



PRODUCT

# SANDOR

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Product code SANDOR QUAD ESA SMA

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# SANDOR QUAD - ESA SMA



**DOUBLE OPTIC PERIMETER BARRIER**

INSTALLATION AND MOUNTING MANUAL VERSION 3.1

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## 1. Introduction

Congratulations on having purchased the Politec perimeter barrier. This appliance guarantees long-lasting and reliable operation if installed correctly. For correct and effective use, it is necessary to read this instruction manual carefully.



The system has been designed to detect intrusions and activate the alarm; it is not a device that prevents intrusion. Politec is not responsible for damage, injury or loss caused by accidents, theft, force majeure (including momentary lightning-induced overcurrent), abuse, improper or incorrect use, faulty installation or inadequate maintenance.

## 2. Product description

The double optic infrared perimeter barrier consists of an infrared receiver and transmitter. Operation is based on "AND" logical operations: in other words, the alarm is activated only in the event of simultaneous interruption of two superimposed beams.

**N.B.: These barriers use optical synchronism. The receiver must see ONLY and exclusively its transmitter. MUST NOT see signals from other barriers, IR lights such as photocells or flashing lights. It is not recommended for use in indoor applications where there are many reflections and light sources**

This barrier is ideal for perimeter protection of internal and external areas.

It is equipped with a system for selecting the operating frequency that allows you to install multiple barriers on the same site without them interfering with each other. The main features of this barrier are:

- Adjustable intervention time which allows you to adapt to the characteristics of the site to be protected;
- Protection beam angle adjustment both vertically and horizontally;
- Set-up for mounting on a wall, on a pole and on aluminium columns;
- Optical alignment with viewfinder and signal measurement points;
- Contact signalling barrier opening.

### Warnings



Mounting, installation of the barrier and connection to the mains must be carried out by expert and qualified personnel, in compliance with rules and regulations applicable to electrical systems.

### 3.General warnings

This installation manual contains important information regarding safety for installation: it is necessary to read all the instructions before proceeding with the installation.

**Keep this manual for future use.**

- If you have any questions or doubts during installation, do not carry out any operations and contact the support service.
- Use of these products for purposes other than those specified in these instructions is prohibited.
- You must not make any changes to the components of the product unless stated in the manual in order not to void the warranty; such operations can only lead to malfunctions; Politec assumes no liability for malfunctions or damage due to modified products.
- Depending on the specific situation of use, check for the need for additional devices: detectors or signalling devices.
- During installation, mounting and use of the product, make sure no foreign objects (solids, metals or liquids) are able to penetrate inside the open devices.
- Manufacturer's liability:Politec assumes no liability for failures resulting from incorrect installation; lack of maintenance, incorrect assembly or use.
- Politec is also not liable for incorrect or incomplete operation of the product or failure to detect intrusion.
- Warranty (summary of conditions):Politec guarantees its products for a period of 2 years from the production date.The warranty is applied to those purchasing directly from Politec; there is no warranty for the end user who, in the event of breakdowns or faults, must contact the installer or dealer.
- The warranty excludes aesthetic parts as well as parts subject to normal wear and parts subject to normal consumption such as batteries and accumulators.

#### 3.1 Additional warnings for devices powered by mains voltage

This manual is intended only for technical personnel qualified to install such devices.

- Assessing the hazards that may occur during installation and use of the system, in order to achieve complete safety, it is necessary that installation takes place in full compliance with applicable laws, methods, rules and regulations.
- Before accessing the internal terminals of the product, it is necessary to disconnect all the power circuits.
- If automatic circuit breakers or fuses trip, before resetting them it is necessary to identify the fault and repair it.

#### 3.2 Installation warnings

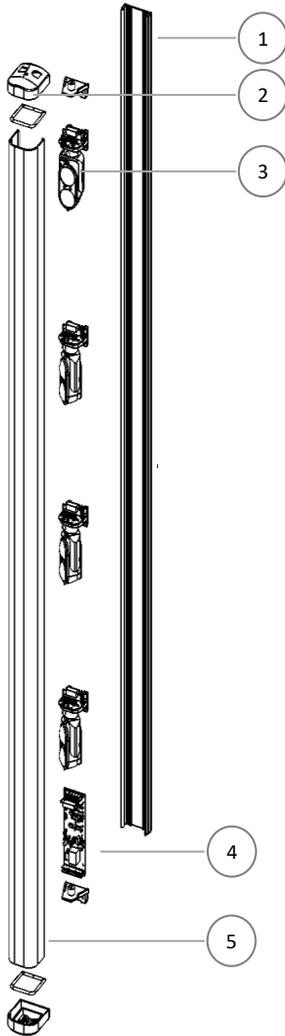
- Check that all the material to be used is in excellent condition and suitable for use.
- Before proceeding with the installation, check the environmental class of the products in the "technical specifications" chapter.
- Check, by comparing with the values shown in the paragraph "technical specifications", that the range of the devices is equal to or lower than the physical distance between the barriers.
- Check that the barrier is positioned in areas protected against potential impact, in flat areas and on fixed supports to avoid oscillations.
- Do not place the system components close to heat sources as they could be damaged.
- Each barrier has its own operating principle: check the instructions for choosing the right position in the respective instruction manual.



#### 4. List of main components

The package contains the following components and accessories.

**When opening the package, check that everything has been included.**



No.	COMPONENT
1	Aluminium profile
2	Caps
3	Transmitter\Receiver optics
4	QUAD B RX / TX motherboard
5	Black polycarbonate cover

## 5. Preparation for installation

### 5.1 Preparation of the barrier parts before installation

Since the communication between the barriers can take place wired, via wireless and their alignment can be done optically, it is advisable to firstly check all the component parts of the barriers and any accessories before beginning the installation.

### 5.2 It is advisable to carry out:

- device configuration on a table;
- a check on the operation of the optical and acoustic alignment
- the permanent fixing of each device;
- the preparation and carrying out of electrical connections.

In order to avoid errors, operating and installation problems, it is advisable to proceed as follows:

- a) Place all the products with the package open on a table;
- b) For the low consumption barrier version for wireless models with universal circuit board housing, insert and connect the radio transmitter, and connect it to the barrier receiver board
- c) Power up the barriers and program them
- d) Test barrier operation;
- e) Place (without fixing) the barriers at the planned points;
- f) Place (without fixing) all the other devices at the planned points;
- g) Check for each barrier that there is sufficient field for radio communication (for wireless versions);
- h) Permanently fix the barriers.

Before proceeding with the installation, it is necessary to check the integrity of the product, the adequacy of the model chosen and the suitability of the environment intended for installation:

- Check that all conditions of use fall within the "limits of use" and in the "Technical specifications of the product".
- Check that the environment chosen for the installation is compatible with the total footprint of the product.
- Check that the surface chosen for the installation of the product is sturdy so as to ensure stable fixing and that it is adequately protected against possible impacts or the elements.



