INSTRUCTION MANUAL PHOTOELECTRIC SWITCH

Diffuse, reflection, sender-receiver and slot type.

The infrared photoelectric switch made by our factory is an upgrade and a new generation project. It is manufactured on the basis of absorbing foreign advanced technology, following an upgrade and finally a new product is manufactured.

The photoelectric switch operation is based on checking whether there is an object or not, by using the interruption and deflection of modulated infrared beam caused by the checking object and strobe by clocking loop, and then produces the purpose of switch. Besides metal, the photoelectric switch can detect other objects, it can directly replace the same product at home and abroad, and widely be used in automatic fields, such as tobacco, machine, textile, mining, paper, steel and safety insurance, etc.

Major four types of photoelectric switch exist and we they will be indicated by:

A. For diffuse reflection type (scattered reflection).
B. For feedback reflection type (mirror surface reflection form).
C. For correlation type (sender-receiver).
E. For slot type (ditch form).

1. Diffuse reflection type indicated by A. When the reflection photoelectric transducer’s launching beam approach an object, the object produces diffuse reflection. The sender and receiver will form individual standardized component. When there is enough “assembled light” returning to receiver, the transducer state will change. The typical value of operating distance comes to 2m. See Figure I. The precision potentiometer can be used to adjust the operating distance. The operating distance will be enlarged if adjusts potentiometer at clockwise, and it will be diminished if adjusts potentiometer at anti-clockwise. But it can be in the critical state for feat producing badly operation.

2. Feedback reflection type indicated by B: feedback photoelectric transducer is standardized component; it consists of a sender and receiver. The beam form sender is reflected at the opposite reflecting mirror, i. e. returns to receiver. The throughput time of light is twice over the retention time of signal. The typical effective action distance is 0.1m~0.5m away from person. When the beam is broken, a switch change will be produced. See Figure II.

3. Correlation type indicated by C: The correlation form photoelectric transducer consists of sender and receiver that is separated each other on structure. The typical form is that of the transducer located on the same shaft line, when the beam is broken, a switch change will be produced. See Figure III.

4. Slot type (“U” Shape) indicated by E: It is used in Flag detection, dark and light, girdle, notch and knot sensing. Setting sensitivity adjusting, adjusting multi run potentiometer at clockwise. It is also suitable for detecting the thicker object adjuster distance driving, and for detecting transparent, littleness and aberration objects.
Important notice:
Upon AC two-wire system correlation type, it is necessary to make a clear distinction between sender and receiver first, and then connect. Check again to make sure that there is no mistake between receiver and load in series before starting up machine to protect the receiver from burning.
Upon AC two wire system diffuse reflection type, it has to be connected with load first, and then with the power supply. Check again to make sure that there is no mistake before starting up the machine, in order to avoid unnecessary problems.

Function working ambient light illumination and correct directions of photoelectric switch.

1. The surface color (reflectivity) and size of detection object affect the detection distance and working area of transducer. When using reflection photoelectric transducer, the surface color and size of detection object greatly affect the effect of detection distance and Action area.
2. Size of detection object and detection distance: Detect littleness object according to Figure IV. The detection distance should be a little poorer than the bigger one.
3. Surface color and detection distance of detection object. If surface and reflectivity of detection object is much bigger, the detection distance can be much longer according to Figure V.
4. Setting mode of transducer when detecting sagging and grading. The slot type photoelectric switch is most suitable for detecting sagging and grading, see figure VI.
5. The relation between the smallest detection and lens diameter. The size of the smallest detection object is decided by lens diameter when using the permeating photoelectric transducer, see Figure VII.
6. Working ambient light illumination, the influencing degree of flight receiver will be changed, and the basic reference will be ambiguous at illuminating value of B and D in accordance with the setting distance D and white paper reflectivity, see Figure VIII.
Methods of preventing mutual interference and points for attention.

When the photoelectric transducer is close to device, if there is an unstable action caused when the light of another one incidence, that is called mutual interference. The following method can get rid of it.

