

**SRAY - A**

**ACTIVE INFRARED BEAM BARRIER FOR THE PROTECTION OF PERIMETERS OF DOORS AND WINDOWS**

**Description**

SRAY - A is an infrared barrier particularly suitable for the protection of the external boundaries of doors and windows. Thanks to its compact dimensions it can perfectly be integrated inside the frames or inside the mural structure of the door. The installation of the system is very easy and a LED diode tracking system permits the alignment and the testing of the barrier before connecting it to the alarm unit.

The SRAY is produced in 4 different models, which differ in length and number of rays, as illustrated on the following picture:



|  |  |  |   |
|--|--|--|---|
| <p><b>SRAY-A K8N</b></p> <ul style="list-style-type: none"> <li>• Length 197 cm</li> <li>• N°8 rays</li> </ul> | <p><b>SRAY-A K6N</b></p> <ul style="list-style-type: none"> <li>• Length 152 cm</li> <li>• N°6 rays</li> </ul> | <p><b>SRAY-A K4N</b></p> <ul style="list-style-type: none"> <li>• Length 107 cm</li> <li>• N°4 rays</li> </ul> | <p><b>SRAY-A K2N</b></p> <ul style="list-style-type: none"> <li>• Length 62 cm</li> <li>• N°2 rays</li> </ul> |
|--|--|--|---|

The generation of the alarm is entrusted to a micro processor which controls the received signals, elaborates them and controls a relay with low resistance of contact.

With the dip 1 of the dip switch it is possible to activate the AND function. This function informs the barrier that the alarm must be given only if two contiguous rays are interrupted at the same time. The activation of the function AND allows to avoid that animals of small dimensions, which obscure one single beam, can immediately release the alarm.

The modification of the timing of the alarm (temporisation), that consists in delaying the activation of it, is also scheduled (dip nr.2).

**Warnings for installation and use**

- No permanent object must obstruct the passage of the infrared beams during the normal working.
- Transmitter and receiver must have the same orientation; the cables must exit both from the upper part or both from the lower part (see picture 1 on the side).
- In cases in which more barriers are installed within the same range of action (8-10 mt.) it is necessary to avoid reciprocal interferences which would compromise the good working of the system. Please follow the configurations indicated on table 1, **avoiding that the next placed receivers pick up the signal of other transmitters.** In the case where it is not possible, use different codification of the rays in next couples (see table 2).
- Choose, where it is possible, the orientation which allows the receiver to be the less lighted by the sun during the day (see table 1). Warning: seen the high degree of protection, IP 54, strong variations of temperature can cause an effect of condensation.

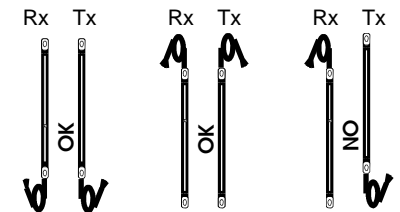


Figure 1 : Barrier positioning

**Table 1: Installation of couples of barriers within 8- 10 meters of range**

|                            |  |  |  |
|----------------------------|--|--|--|
| Correct installation       |  |  |  |
| Non- correct installations |  |  |  |

**Selection of the codification of the rays**

If you can not respect the conditions of the table 1, you have to try to attempt that the pairs of contiguous photocells have a different type of decodification. This, to avoid their interferment with each other.

**IMPORTANT: The configuration of the dip switch for the selection of the codification of the rays of the transmitter and of his receiver must correspond to each other.**

| Selection of the codification of the rays |       |       |           |
|---|-------|-------|-----------|
| DIP 1                                     | DIP 2 | DIP 3 | CODIFYING |
| OFF                                       | OFF   | OFF   | Code 1    |
| OFF                                       | OFF   | ON    | Code 2    |
| OFF                                       | ON    | OFF   | Code 3    |
| OFF                                       | ON    | ON    | Code 4    |
| ON  | OFF   | OFF   | Code 5    |
| ON  | OFF   | ON    | Code 6    |
| ON  | ON    | OFF   | Code 7    |
| ON  | ON    | ON    | Code 8    |