## 6.Examples of mounting/fixing

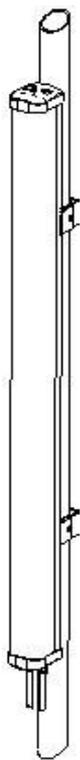
### 6.1 Placement and installation height

Position the barrier considering the type of surrounding environment and the protection distance for correct and effective operation.

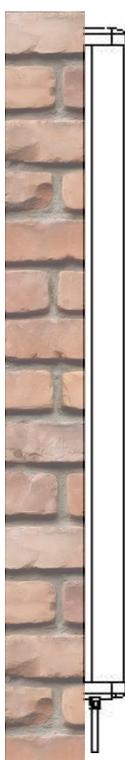
Position it in such a way that there are no obstacles in its range of action (trees/plants or objects that can swing or move with the wind or rain).

Position the barrier so that sunlight does not hit it directly near the RX sensors.

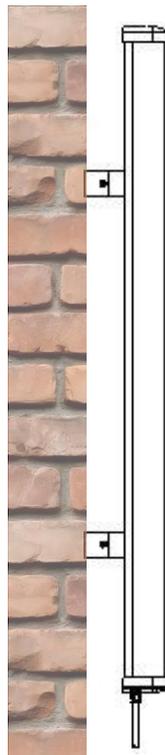
In any case, it is necessary to take into consideration the specific beam diffusion of each model, to avoid reflection of the beams caused by the ground or by adjacent objects.



**Pole mounting  
with SAN/PL  
brackets**



**Wall mounting with  
SAN/SD brackets**



**Wall mounting with  
SAN/PL pole brackets  
(recommended for  
protection of sections  
along the wall)**

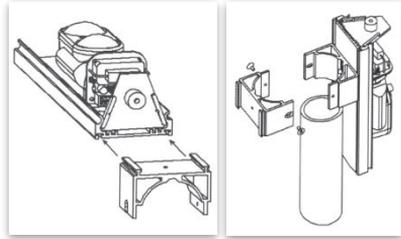
## 6.2 Placement and mounting

It is strongly recommended to always request and use the accessory brackets for fixing the columns, avoiding to make holes in the aluminium structure.

### Pole mounting with SAN/PL

SAN/PL brackets allow fixing on poles type SAN/TB1 and SAN/TB2 with a diameter of 48 - 50mm in a very simple way as seen in the figure.

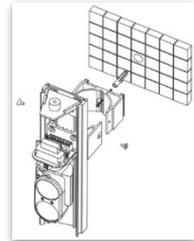
- Each column requires a minimum of 2 brackets or more if the column is very tall.
- The poles are equipped with a base for fixing to the floor or to the POB30 cable pit to be cemented into the ground, also with the function of branch junction box.
- The connection cables enter from the lower cover of the column, equipped with O rings and cable glands.



### Wall mounting with SAN/PL

The SAN/PL brackets also allow fixing to the wall, in a very simple way as seen in the figure.

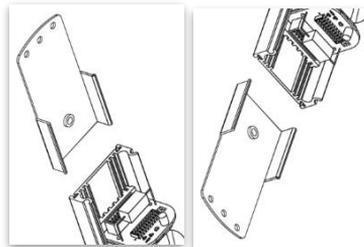
- It is recommended to use these, when protecting windows, doors, etc., along the wall, in order to avoid small obstacles, such as hinges, edges of the windowsills, which could be in the beams creating an attenuation of the signal.
- Each column requires a minimum of 2 brackets or more if the column is very tall.



### Wall mounting with SAN/SD

The SAN/SD brackets supplied in a kit of 2 pieces allow wall mounting and are invisible, as seen in the figure.

- These brackets are recommended when the columns are placed in front of each other or the internal optics are rotated to less than 90° horizontally.
- Each column requires a kit consisting of two brackets, which are fixed to the ends of the column, leaving only the holes for wall fixing visible.
- Once all the installation and functional operations have been completed, the two covers will hide the part with the fixing holes.



### **WARNING:**

**Product warranty is invalid if there is any hole in the aluminium profile or any component**

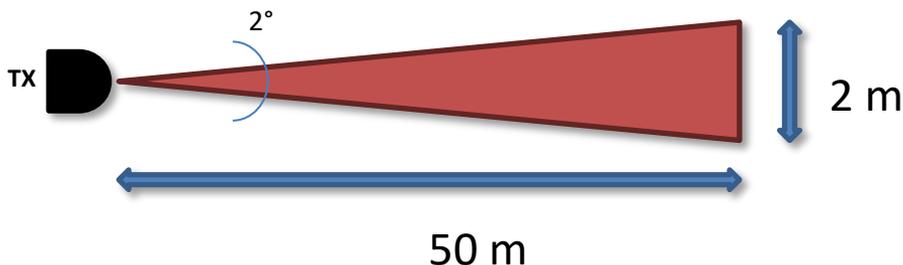
## 7. Evaluations before installation

### 7.1 Introduction to barriers

The Active Infrared Barrier is characterised by two components, a TX transmitter that emits a pulsed infrared signal towards the RX receiver. This signal is constantly controlled by a **CODED SYNCHRONISM** which can be **WIRED or OPTICAL** according to the different types of barriers.

The transmitted infrared beam takes on a conical shape: the greater the distance between TX and RX, the greater the diameter of the cone when it arrives.

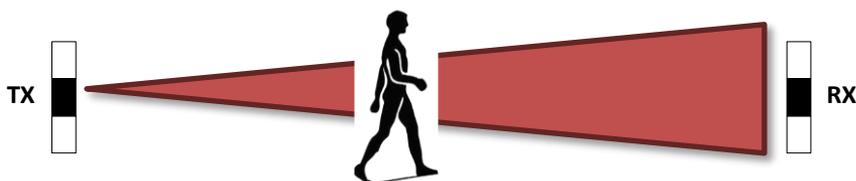
View from above



### Signal interruption:ALARM

A barrier can be composed of several TX transmitters and RX receivers mounted inside specific different columns.

The infrared barriers have multiple controls that significantly limit false alarms, as the genuine alarm signal is given by the complete interruption of the infrared signal.



### POWER SUPPLY

The barriers can be divided into two categories, powered at low voltage and connected by wire, or powered by batteries for Wireless systems, then combined with radio transmitters to communicate with the alarm control unit, as required by specific sector regulations.

### HEATERS

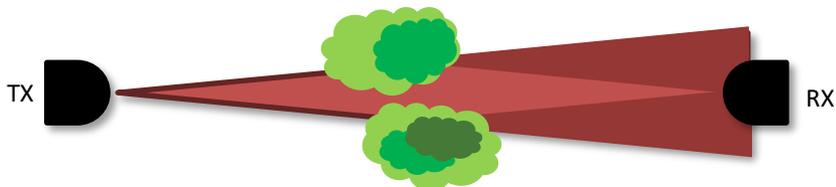
It is recommended to power the thermostating system as, in conditions of high humidity, the condensation that is created on the screen can lead to a significant decrease in the IR signal up to the alarm. For obvious reasons, for battery powered barriers, there is no thermostat control even if set up, therefore to minimise the problem, it is necessary to reduce the working distance between TX and RX, thereby ensuring a good amount of signal constantly, even in case of particular climatic conditions.

