

Aotoro®

EB20

INSTRUCTION MANUAL 使用说明书

Mark sensor
色标传感器

A2302-13

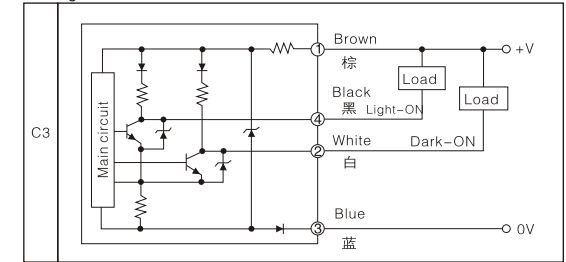
Specification 规格

Model型号	EB 20G-C3 EB 20G-C4	EB 20R-C3 EB 20R-C4
Setting distance 设定距离	12mm ± 2mm	
Response time 响应时间	0.2ms	
Emitter 发射光源	Green light LED 绿光源	Red light LED 红光源
Light spot 光点	1.5- 0.5mm	
Power supply 电源电压	10-30VDC	
Current consumption 静态电流	Max.30mA	
Control output 控制输出	Max.200mA	
Residual voltage 残留电压	Max. 1.5V	
Protection circuit 电路保护	Short-circuit protection, Reverse polarity protection 短路保护, 电源逆接保护	
Output status 输出状态	C3: NPN Light ON + Dark ON C4: Selectable Light ON or Dark ON by control wire 可用控制线选择	
Insulation resistance 绝缘	Min. 50MΩ (500VDC)	
Dielectric strength 耐电压	1500VAC 50/60HZ for 1 minute 1分钟	
Ambient illumination 使用环境照度	Sunlight 太阳光: Max. 10000lx, Incandescent lamp 日光灯: Max. 3000lx	
Operating temperature 使用环境温度	-25 to +70°C (non-freezing condition 不结冰)	
Ambient humidity 使用环境湿度	35 to 85% RH	
Protection 保护结构	IP65	
Material 材料	Case: ABS	

Control output diagram 控制输出图

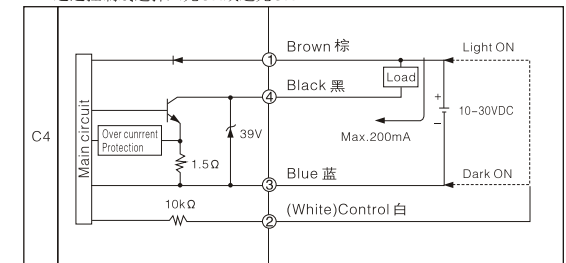
● DC 4-wire (四线型)

Light ON + Dark ON (入光ON + 遮光ON)



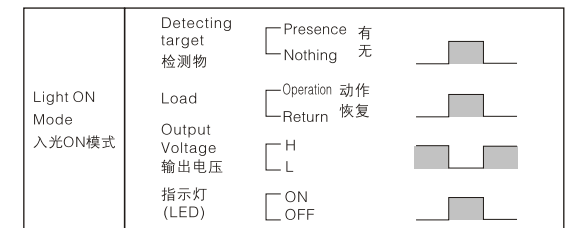
● DC 4-wire (四线型)

