POLITEC
Perimeter protection

PRODUCT

ALES QUAD

Product Code **ALES QUAD 160**
ALES QUAD 250

ALES QUAD

PERIMETRAL BARRIER WITH QUADRUPLE OPTICS

INSTALLATION MANUAL VERSION 1.0.0

Indice

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, this instruction manual must be read carefully.

System has been designed to detect intrusions and activate the alarm; it is not a device that prevents an intrusion. Politec is not responsible for damages, injuries or losses caused by accidents, theft, force majeure (including a temporary lightning-induced overcurrent), abuse, improper or incorrect use, faulty installation or inadequate maintenance.

2. Product description

The double optical infrared perimeter barrier is composed of a receiver and an infrared transmitter.
Operation is based on the "AND" logic operation: in other words, the alarm is activated only in the case of simultaneous interruption of two superimposed beams.

This barrier finds its ideal use for perimeter protection of internal and external areas.
The main features of this barrier are:

- Adjustable intervention time that allows to adapt to the characteristics of the site to be protected;
- Protection beam angle adjustment both vertically and horizontally;
- Arrangement for wall mounting, on pole and on aluminum columns;
- Optical alignment with SMA function;
- Adjustable configuration for managing each single optic
- Contact signaling the opening of the barrier.

Warnings
The assembly, installation of the barrier and connection to the mains must be carried out by expert and qualified personnel, in compliance with the standards on electrical installations.

3. General warnings

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

- In case of doubt during installation, avoid making unnecessary attempts but contact the distributor's assistance service.
- The use of these products for purposes other than those described in these instructions is prohibited.
- It is forbidden to make changes to the components of the product unless described in this manual in order to lose the right to the warranty; operations of this type can only cause malfunctions; Politec declines all responsibility for malfunctions or damage caused by modified products.
- Depending on the specific situation of use, verify the possible need for additional devices: detectors or signaling.
- During the installation, assembly and use of the product, do not allow foreign parts (solids, metals or liquids) to penetrate inside the open devices.
- Responsibility of the manufacturer: Politec declines all responsibility for failures resulting from incorrect installation; lack of maintenance, incorrect assembly or use.
- Politec is also not responsible for incorrect or incomplete operation of the product or failure to detect intrusion.
- Guarantee (summary of conditions): Politec guarantees its products for a period of 2 years from the date of production. The guarantee is applied to the direct purchaser of Politec; no guarantee is provided to the end user that, in the event of failure, he should contact his installer or dealer.
- Exclusion from the warranty: the aesthetic parts are excluded from the warranty; the parts subject to normal wear and the parts subject to normal consumption, for example batteries, batteries and accumulators.