## 8. Barrier positioning

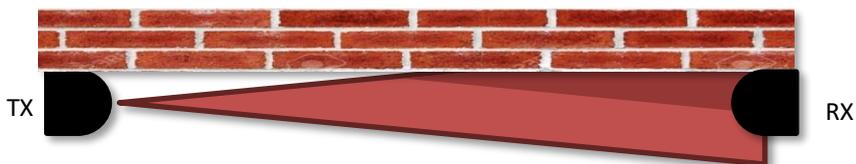
### 8.1 Precautions before installation

In order to avoid false alarms, it is advisable to place the barriers away from reflecting surfaces, away from walls or anything that can attenuate the signal.

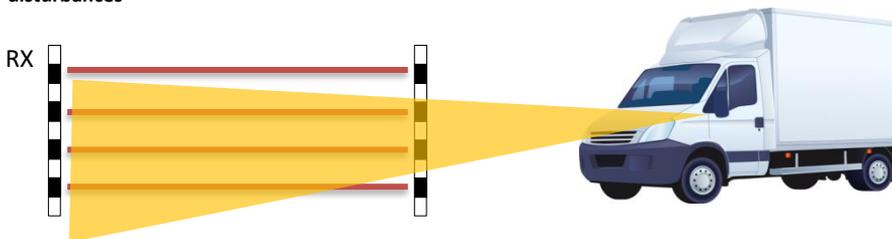
**DO NOT** place the barriers if there are plants, bushes or fixed objects in the range that obstruct the signal and create "grey areas". Leave a corridor of 50cm for distances between columns greater than 50m



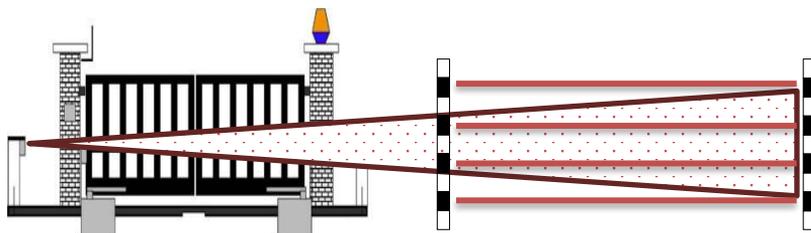
**DO NOT** place the barriers close to walls, without spacing the columns with adequate brackets, as the signal quality may decrease



**DO NOT** place barriers close to roads: vehicle lights directed towards the RX could create disturbances



**DO NOT** place barriers near automatic gates: photocell signals can create interference.



## 9. Installation examples

### 9.1 Barrier positioning

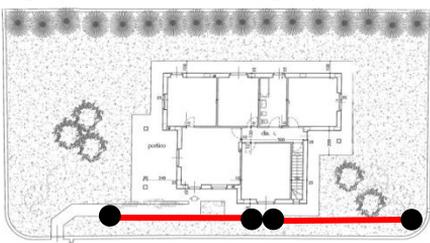
In addition to standard products, all Politec products can be customised according to the installation needs including height of the columns, number of beams inside and the different ways they are arranged.

This barrier, always composed of a TX column and an RX column, lends itself well to single barrier systems and for the protection of facades, as well as in the open field, observing the necessary precautions, given by their characteristics (e.g. optical synchronism, power supply and working distances).

To avoid interference between barriers, position the columns so that each receiver only sees its transmitter.

**N.B.:** Use this layout also for barriers on facades on surfaces at different heights

Arrangement of barriers according to protection needs.



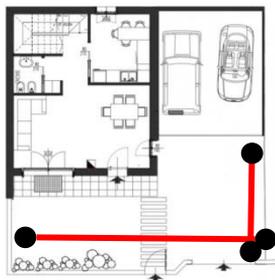
Contiguous single barrier system



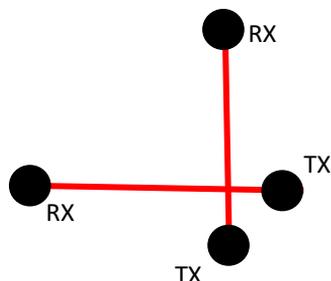
Single barrier system



Superimposed single barrier systems



Crossed single barrier systems



## 10. Wiring

### 10.1 Type of cable

Wiring requires you to **SEPARATE** the **SHIELDED** cable of the 12Vdc power supply plus all the signals to the control unit (e.g.2x0.50 + Nx0.22), from the power cable of the 24Vac heaters (e.g.2x0.75) to prevent the input of alternating voltage disturbances on the barrier.

**N.B. it is absolutely necessary to shield the cable that supplies the 12 Vdc power supply and to ground the metal braid.**



The sizing of the cables depends on the consumption of the columns and on the resistance of the cable itself according to the distances involved.

The table shows the cable cross-sections and the relative distances to ensure optimum performance using the LAR22 power supply (12Vdc-2.5A/24Vac-300W) and a SANDOR QUAD ESA SMA column (4TX or 4RX).

CONDUCTOR CROSS-SECTION	POWER SUPPLY BOARDS 12Vdc	POWER SUPPLY HEATERS 24Vac
0.5 mm <sup>2</sup>	165 m	50 m
0.75 mm <sup>2</sup>	245 m	75 m
1.5 mm <sup>2</sup>	490 m	125 m
2.5 mm <sup>2</sup>	820 m	200 m
4 mm <sup>2</sup>	1310 m	300 m
6 mm <sup>2</sup>	1975 m	450 m

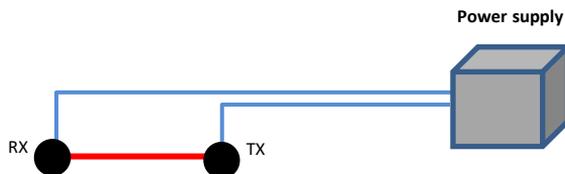
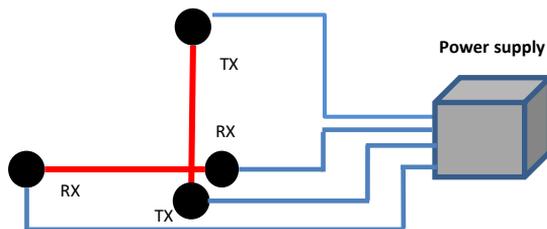
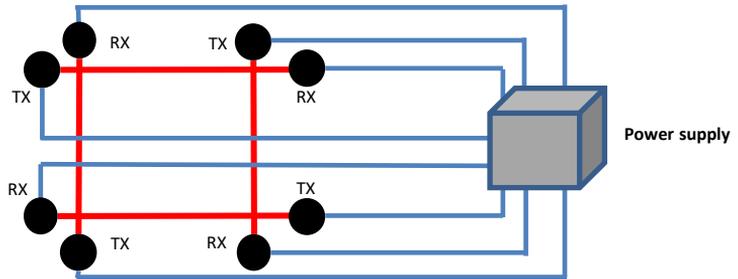
The LAR22 can power up to 4 barriers at the maximum extension (6TX + 6RX).The LAR22 container is metallic, so it must be placed inside a room or put in a watertight container if used outdoors.A battery up to 18Ah can be housed in the container.

