

# Aotoro®

## CR Capacitive type 电容式

### INSTRUCTION MANUAL

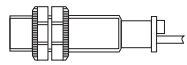
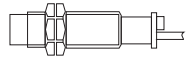
### 使用说明书

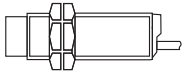
#### PROXIMITY SWITCH

#### 接近开关

A2302-06

## Model selectable 型号选择

Appearance 外形	Sensing distance 探测距离	Model型号		
		NPN OUTPUT	PNP OUTPUT	AC OUTPUT
M18  Plastic Case塑料外壳	8mm adjustment 可调节	CR18-8DN	CR18-8DP	CR18-8AO
		CR18-8DN2	CR18-8DP2	CR18-8AC
M18  Metal Case金属外壳	8mm adjustment 可调节	CR18M-8DN	CR18M-8DP	CR18M-8AO
		CR18M-8DN2	CR18M-8DP2	CR18M-8AC

Appearance 外形	Sensing distance 探测距离	Model型号	
		NPN OUTPUT	AC OUTPUT
M30  Metal Case金属外壳	15mm adjustment 可调节	CR30-15DN	CR30-15AO
		CR30-15DN2	CR30-15AC
		CR30-15DP	CR30-15AO
		CR30-15DP2	CR30-15AC

## Specification 规格

Model 型号	CR18-8DN CR18-8DN2 CR18-8DP CR18-8DP2	CR18M-8DN CR18M-8DN2 CR18M-8DP CR18M-8DP2	CR30-15DN CR30-15DN2 CR30-15DP CR30-15DP2	CR18-8AO CR18-8AC	CR18M-8AO CR18M-8AC	CR30-15AO CR30-15AC
	Plastic Case塑料外壳	Metal Case金属外壳	Metal Case金属外壳	Plastic Case塑料外壳	Metal Case金属外壳	Metal Case金属外壳
Detecting distance 探测距离	8mm adjustmen可调节	8mm adjustmen可调节	15mm adjustmen可调节	8mm adjustmen可调节	8mm adjustmen可调节	15mm adjustmen可调节
Setting distance 设定距离	0 to 5.6mm	0 to 5.6mm	0 to 11mm	0 to 5.6mm	0 to 5.6mm	0 to 11mm
Standard detecting target 标准探测体	Iron 50X50mm铁					
Detecting target 探测物体	Metal, nonmetal 金属, 非金属					
Hysteresis 回差	MAX.20% of detecting distance检测距离的20%以下					
Power supply 电源电压	12-24VDC(10-30VDC)			90-250VAC		
Current consumption 静态电流	Max.10mA			Max.2.2mA		
Response frequency 频率	50HZ			20HZ		
Residual voltage 残留电压	MAX.1.5V			MAX.10V		
Control output 控制输出	MAX.200mA					
Protection circuit 电路保护	Reverse polarity protection反极性保护, Surge absorber浪涌保护					
Insulation resistance 绝缘	Min.50MΩ ( 500VDC )					
Dielectric strength 耐电压	1500VAC 50/60HZ for 1 minute 1分钟					
Operating temperature 使用环境温度	-25 to +70°C (non-freezing condition 不结冰)					
Protection 保护结构	IP65					