3.1 Additional warnings for devices powered by mains voltage

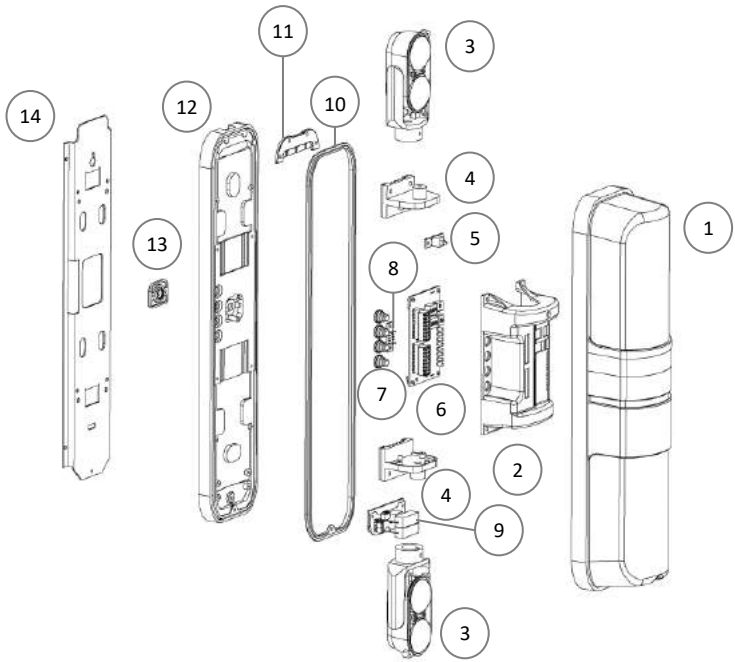
- This manual is intended for installation technicians only.
- Evaluating the dangers that can occur during installation and use of the system, for total safety it is necessary that the installation takes place in full compliance with laws, methods, rules and regulations.
- Before accessing the internal terminals of the product, all the power supply circuits must be disconnected.
- In the event of tripping of circuit breakers or fuses, 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.
- The individual components are designed according to the class III environment: protected external use; temperature between -25 and + 70 ° C, average humidity 75% with peaks of 30 days per year between 85 and 95%; without condensation.
- Before proceeding with the installation, check the environmental class of the products in the chapter "technical characteristics".
- Check, comparing with the values given in the paragraph "technical characteristics", that the capacity of the devices is equal or less than the physical distance between the barriers.
- Check that the barrier is positioned in areas protected from impact, in flat areas and on fixed fixing supports in order to avoid oscillations.
- Do not place the system components near strong 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.
Check at the opening of the package that all are included.



LIST OF COMPONENTS			
1	Top cover	8	ATMP
2	Electronic card cover	9	aHTR
3	Optical group	10	Seal
4	Dis. TRG double optical	11	Firm plate
5	ATMP	12	Base Ales Quad
6	Electronic card	13	Firm concentric
7	Concentric seal	14	Fixing plate

5. Preparation for installation

5.1 Preparation of the parts of the barrier before installation
Since the communication between the barriers can be carried out by wire, via wireless and their alignment can be done optically, it is advisable to check all the component parts of the barriers and their possible accessories immediately and to proceed with the installation, only later.

5.2 It is advisable to carry out:
- the configuration of the devices on a table;
- optical and acoustic alignment operation check
- the definitive fixing of each device;
- preparation and implementation 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 absorption barrier version for wireless models with universal electronic board housing, insert and connect the radio transmitter and connect it to the barrier receiving board
c) Feed the barriers and program them
d) Test the functioning of the barriers;
e) To support (without fixing) the barriers in the foreseen points;
f) Rest (without fixing) all the other devices at the points provided;
g) Check for each barrier that there is enough space for radio communication (for wireless versions);
h) Fix the barriers definitively.

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 installation environment:

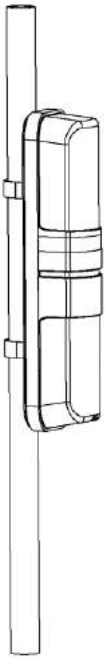
• Check that all the conditions of use fall within the "limits of use" and in the "Technical characteristics of the product".
• Check that the environment chosen for the installation is compatible with the total bulk of the product.
• Check that the surface chosen for the installation of the product is solid to guarantee a stable fixing and adequately protected from possible impacts or atmospheric agents.

6. Mounting / fixing examples

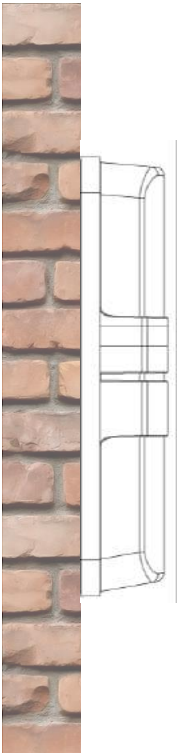
6.1 Installation height

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 within its range of action there are no obstacles (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.