Selectable Light ON or Dark ON by control wire
通过控制线选择入光ON或遮光ON

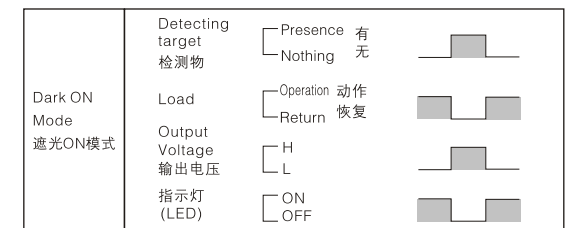


Operation mode 操作图解

● NPN output

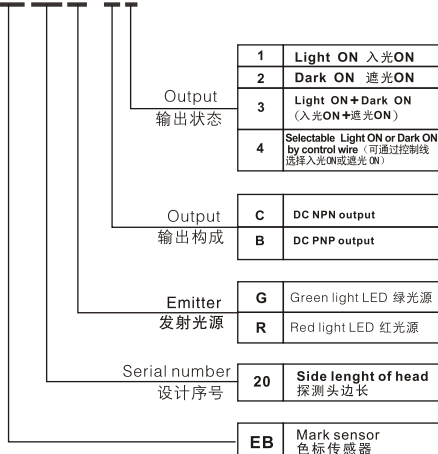


● NPN output

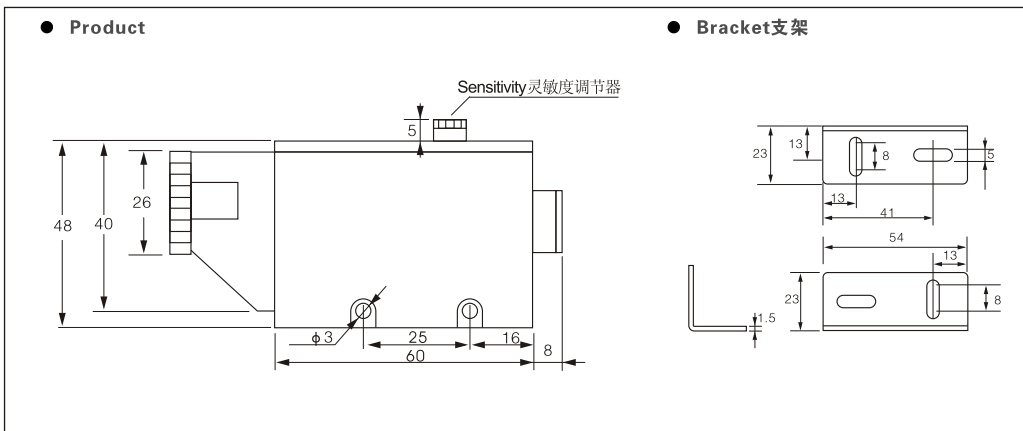


Ordering information 订购信息

EB20G-C3



Dimensions 尺寸(unit:mm)



Lamp-house selected 光源选择

Green Lamp-house 绿色光源

Black 黑	-	○	○	○	○	X	X	○	○
Silverness 银	○	-	○	X	X	○	○	○	X
Red 红	○	○	-	X	X	X	X	X	○
Orange 橙	○	X	X	-	X	○	○	X	○
Yellow 黄	○	X	X	X	-	○	○	X	X
Green 绿	X	○	X	○	○	-	X	X	○
Blue 蓝	X	○	X	○	○	X	-	X	○
Purple 紫	○	○	X	X	X	X	X	-	○
White 白	○	X	○	○	X	○	○	○	-
	Black	Silverness	Red	Orange	Yellow	Green	Blue	Purple	White

Background
背景

Mark标志 →

Red Lamp-house 红色光源

Black 黑	-	○	○	○	○	X	X	○	○
Silverness 银	○	-	X	X	X	○	○	X	X
Red 红	○	X	-	X	X	○	○	X	X
Orange 橙	○	X	X	-	X	○	○	X	X
Yellow 黄	○	X	X	X	-	○	○	X	X
Green 绿	X	○	○	○	○	-	○	○	○
Blue 蓝	X	○	○	○	○	X	-	○	○
Purple 紫	○	X	X	X	X	○	○	-	○
White 白	○	X	X	X	X	○	○	○	-
	Black	Silverness	Red	Orange	Yellow	Green	Blue	Purple	White

Background
背景

Mark标志 →

X: Detecting difficult 困难检出 ○: Detecting easy 容易检出

Installation and sensitivity adjustment 安装及感光度调节

fixing photoelectric switch well and switching on power, then carefully adjusting installation position so as to make the light-spot projected onto detected object more clear and brightened.

The detection sensitivity is related to detected object's surface circumstance such as diffuse reflection of detected object to light, contrast ratio between the color code of detected object and bottom color etc. provided the surface of detected object is mirror, and its detection effect is not very well, it is suggested that regulating gradient of sensor and detected surface.