Alternatively, the LAR18 power supply (12Vdc-0.9A / 24Vac-60W) can be used to power a single barrier (maximum configuration 4TX +4RX).The power supply is kept in a PVC container and can offer IP68 protection if the junction boxes are made with suitable products available on the market.The LAR18 can be combined with the LARB4 battery housed in a PVC container like the LAR18 but not with the same IP rating.

## 10.2 Connecting the cables from the power supply to the barrier

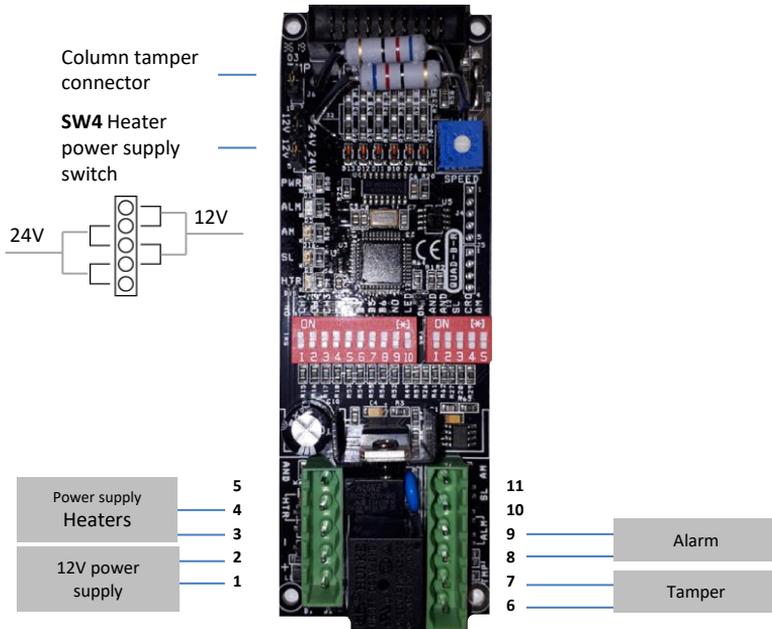
It is recommended to make a star-shaped connection to avoid excessive voltage drops on the power cables

The various examples shown here highlight the connection from the power supply to single columns, however it can also be carried out in cascade when two columns have been fixed on the same pole, having duly calculated: the distance, cable cross-section and consumption.



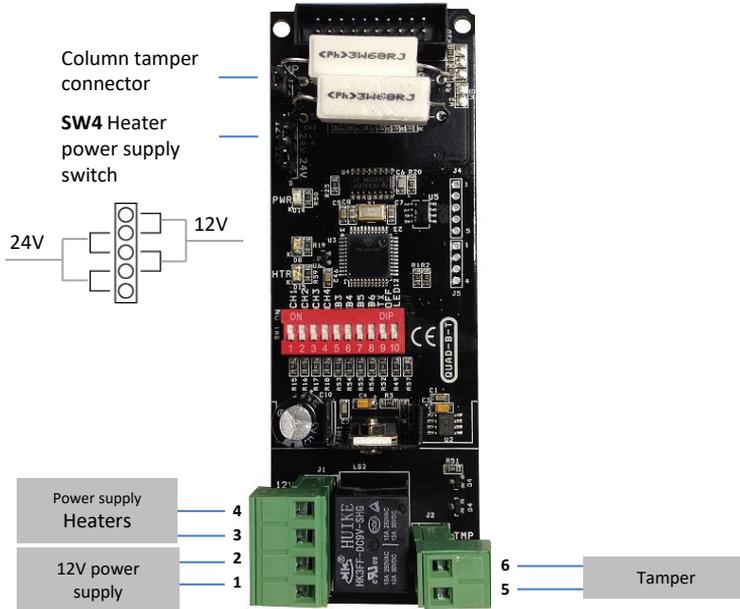
# 11.Connections to the terminal board

## 11.1 RX Section QUAD B RX Motherboard



12 Vdc for command AND RANDOM remotely	AND	5	11	AM	Antimask - O.C. output:NO to GND
Heater power supply 24/12 Vac (or Vdc)	HTR	4	10	SL	Disqualification - O.C. output:NO to GND
Heater power supply 24/12 Vac (or Vdc)	HTR	3	9	ALM	NC alarm output
GND	-	2	8	ALM	NC alarm output
Power supply +12/30 Vdc	+	1	7	TMP	Tamper output
			6	TMP	Tamper output

## 11.2 TX Section QUAD B TX Motherboard

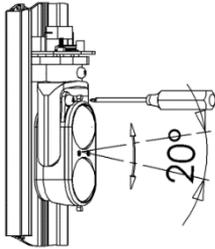


Heater power supply 24/12 Vac (or Vdc)	HTR	4			
Heater power supply 24/12 Vac (or Vdc)	HTR	3			
GND	-	2	6	TMP	Tamper output
Power supply +12/30 Vdc	+	1	5	TMP	Tamper output

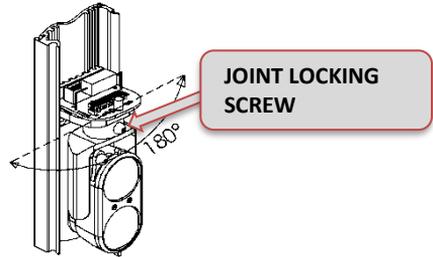
## 12.Barrier alignment

For correct alignment, once the barriers are installed, orient the optical units of the transmitters and the optical units of the receivers towards each other, adjusting the lens holder horizontally manually, after having loosened the locking screw on the joint and vertically through the front screw located to the left of the lens.

### Vertical orientation



### Horizontal orientation

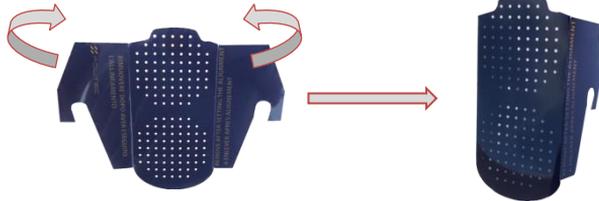


**N.B.:** Tighten the joint locking screw after the adjustment

### 12.1 Calibration using SMA system

It is possible to improve the calibration by using the supplied filter.

1. Fold the device following the pre-set folds.



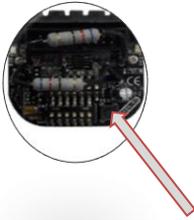
2. Position the filter in front of the TX optic inserting the two hooks on the pins of the optic fork. The filter is designed to refine the search for the alignment signal under adverse conditions.