**Table 2:** Selection of the codification of the rays

## Installation and controls

- To connect the S-ray barriers use a standard 4 or 6 pole shielded cable easily purchasable in any shop.
- Remove the clip-on covers by levering off with a screwdriver at the end of the barriers (see figure alongside)
- Remove the TX and RX caps at the ends where the coloured stamp is located, carefully grip the electronic board and allow this to slide out of the case enabling you to arrive to the connection terminals.
- The transmitter and receiver barriers differ from each other through the number of the poles. 4 for the receiver (RX) and 2 for the transmitter (TX) .
- Connect the cables as shown in the figures below and replace the caps at the ends again. For a perfect water-spray sealing we recommend you to use silicone as a sealant before closing the external cap.
- Install now the S-RAY barriers placing the receiver against the transmitter and keeping them well aligned paying attention to the previously described installation recommendations on page 1.
- Mark the wall by using the centre of the slot for the retention screws ( see fig. 2 ) and than drill with a 5 mm bit.
- Fit the barriers using the screws and screw anchors provided ( see fig. 2 ) remembering that the barrier must be able to slide freely within the slots of retention caps so as to cater the expansion due to different outside temperatures.
- Fit the final caps.
- Give to the TX and RX 12 Vac or 12Vdc power supply. The power supply can be out of one single source or two different sources.

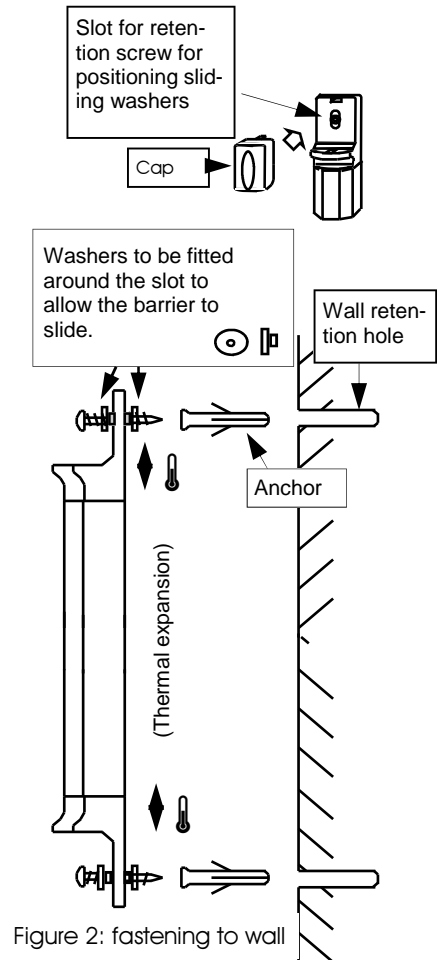
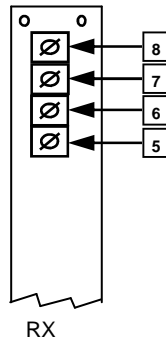


Figure 2: fastening to wall

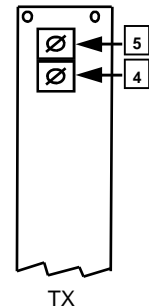
## Electrical connections

| Terminal board<br>RECEIVER – RX |   |
|---------------------------------|---|
| 8                               | Power supply 12 Vac/ 12 Vdc                 |
| 7                               | Power supply 12 Vac/ 12 Vdc                 |
| 6                               | Relay output<br>( open if allarm activated) |
| 5                               | Common relay                                |



Connections RX

| Terminal board<br>TRANSMITTER - TX |                             |
|------------------------------------|-----------------------------|
| 5                                  | Power supply 12 Vac/ 12 Vdc |
| 4                                  | Power supply 12 Vac/ 12 Vdc |



Connections TX

## Alignment of the barrier.

IN BOTH CASES THE ALIGNMENT IS ASSURED ONLY THE MODE OF THE LED CHANGES

- Dip 4 of the receiver at OFF: Checks the alignment of the barriers by power supply. If aligned the LED gets on and the barrier switches after 5 seconds to the synchronisation mode. Once synchronised the LED automatically will turn off.
- Dip 4 of the receiver at ON: Checks the alignment of the barriers by power supply. If aligned the LED gets off and the barrier switches after 5 seconds to synchronisation mode. Once synchronised the LED automatically will turn on.

In case the barriers are not aligned these remain in alignment mode. Once they are aligned they automatically switch to the synchronisation mode. Depending on the position of dip switch 4 the LED turns off or on to signal the alignment and after 5 seconds automatically switch to the synchronisation mode.