固定好光电开关, 接通电源, 仔细调整安装位置, 使投射于被测物体面上光点最清晰, 最亮为止。

检测灵敏度与被测物体表面状况有关, 如被测物对光的漫反射能力, 被测物色标与底色的对比度等, 如果被测物面为镜面, 检测不理想, 可适当调整传感器和被测表面的倾斜度。

Regulation method 调整方法:

(if the mark color is deep color, the bottom color is light color) (假设标志颜色为深色, 背景颜色为浅色)

(1) moving detected object to fall the projecting point onto bottom color beyond mark, rotating sensitivity to "min" position in anticlockwise direction, then rotated clockwise slowly into indication lamp begin-brighten state, make sure that the position of sensitivity knob is at A point. (like diagram 1)

(1) 移动被测物使投光点落在标记之外的背景色, 灵敏度逆时针旋到 "min" 位置, 然后顺时针慢慢旋转到指示灯刚刚亮状态, 记住此时灵敏度旋钮位置在A点 (如图1)

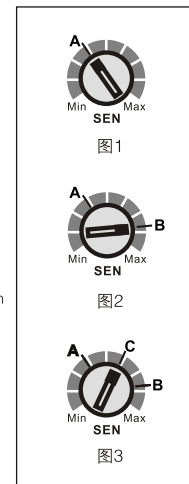
(2) moving detected object again to fall project-point onto center of mark, at this time, the indication lamp would be extinguished, then rotated clockwise slowly into brighten state of indication lamp, make sure that the position of sensitivity knob is at B point (like diagram 2). (if the indication lamp still is not brightened when rotated to "max" position, the "max" position is B point).

(2) 再移动被测物, 使投光点落在标记中央。此时指示灯应已熄灭, 然后以顺时针慢慢旋转到指示灯再次点亮, 记住此时灵敏度旋钮位置在B点 (如图2)。(若旋到 "max" 位置指示灯仍不亮, 则 "max" 位置即为B点)。

(3) Then regulating knob onto C position between A and B point (like diagram 3).

The bigger is distance from A to B point, the larger is color aberration, the more stable is detection.

(3) 然后将旋钮调在A,B的中间C位置即可 (如图3)。A,B两点距离越大, 说明色差比效大, 检测越稳定。



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

以下项目在安全确保方面非常重要, 请务必遵守。

- Do not use the sensor under the environment with explosive or ignition gas. 请不要在具有可燃性、爆炸性气体的环境下使用。
- Never disassemble, repair nor tamper with the product. 请勿拆卸、修理、改造本产品。
- Keep the supply voltage within the specified range. 电源电压必须在额定值内。
- Do not connect the load with big inrush current is over than the maximum rated inrush current. 请使用额定值以下的负荷。

Caution for using 正确使用方法

1. Do not use the product under the following conditions.

请不要在以下的环境中使用。

- In the place exposed to the direct sunlight. 日光直射场所。
- In the place where humidity is high and condensation may occur. 湿度高或易结露场所。
- In the place where corrosive gas exists. 含腐蚀性气体场所。
- 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。

2. Connection and Mounting 连接和安装

- Be sure that before making supply 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。
- There are some cases where the photoelectric switch 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。

- For extending wires, use a cable 0.3mm² min. and 100m max. In length. 延长导线必须使用截面积0.3mm²以上、长度100m以下导线。
- Do not pull wire strongly. 导线请勿用力拉扯。
- Excessive force (hitting by hammer, etc.) Should not be put on the photoelectric switch because it may damage its water-resistance characteristic. 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。

- Power supply reset time 电源重新调整时间
The photoelectric switch will begin sensing no later than 100ms after the power is turned on. If the load and the photoelectric switch connected to different power supply, the photoelectric switch 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。
- Turning off the power supply 电源关闭
When turning off the power, output pulse may be generated. We recommend turning off the power supply of the load or load line first. 电源关闭时, 可能会出现输出脉冲, 所以我们建议先关闭负载或负载线的电源。

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