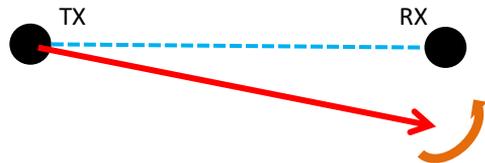
It is sufficient to apply the filter only on the TX, there is no need to repeat the operation also on the RX.

## 12.2 Alignment

- Power the unit electrically
- Starting from the Receiving column, press the TEST button on the first RX optic for 3 seconds or until the buzzer emits an intermittent acoustic signal, accompanied by the equally intermittent flashing of the long-range high-intensity LEDs.



- Press the TEST button on the TX optic of the corresponding column for 5 seconds, in this case only the orange TEST LED will light up.
- Orient the TX optic towards the RX optic, vertically and horizontally acting as explained above, until you find the maximum alignment.



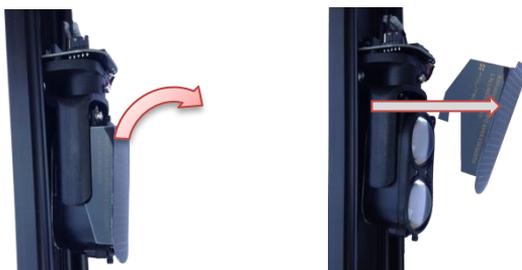
- The maximum alignment condition will be reached when the high-intensity LEDs are on steady and the buzzer will emit a continuous sound, for this reason, it may be necessary to make minor adjustments also on the RX optic.



N.B.: the fixed buzzer sound has a maximum duration of 3 minutes. To obtain a good alignment it is necessary to complete a FULL rotation on the horizontal axis of the RECEIVER optic, thereby performing the SCANNING of the optical signal. This operation is very useful to understand if the alignment of the optics is taking place directly on the same axis and not through reflection, therefore deceptive, because the signal value is much lower, despite having reached the hypothetical maximum alignment signal.

- The partial or total misalignment condition is signalled by the infrequent flashing of the LEDs and by the non-continuous whistle of the buzzer.
- After calibration, tighten the horizontal adjustment screw, and exit the test function by pressing the TEST button on the TX and RX optics for 3 seconds.
- Repeat all the operations on each beam of the barrier.

**At the end of the operation, remove the screen which acts as an attenuator, making sure to have found the optimal value.**



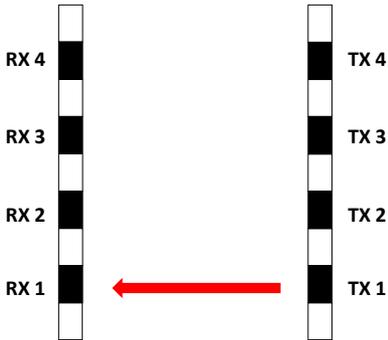
**N.B.:** Optical synchronism requires greater attention during the installation phases, in particular, that the receiving column is not affected by other sources of IR light.

To be absolutely certain that the alignment of the optics is correct (and therefore no false alignments due to the transmission of other infrared sources, such as other barriers of the same system as well as gate photocells) cover the TRANSMITTER optic with your hand: if the RECEIVER continues to give a continuous beep, it means that it sees another infrared source that must be turned off and eliminated.



### 12.3 Parallel beam calibration

Test the TX1 and RX1 optics on the respective columns and proceed with the calibration as explained. Then repeat the operation for each pair of optics.



**N.B.:** During the alignment test phase, the activation of a TX transmitter determines the automatic shutdown of the other TX optics in the column.

### 12.4 Calibration with active crossing function

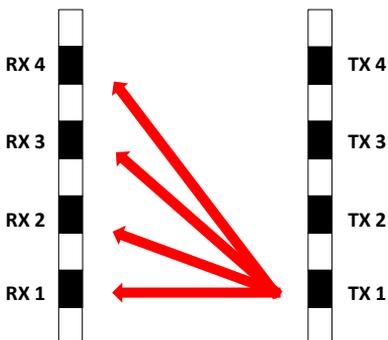
To activate the function, set DIP 4 to ON on the 5 DIP SWITCH unit of the QUAD B RX



Test the TX1 and RX1 optics and proceed with the calibration as explained but, having found the maximum alignment, keep the TX1 optic in test and exit the test only with RX1, then repeat the same operations with RX2, RX3 and RX4 (QUAD) + RX5 and RX6 (ESA).

At the end, exit the test of TX1 and repeat the operation for each TX optic on each RX.

At the end of all operations, make sure that TX1 and TX4 or TX6, the ends and most susceptible to orientation movements, are still optimally aligned with the corresponding RX1 and RX4 or RX6.



**WARNING:** too close a distance between the TX and RX columns does not allow calibration with the crossing function.

Furthermore, this function significantly increases sensitivity and is used to intercept the approach to the barrier, not the crossing. For this reason, it is recommended to use this function only in INDOOR applications



## 13. Basic functions

### 13.1 Basic settings and programming - QUAD B RX board

#### LED INDICATORS

- POWER - Lit if powered
- ALM - Lit if the barrier is in alarm
- AM - Lit if receiving IR interference

#### 10 DIP SWITCH UNIT FOR BEAM SELECTION

SEE SPECIFICATIONS IN  
CHAP 15.3



#### INTERVENTION TIME ADJUSTMENT TRIMMER

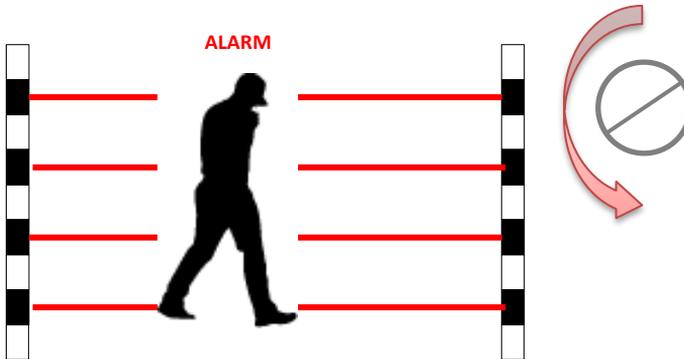
#### 5 DIP SWITCH UNIT FOR CONFIGURATIONS

- AND RANDOM: DIP 2
- DISQUALIFICATION: DIP 3



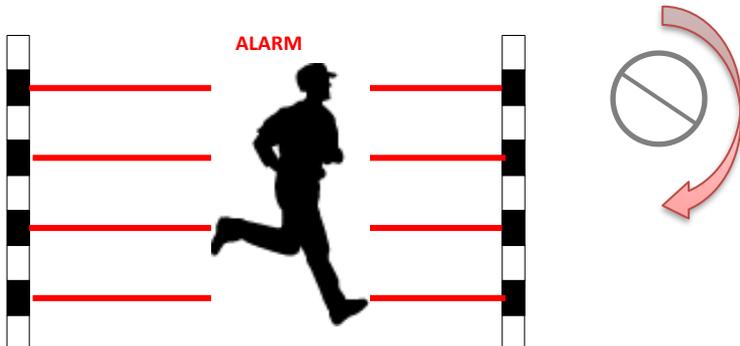
## 14. Intervention time adjustment

On the QUAD B RX motherboard there is a potentiometer to adjust the INTERVENTION TIME. In particular, it is possible to set the barrier for rapid (crossing while running) or slow (crossing while walking) alarms.