## Configuration

### Transmitter

| N°DIP | Function  |
|-------|---|
| 1     | Selection of decodifying of the rays            |
| 2     |   |
| 3     |   |
| 4     | Selection of the level of the range of the rays |
| 5     |   |
| 6     |   |



### Receiver

| N°DIP | Function  |
|-------|---|
| 1     | Selection of decodifying of the rays            |
| 2     |   |
| 3     |   |
| 4     | LED Alignment/ Synchronisation                  |
| 5     | Temporisation ( delay in activating the alarm ) |
| 6     | AND   |

### A. Transmitter

#### Description of the functions

- Selecting of the level of the range of the rays: Through the dips no 4,5 and 6 it is possible to select the level of the range of the rays. Depending on the distance between the transmitter and receiver please select an adequate level using the figure below.

**Attention: The selection of a level higher than the real needed level decrease the sensitivity of the barrier.**

| Selection of the level of the range of the rays |       |       |            |
|---|-------|-------|------------|
| DIP 4   | DIP 5 | DIP 6 | RANGE      |
| OFF   | OFF   | OFF   | DO NOT USE |
| OFF   | OFF   | ON    | level 1    |
| OFF   | ON    | OFF   | level 2    |
| OFF   | ON    | ON    | level 3    |
| ON  | OFF   | OFF   | level 4    |
| ON  | OFF   | ON    | level 5    |
| ON  | ON    | OFF   | level 6    |
| ON  | ON    | ON    | level 7    |

**Table 3:** Selection of the level of the range of the rays

### B. Receiver

1. AND : the activation of the AND function is effected positioning the dip 6 on ON. This function informs the barrier that the alarm must be given only if two contiguous rays are interrupted at the same time. This allows to avoid that animals of small size, which obscure one single ray make the alarm trip.

2. Timing: this barrier can work with 4 levels of sensitivity:

- The interruption of one single ray activates the alarm immediately. Dip 5 and 6 on OFF (sensitivity at maximum level).
- The interruption of a single ray for a time lower than 30 seconds puts the barrier in pre-alarm : if, after the reactivation of the ray, no other ray is interrupted for 30 seconds, the barrier goes out to the pre-alarm and comes back to work normally. If any ray is interrupted during the phase of pre-alarm the barrier gives the alarm. If, during the normal functioning, one ray is obscured for more than 30 seconds, the barrier gives the alarm. DIP 6 on OFF e DIP 7 on ON
- The interruption of two rays at the same time activates immediately the alarm. Dip 6 on ON and DIP 5 on OFF.
- The interruption at the same time of two rays activates the alarm with a timing of 0,5 sec. Dip 6 and 5 on ON (sensitivity at minimum level).

| Technical characteristics  |   |                  |                  |                  |
|----------------------------|---|------------------|------------------|------------------|
|                            | SRAY-A K2n  | SRAY-A K4n       | SRAY-A K6n       | SRAY-A K8n       |
| Power voltage              | 12Vac +/- 30% (8.5...15.5Vac), 12Vdc +/-25% (9...15Vdc)   |                  |                  |                  |
| Maximum consumption 8 rays | 12Vac: TX 210mA RX 80mA / 12Vdc TX 120mA RX40mA           |                  |                  |                  |
| Maximum working distance   | 8 to 10 meters  |                  |                  |                  |
| Operating temperature      | -20 °C to +80°C with relative humidity between 0 and 90 % |                  |                  |                  |
| Protection degree          | IP 54   |                  |                  |                  |
| Alarm contact              | Relay   |                  |                  |                  |
| Contact resistance         | 1 ohm (MAX)   |                  |                  |                  |
| Dimensions                 | 63 x 2,2 x 2 cm   | 108 x 2,2 x 2 cm | 153 x 2,2 x 2 cm | 198 x 2,2 x 2 cm |

**GUARANTEE** - In compliance with legislation, the manufacturer's guarantee is valid from the date stamped on the product and is restricted to the repair or free replacement of the parts accepted by the manufacturer as being defective due to poor quality materials or manufacturing defects. The guarantee does not cover damage or defects caused by external agents, faulty maintenance, overloading, natural wear and tear, choice of incorrect product, assembly errors, or any other cause not imputable to the manufacturer. Products that have been misused will not be guaranteed or repaired.

Printed specifications are only indicative. The manufacturer does not accept any responsibility for range reductions or malfunctions caused by environmental interference. The manufacturer's responsibility for damage caused to persons resulting from accidents of any nature caused by our defective products, are only those responsibilities that come under Italian law.