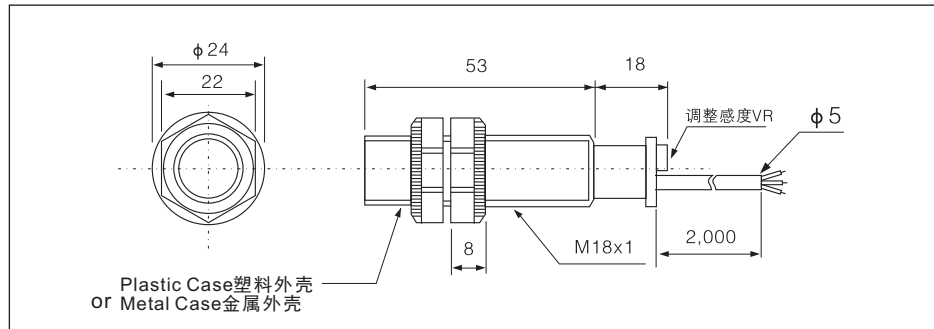
## Ordering information 订购信息

### CR18-8DN2

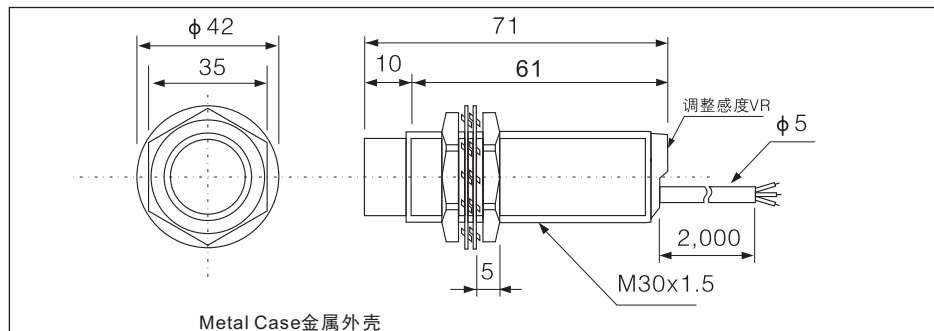
Output 输出构成	N	NPN NO 3-Wire
	N2	NPN NC 3-Wire
	P	PNP NO 3-Wire
	P2	PNP NC 3-Wire
	O	NO 2-Wire 二线
	C	NC 2-Wire 二线
Supply 电压	N3	NPN NO+NC
	P3	PNP NO+NC
	D	DC Type
Detecting distance 检测距离	A	AC Type
	8	8mm
	15	15mm
	20	20mm
	40	40mm
Serial number 设计序号	70	70mm
	Side length 探测头边长(mm)	
Appearance 外型分类	R	Cylindrical 圆柱型
	S	Rectangle 方型
	P	Flat 平面型
	U	Groove shape 槽型
Proximity switch 接近开关	T	Inductive 电感式
	C	Capacitive 电容式
	S	HALL 霍尔式

## Dimensions 尺寸(unit:mm)

### ● CR18 Series



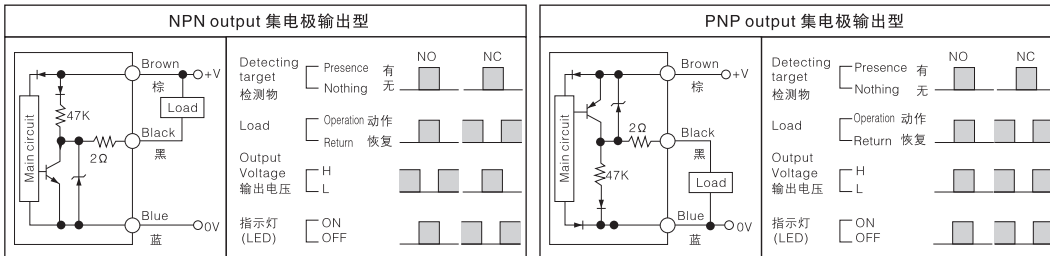
### ● CR30 Series



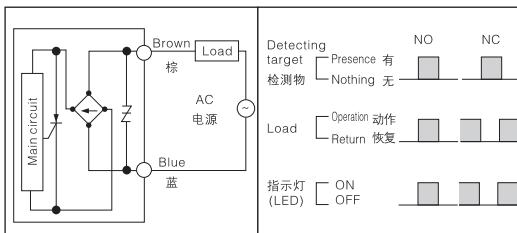
※The above specification are changeable without notice anytime.

## Control output diagram 控制输出图

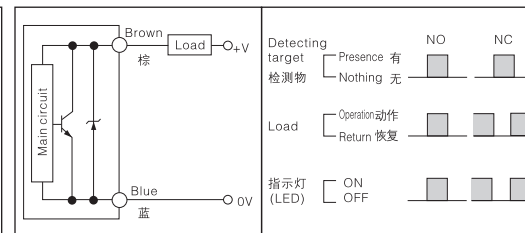
### ● DC 3-wire(三线型)



### ● AC 2-wire(二线型)



### ● DC 2-wire(二线型)



## Sensitivity adjustment 灵敏度调节

### ● Please turn potentiometer and sequence below procedure.

#### 请按下列顺序调节电位器

1 Turning potentiometer VR on right after remove the target then stop it until proximity sensor is ON  
在接近开关前面没有任何检测物时, 调节灵敏度电位器为顺时针方向直到传感器运行ON

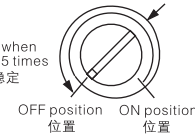


2 Approaching the target to this unit and turning potentiometer on left slowly, then stop it until proximity sensor is OFF  
在接近开关前面有检测物时, 根据1的位置调节灵敏度电位器为逆时针方向直到传感器运行OFF.