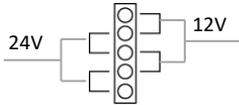
By adjusting the potentiometer anticlockwise, the intervention time is increased up to 500ms. In this condition, the alarm of a person crossing the barrier while walking is guaranteed, with the advantage of excluding the possibility of any false alarms (e.g. animal crossing).

By adjusting the potentiometer clockwise, the intervention time decreases up to 50ms. In this condition, an alarm is guaranteed for a person crossing the barrier running at maximum speed.

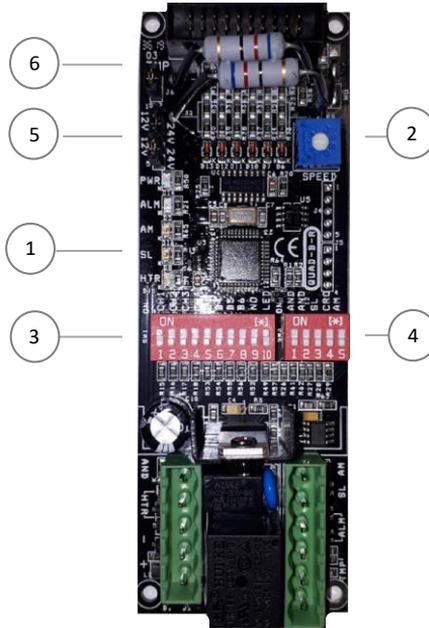


## 15. Appendix A: QUAD B RX motherboard details

### 15.1 Motherboard components



**SW4** Heater power supply switch



1	POWER SUPPLY LED	PWR	Green
	ALARM LED	ALM	Red
	MASKING LED	AM	Green
	DISQUALIFICATION LED	SL	Green
	HEATERS LED	HTR	Yellow
2	TRIMMER	Intervention time adjustment	
3	10 DIP SWITCH UNIT	Channel and beam selector	
4	5 DIP SWITCH UNIT	Function selector	
5	SW4 JUMPER	Heater power supply switch	
6	TAMPER	Column tamper connection	

## 15.2 LED indicator operation

The QUAD B RX motherboard has five control LED indicators, which can be activated by setting DIP 10 on the unit with 10 on the board to ON.

At the end of the test it is advisable to reposition the DIP on OFF, both to avoid catching the signals and to reduce system consumption.

<p><b>PWR LED</b> <i>Power supply on LED</i></p>	<p>The POWER LED is the only one that is always on in normal operating conditions, it confirms that the board is correctly powered.</p>
<p><b>ALM LED</b> <i>Alarm LED</i></p>	<p>Normally off, if lit, it indicates the alarm status. The alarm condition will depend on the setting of the jumpers making up the board and on the intervention delay set on the trimmer SPEED which will be adjustable from a minimum of 50 mSec to 500 mSec. Increases clockwise.</p>
<p><b>AM LED</b> <i>Masking <u>signal</u></i></p>	<p>The lighting up of the AM LED indicates the presence of an unwanted modulated infrared signal. ANTIMASK can be signalled on the terminal board in the presence of an attempt at masking N.B.: Under normal operating conditions, the LED must remain off. If it remains on or flashing, check the correct setting of the beam selection jumpers on the various transmitters.</p>
<p><b>SL LED</b> <i>Low signal (<u>disqualification</u>)</i></p>	<p>The lighting up of the SL LED indicates the presence of THICK FOG. In the presence of thick fog, before having an alarm condition due to lack of signal, the SIG LOW LED lights up and the <b>DISQUALIFICATION</b> signal can be displayed on the terminal board <b>N.B.: By inserting the jumper SIG LOW in the ON position, and with the disqualification intervention, the barrier is excluded, which will become operational again as soon as the fog has cleared.</b></p>
<p><b>HTR LED</b> <i>LED confirming that the heating system is on</i></p>	<p>Electronically controlled automatic heating system to guarantee an internal temperature between 17°C and 22°C under all climatic conditions. Normally off, when on the heating is active.</p>



### 15.3 Characteristics of settings

**N.B.**By default the QUAD barriers with 4TX and 4RX or ESA with 6TX and 6RX, therefore in standard configuration, are set during the factory testing phase.If it is necessary to change the original number of Beams in the field, it is necessary to correctly set the DIP SWITCHES from 5 to 8 on the 10 unit of the QUAD B RX and QUAD B TX motherboard.

On the QUAD B RX motherboard, it is possible to configure different functional conditions, using the 10 and 5 DIP SWITCH units.

#### 10 DIP SWITCH UNIT

1	<b>CH1</b>	Transmission channel 1
2	<b>CH2</b>	Transmitting channel 2
3	<b>CH3</b>	Transmission channel 3
4	<b>CH4</b>	Transmission channel 4
5	<b>BEAM 3</b>	The first 3 RXs are active
6	<b>BEAM 4</b>	The first 4 RXs are active
7	<b>BEAM 5</b>	The first 5 RXs are active
8	<b>BEAM 6</b>	The 6 RXs are active
9	<b>NO</b>	In ON the alarm relay switches to NO when at rest, Otherwise the relay is NC
10	<b>LED</b>	In ON the LED indicator on the board is turned on.

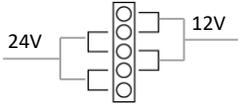
#### 5 DIP SWITCH UNIT

1	<b>AND</b>	In ON the barrier goes into alarm with at least 2 interrupted RX beams
2	<b>AND 1-2</b>	In ON the barrier goes into alarm in AND with the two RX lower beams and in OR with the remaining ones. WARNING:DIPs 1 and 2 cannot both be active
3	<b>DISQ</b>	In ON the fog "DISQUALIFICATION" function is activated.In case of fog the barrier is inhibited, blocking the alarm relay.It self-restores as soon as the fog has cleared.The condition information can be transferred from the output of the dedicated terminal.
4	<b>CRO</b>	In ON the cross beam function is activated.
5	<b>AMK</b>	In ON the "ANTIMASK" and IR filter function is activated.The condition information can be transferred from the output of the dedicated terminal.