1. Projector and light receiver is mutually mounted at crosswise.
2. When the reflect form being used is parallel, the mutual interval should keep the setting distance being above 1.4 times of detection distance.
3. When the correlation form being used in parallel, the mutual interval should keep the setting distance being above 0.4 times of detection distance.

If wiring the high voltage, power line and wiring of photoelectric transducer at the same pipe arrangement of wire chase, it will cause badly operation or damage when induction exists. It should be separately wired or should use individual wiring chase in the principle.

The DC type should use DC power supply and use insulated transformer. Please do not use autotransformer, and the lead wire length of the switch should be in 100m for fear voltage drop being too large.

The using supply voltage should be in the range of supply voltage. The folowing installation cases will result in error action, take note of.
1. There is a lot of Dust in the environment.
2. Corrosive gas in the environment.
3. The occasion directly spattered with water, oil and other agents, etc.
4. Outdoor installation or the sensor is directly shone by bard light like sunlight.

**Diagram for connection mode.**
## Available Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Type</th>
<th>Testing distance</th>
<th>Operation voltage</th>
<th>Output type</th>
<th>Body</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>G502A30JC</td>
<td>Diffuse</td>
<td>30cm</td>
<td>90-240VAC</td>
<td>Relay NO+NC</td>
<td>Blue plastic box</td>
<td>Mounting base included</td>
</tr>
<tr>
<td>G503A30NC</td>
<td>Diffuse</td>
<td>30cm</td>
<td>10-30 VDC</td>
<td>NPN NO+NC</td>
<td>Blue plastic box</td>
<td>Mounting base included</td>
</tr>
<tr>
<td>G503A30PC</td>
<td>Diffuse</td>
<td>30cm</td>
<td>10-30 VDC</td>
<td>PNP NO+NC</td>
<td>Blue plastic box</td>
<td>Mounting base included</td>
</tr>
<tr>
<td>G502B4JC</td>
<td>Reflective</td>
<td>4m</td>
<td>90-240VAC</td>
<td>Relay NO+NC</td>
<td>Blue plastic box</td>
<td>Mounting base and reflecting mirror included</td>
</tr>
<tr>
<td>G503B4NC</td>
<td>Reflective</td>
<td>4m</td>
<td>10-30 VDC</td>
<td>NPN NO+NC</td>
<td>Blue plastic box</td>
<td>Mounting base and reflecting mirror included</td>
</tr>
<tr>
<td>G503B4PC</td>
<td>Reflective</td>
<td>4m</td>
<td>10-30 VDC</td>
<td>PNP NO+NC</td>
<td>Blue plastic box</td>
<td>Mounting base and reflecting mirror included</td>
</tr>
<tr>
<td>G502C5JC</td>
<td>Emitter</td>
<td>5m</td>
<td>90-240VAC</td>
<td>Relay NO+NC</td>
<td>Blue plastic box (2)</td>
<td>Mounting base included (2)</td>
</tr>
<tr>
<td>G503C5NC</td>
<td>Emitter</td>
<td>5m</td>
<td>10-30 VDC</td>
<td>NPN NO+NC</td>
<td>Blue plastic box (2)</td>
<td>Mounting base included (2)</td>
</tr>
<tr>
<td>G503C5PC</td>
<td>Emitter</td>
<td>5m</td>
<td>10-30 VDC</td>
<td>PNP NO+NC</td>
<td>Blue plastic box (2)</td>
<td>Mounting base included (2)</td>
</tr>
<tr>
<td>G633E03NC</td>
<td>Emitter</td>
<td>3 cm</td>
<td>10-30 VDC</td>
<td>NPN NO+NC</td>
<td>“U” Shape</td>
<td>Metallic Body</td>
</tr>
<tr>
<td>G633E03PC</td>
<td>Emitter</td>
<td>3 cm</td>
<td>10-30 VDC</td>
<td>PNP NO+NC</td>
<td>“U” Shape</td>
<td>Metallic Body</td>
</tr>
</tbody>
</table>