3 There is over 1.5 revolution differences of potentiometer from ON to OFF position and it can detect stably.  
如果电位器旋转的ON和OFF的位置有1.5圈以上的差距可以稳定的检测

It is stable when it is over 1.5 times 1.5圈以上上稳定



4 If you set potentiometer in the middle between 1 and 2, sensitivity setting will be completed.  
将调节电位器设定在1和2的中间, 灵敏度的设定就完成了



※When there is distance fluctuation between proximity sensor and the target, please adjust 2 with long distance from this unit.

※当接近开关的检测物的距离不均匀时, 请将第2点的操作在最远的距离。

※Turning potentiometer toward clock wise it will be max. and turning toward unlock wise it will be min. Number of adjustment should be 15±3 revolution and if you turn on right of left excessively, it will be not stopped.

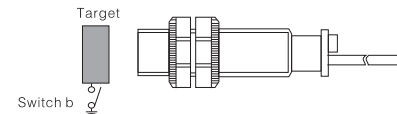
※调节电位器顺时针方向为最大, 反时针方向为最小, 调整数应该为15±3圈, 如调整时向左或右过一点, 也不会堵停。

## Grounding 接地

The detecting distance will be changed by grounding status of capacity proximity sensor and the target [50x50x1mm(iron)]. Please check the material when install it on panel. 检测距离是根据电容型接近传感器和标准检测物的连接状态不同而变化的, 标准检测物的为[50x50x1mm(铁)]请检查检测物的材质。

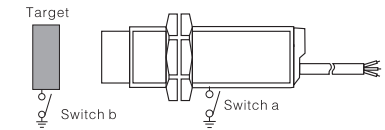
### ● CR18

Ground condition switch b 连接条件开关	ON	OFF
Operating distance(mm) 动作距离	8	4



### ● CR30

Ground condition 连接条件	Switch a 开关	ON	OFF	ON	OFF
	Switch b 开关	ON	ON	OFF	OFF
Operating distance(mm) 动作距离	15	18	6	6	



## Precautions in using the product 使用注意事项

### NOTE 注意

Be sure to follow the safety precautions below for adder safety

- Do not use the sensor under the explosive or flammable gas environment. 请不要在具有可燃性、爆炸性气体的环境下使用。
- Never disassemble, repair or tamper the product. 请勿拆卸、修理、改造本产品。
- Keep the supply voltage within the specified area. 电源电压必须在额定值内。
- use the load under the specified area. 请使用额定值以下的负荷。

### Caution for using 正确使用方法

- Do not use the product under the following conditions. 请不要在以下的环境中使用。  
(1) In the place of the direct sunlight. 日光直射场所。  
(2) In the place where humidity is high and condensation may occur. 湿度高或易结露场所。  
(3) In the place of the corrosive gas exists. 含腐蚀性气体场所。  
(4) In the place where vibration or shock is directly transmitted to the product. 振动或冲击能直接传送到传感器场所。
- Connection and Mounting 连接和安装  
(1) Be sure that before giving the power, the supply voltage is less than the maximum rated supply voltage. 通电前请确认供电电源电压小于最大允许电源电压。  
(2) There are some cases where the sensors cable is unavoidably laid in a tube or duct together with a hightension or power line. This causes an induction, possibly resulting in malfunction or damage. In principal, the cable should be separately laid or shielded. 传感器导线和动力线或电力线装在同一配管中使用, 会受到干扰, 有误动作甚至被损坏。原则上传感器导线必须单独放置或者被屏蔽。

(3) For extending wires, whose cross section is greater than 0.3sqmm and the length less than 100m. 延长导线必须使用截面积0.3mm<sup>2</sup>以上、长度100m以下导线。

(4) Do not pull wire strongly. 导线请勿用力拉扯。  
(5) Excessive force (hitting by hammer, etc.) should not be put on the sensors because it may damage its water-resistance. 安装传感器时, 请勿使传感器受剧烈外力 (如用锤击打等), 这样就有可能破坏传感器防水保护性能。

3. Power supply 电源  
When using a commercially available switching regulator, be sure to ground the FG (Frame Ground) terminals.

使用市场上销售的开关整流器时, 请将FG (Frame Ground)端子接地。  
The sensors will begin sensing no later than 100ms after the power is turned on. If the load and the sensors connected to different power supply, the sensors must be always turned on first. 从接通电源到传感器可正常进行检出的时间是100ms后再使用。负载和传感器接不同电源时, 一定要先接通传感器的电源。

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