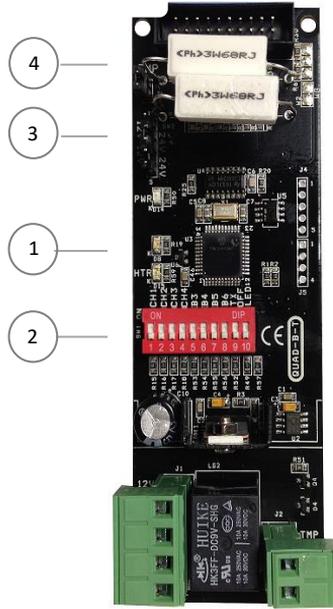


## 16. Appendix B: QUAD B TX motherboard details

### 16.1 Motherboard components



**SW4** Heater power supply switch



1	POWER SUPPLY LED	PWR	Green
	HEATERS LED	HTR	Yellow
2	10 DIP SWITCH UNIT	Channel and beam selector	
3	SW4 JUMPER	Heater power supply switch	
4	TAMPER	Column tamper connection	

## 16.2 LED indicator operation

The QUAD B TX motherboard has two control LED indicators, which can be activated by setting DIP 10 on the unit with 10 on the board to ON.

At the end of the test it is advisable to reposition the DIP on OFF, both to avoid catching the signals and to reduce system consumption.

<b>POWER</b> <i>Power supply on LED</i>	The POWER LED is the only one that is always on in normal operating conditions, it confirms that the board is correctly powered.
<b>HTR LED</b> <i>LED confirming that the heating system is on</i>	Electronically controlled automatic heating system to guarantee an internal temperature between 17°C and 22°C under all climatic conditions. Normally off, when on the heating is active.

## 16.3 Characteristics of settings

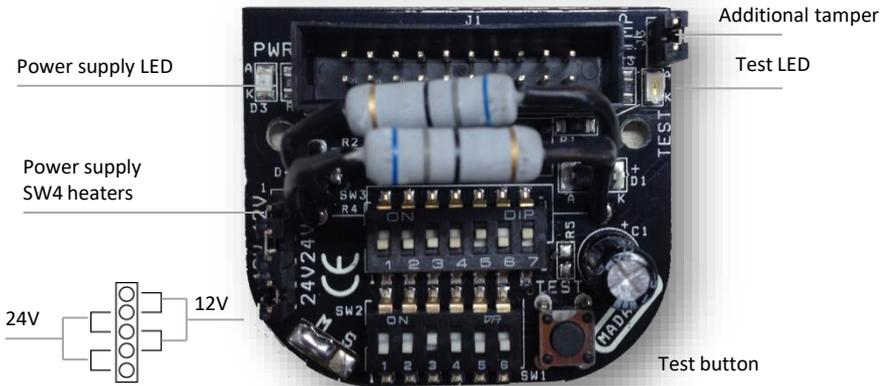
On the QUAD B TX motherboard, it is possible to configure different functional conditions, using the 10 DIP SWITCH unit.

### 10 DIP SWITCH UNIT

1	<b>CH1</b>	Transmission channel 1
2	<b>CH2</b>	Transmitting channel 2
3	<b>CH3</b>	Transmission channel 3
4	<b>CH4</b>	Transmission channel 4
5	<b>BEAM 3</b>	The first 3 TXs are active
6	<b>BEAM 4</b>	The first 4 TXs are active
7	<b>BEAM 5</b>	The first 5 TXs are active
8	<b>BEAM 6</b>	The 6 TXs are active
9	<b>TX OFF</b>	In ON it disables all the transmitters. It is a useful function for checking the presence of external IR interference during the alignment phases
10	<b>LED</b>	In ON the LED indicator on the board is turned on.

## 17. Appendix C: configuration of optical boards

### 17.1 Transmitter optic.



	1	2	3	4	5	6	7	1	2	3	4	5	6	
TX6	Black	ON												
TX5	Black	ON												
TX4	Black	ON												
TX3	Black	ON												
TX2	Black	ON												
TX1	Black	ON												

QUAD version

ESA version

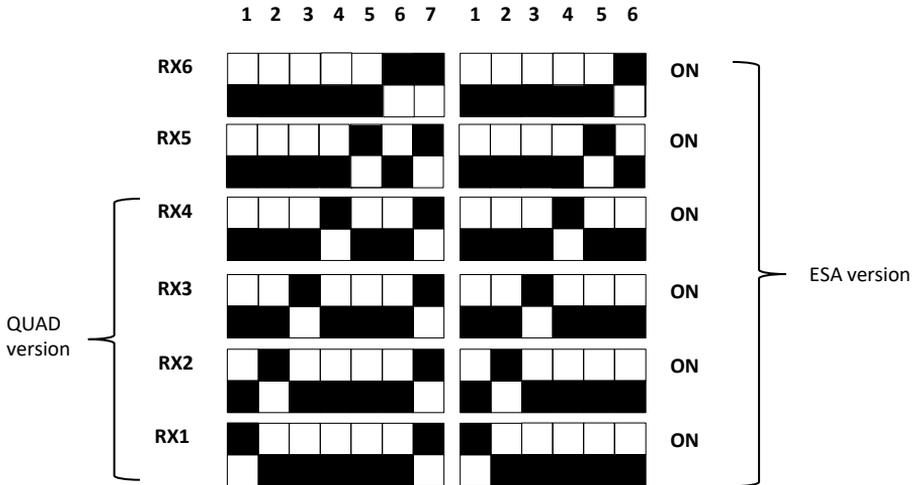
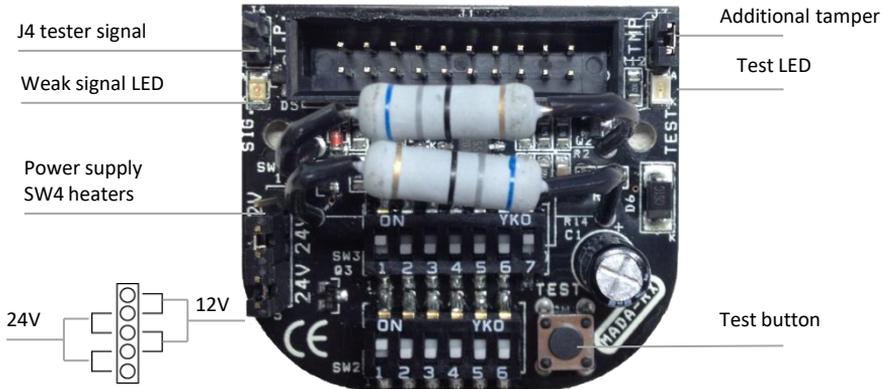
With DIP 7 in ON (as default) and with the power supply LED on, the TX optic functioning is verified. The power supply of the heaters is set by default to 24V; 12V can be used by changing the jumper configuration (SW4) on all optics and on the QUAD B TX board.

The voltage can be both AC and DC.

**N.B.:**The settings relating to the addressing are already set by default.



### 17.2 Receiver optic.



With DIP 7 in ON (as default) and with the power supply LED on, the TX optic functioning is verified. The power supply of the heaters is set by default to 24V; 12V can be used by changing the jumper configuration (SW4) on all optics and on the QUAD B RX board.

