2. When the threshold values 1 and 2 are too close, the product will automatically increase the numerical difference between the threshold values 1 and 2;**

## 8、detection frequency option:

When lots of products are detected to be close to each other, different frequencies can be selected to avoid mutual interference; four working frequencies can be selected: F1, F2, F3 and F4

When F mode is displayed and flashing, press “+” and “-” keys to switch frequency F mode.

Press MODE key 3s in default state, after P mode displayed and flashing, press MODE key for short time till the frequency F mode displayed and flashing.

Frequency F mode display



## 9、Return to the default status:

In any menu mode, 30s of no operation automatically returns to the default state.

When the menu function setting is completed, End is displayed. Press the MODE key again to return to the default state.

In default state, press and hold the MODE key to enter the menu settings. In the menu mode, short press to select the function, and then short press several times to exit the menu.



## 10、Restore factory setting:

**P mode:** P--1 mode;

**Output mode:** TOFF not delay, output Normally;

**Light intensity:** d--3 is the strongest;

**Detection mode:** Normal mode

**Operating frequency:** F1

**NO/NC:** NO (L-on) ;

Press MODE key, then press SET key, press and hold 3s at same time to display INIT to restore factory setting.



INIT indicates that the initial setting has been restored and the key can be released.

## 11、Key locking and unlocking:

LOC indicates that the key is locked and can be released.

Press MODE key, then press “-”, press both 3s to display LOC.



## 12、Flip display:

UnL indicates that the key is unlocked

Press MODE key, then press “-”, press both 3s to display UnL.



Press MODE key, then press D/L key, press both 3s, the digit will turn over and display.



Turn over display example:



## Product Warranty

When ordering our products only reference sample, the following guarantees, disclaimers, conditions of fitness etc should apply when no special instructions are mentioned in the quotation sheet, contract, specification, etc.

Before order please ensure you read and confirming following.

### 1、 Quality Guarantee Period

Quality guarantee period is one year,calculated from the date when product delivered to buyer's destination.

### 2、 Range of guarantee,

We will repair the commodity free if the damage caused by our company.

It's will not belong to the range of guarantee if caused by following reason:

1) Damage caused by use under conditions except the conditions, environment and use method described in the product manual of the company.

2)Faults not caused by our company.

3)Product damage caused by the personal modification and repair except the manufacturer.

4)Didn't according to usage method of our company description

5)After the goods are delivered, the problem caused by unpredictable scientific level

6)Other failures caused by natural disasters, disasters and other factors

At the same time, the above guarantee only refers to the company's products, and the other damage caused by the company's product failure is excluded from the guarantee range.

### 3、 limits of liability

1)The Company should not be liable for any special loss, indirect loss, and other related losses (eg:equipment damage, loss of opportunity, loss of profit) caused by incorrect use of company's products.

2)When using programmable equipment, our company will not assume any responsibility for the programming carried out by non-company personnel and the consequences arising therefrom

### 4、 Suitable for use and conditions

1)The products of our company are designed and manufactured for general products of general industry. So, the products of our company should not be used for the following applications and not suitable for their use.If it is necessary to be used in the following occasions, please discuss with the sales of our company to confirm the product specification, and select the product which suitable. At the same time, we should consider various safety countermeasures, such as the safety circuit that can minimize the danger even if there is a failure.

a.Facilities that have a serious impact on life and property, such as atomic energy control equipment, incineration equipment, railway, aviation and vehicle equipment, medical equipment, entertainment equipment, safety devices and equipment that must comply with the special provisions of administrative agencies and individual industries.

b. Public utilities such as gas, water, power supply systems, 24-hour

continuous operation systems and other equipment requiring high reliability.

c. Systems, equipment and devices that may endanger personal and property.

d.Outdoor use under similar or similar conditions.

2)When the user uses the company's products in occasions closely related to personal and property safety, the overall risk of the system should be clear. In order to ensure safety, special redundancy design should be adopted. At the same time, according to the applicable purpose of the company's products in the system, supporting power distribution and settings should be supply.

3)Please be sure to follow the precautions and prohibitions to avoid incorrect use and damage caused by a third party.

### 5、 Range of Services

The product price does not include the dispatch fee of technicians and other service fees. If you have any demand in this, you can contact us to negotiate.