The voltage can be both AC and DC. Jumper J4 reads the value of the alignment signal, expressed in volts.

**N.B.:**The settings relating to the addressing are already set by default.

**N.B.:**The barrier can result in an alarm even if the WEAK SIGNAL LED is off. The cause may be the lack of synchronism or a misaligned transmitter.



## 18. Technical specifications

<b>OUTDOOR RANGE</b>	1-100 m
<b>INDOOR RANGE</b>	1-200 m
<b>SYNCHRONISATION</b>	Optical
<b>OPTICAL SENSORS</b>	Double optics with pulsed beams 950 nm
<b>CALIBRATION</b>	Parallel or crossed beams
<b>DISQUALIFICATION</b>	Automatic, if enabled, with external signalling, O.C.:NO to GND
<b>MASKING</b>	Automatic, if enabled, with external signalling, O.C.:NO to GND
<b>OPERATING TEMPERATURE</b>	- 25°C / + 65°C. Heater kit available for temperatures down to -50°C
<b>ALIGNMENT ANGLES</b>	20° Vertical - 180° horizontal
<b>DETECTION SYSTEM</b>	OR / AND 1st and 2nd / AND random
<b>REMOTE CONTROL</b>	AND Random
<b>EXTERNAL SCREEN</b>	Infrared with UV filter
<b>OUTPUTS</b>	Alarm and tamper relay
<b>PROFILE DIMENSIONS WxDxH</b>	60mm x 60mm x from 1000mm to 4000mm
<b>INGRESS PROTECTION RATING</b>	IP 56
<b>WARRANTY</b>	2 years

### STANDARD MODELS

#### 4 TX and 4 RX | QUAD PAIR

#### 6 TX and 6 RX | ESA PAIR

<b>Total beams</b>	4TX + 4RX	6TX + 6RX
<b>Power supply</b>	12-24Vdc	12-24Vdc
<b>Consumption per pair</b>	120 mA	135 mA
<b>Column internal heaters</b>	50W 24Vac with thermostat	70W 24Vac with thermostat



## 19.FAQ

<p><b>I can't align</b></p>	<p>Check that there are no obstacles of any kind interposed between RX and TX and that the conditions of the site do not represent an impediment;</p>
	<p><b><u>N.B. remember to reactivate the optics once the alignment operation is finished.</u></b></p>
	<p>Make sure that the TX is in the test phase (orange LED of the optic in question on and the others off);</p>
	<p>Make sure that the connectors are well inserted and that the DIP configuration is correct;</p>
	<p>Check that the power supply on the terminal board is sufficient;</p>
	<p>Use the shielded cable for the power supply by connecting the braiding to the earth (in case of persistent problem, it is recommended to connect the alarm and power supply/tamper with two separate shielded cables);</p>
	<p>Check the correct sizing of the power cables;</p>
	<p>Make sure there are no external light sources that interfere with the correct reading of the signal (gate photocells, other barriers, infrared etc.);</p>
	<p>If the system uses a switching power supply, replace it with a linear one to avoid electrical disturbances coming from the network, we recommend the LAR22/LAR18 power supply.</p>
<p><b>The system goes into disqualification even in the absence of fog</b></p>	<p>Make sure that the power supply of the heaters is greater than 20 Vac <b><u>at the barrier terminal board</u></b> .</p>
	<p>Check the alignment accuracy of each individual optic and, if necessary, carry out the procedure by performing a complete scan, making sure that there are no light sources that can influence the calibration;</p>
	<p>For more precise alignment, position one side of the column cover in front of the lenses in order to have two surfaces interposed between TX and RX to double the attenuation of the beam.</p>



<p><b>After accurately aligning the sensor (LED light on steady and continuous BEEP) the system remains in alarm</b></p>	<p>Make sure that there are no external light sources that interfere with the correct reading of the signal (gate photocells, other barriers, infrared etc.), to do this it is possible to check when switching off the transmitter that the receivers have the alarm lights on, if this is not the case, find the light source and eliminate it.</p>
	<p>Make sure that the connectors are well inserted and that the DIP configuration is correct;</p>
	<p>Check which receiver optic does not pick up the corresponding transmitter. To do this set the AND mode, if the barrier is no longer in alarm, obscure each beam individually finding the one that does not generate the general alarm, this beam is not aligned;</p>
	<p>Check the sizing of the power cables;</p>
	<p>If the system uses a switching power supply, replace it with a linear one to avoid electrical disturbances coming from the network.</p>
<p><b>The system goes into alarm with fog and rain</b></p>	<p>Check that the fog disqualification function is active (see chap. 12);</p>
	<p>Make sure that the power supply of the heaters is greater than 20 Vac at the barrier terminal board.</p>
	<p>Make sure that the structure is well sealed and check that there are not already elements inside which could create disturbance (water, insects etc.);</p>
	<p>Check the alignment accuracy of each individual optic and, if necessary, carry out the procedure by performing a complete scan, making sure that there are no light sources that can influence the calibration;</p>
	<p>For more precise alignment, position one side of the column cover in front of the lenses in order to have two surfaces interposed between TX and RX to double the attenuation of the beam.</p>
<p><b>Repeated false alarms</b></p>	<p>If they are caused by the passage of animals, use the AND functions or increase the intervention time.</p>
	<p>Check the alignment accuracy of each individual optic and, if necessary, carry out the procedure by performing a complete scan, making sure that there are no light sources that can influence the calibration.</p>
	<p>Make sure that the power supply of the heaters is greater than 20 Vac at the barrier terminal board.</p>
	<p>Check the correct sizing of the power cables;</p>
	<p>If the system uses a switching power supply, replace it with a linear one to avoid electrical disturbances coming from the network, we recommend the LAR22 power supply;</p>
	<p>If possible, increase the intervention time.</p>



## 20.Product disposal.

All components of this barrier are an integral part of the equipment and must be disposed of together with it.

Just as with installation operations, also at the end of life of these products, the dismantling operations must be carried out by qualified personnel.

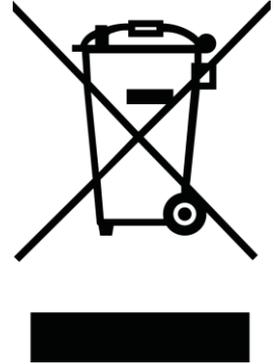
These products are made up of various types of materials: some can be recycled and others must be disposed of. Find out about available recycling or disposal systems for this category of products governed by regulations in force in your area.

**Warning!**- Some parts of the products may contain polluting or dangerous substances which, if dispersed in the environment, could result in harmful effects on the environment itself and on human health.

As indicated by the symbol on the side, it is forbidden to throw these products in domestic waste.

Therefore, carry out "separate collection" for disposal, according to the methods stipulated by the regulations in force in your area or return the products to the seller when purchasing a new equivalent product.

**Warning!**- Local regulations can impose heavy penalties for incorrect disposal of these products.



For technical support, contact your security systems distributor