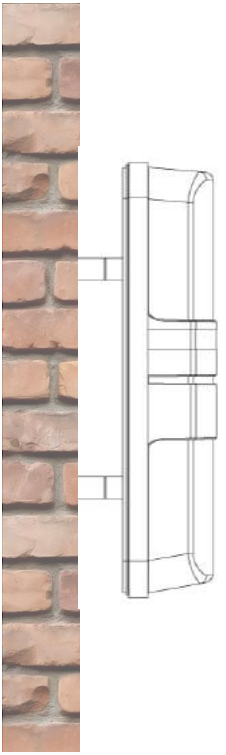
In any case, it is necessary to take into account the diffusion of the specific beam of each model, to avoid reflection phenomena of the rays caused by the ground or by adjacent objects.



Pole mounting with brackets SAN/PL



Wall mounting with brackets SAN/SD



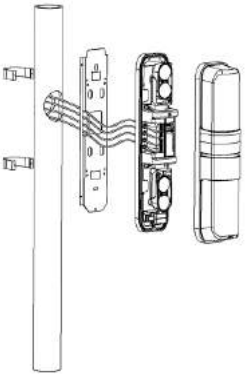
Wall mounting with brackets SAN/PL (recommended for long wall sections)

For wall mounting, the use of SAN / PL brackets is recommended when protecting passages (windows, doors, ...) along the wall, to avoid small obstacles (hinges, window sills, ...) that could be between the rays creating a signal attenuation.

Pole mounting with SAN - PL

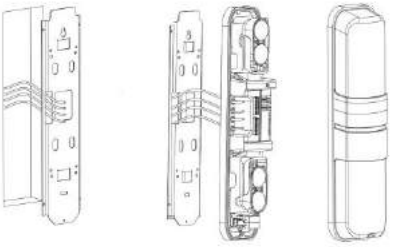
The supplied brackets allow mounting on poles with a diameter of 4 - 4.5 cm.

- Drill a 8mm diameter hole on the pole for the passage of the connection cable
- Pass the connection cable through the hole
- Place the U-brackets on the pole and fix them to the plate with the supplied screws
- Make the connections on the terminal board
- After checking the alignment and correct operation, replace the cover and tighten the locking screw securely.



Wall mounting with SAN/PL

- Pass the connection cable through the hole in the fixing plate and fix the plate to the wall with the screws
- Make the connections on the terminal board
- After checking the alignment and correct operation, replace the cover and tighten the locking screw securely.



Wall mounting with SAN-SD

- Measure the length of the barrier on the wall by drilling at the holes on the bracket
- Loosen the plate locking screw and remove it by sliding the plate down against the aluminum profile of the barrier.

ATTENTION:

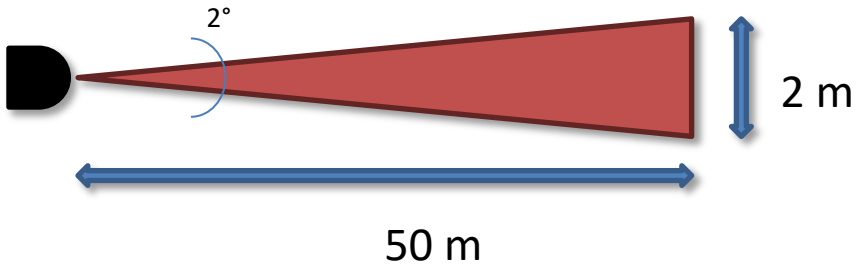
In the event of a puncture of the aluminum profile or any component, the product warranty expires.

7. Evaluations before installation

7.1 Introduction to barriers

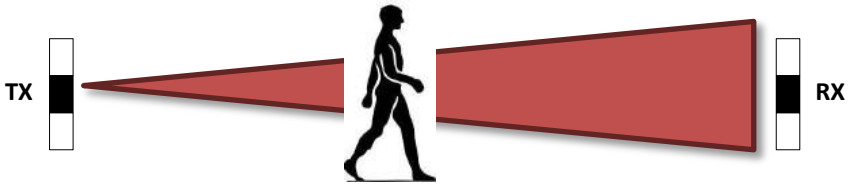
These barriers are characterized by two components that send each other infrared rays (or a transmitter and a receiver depending on the perimeter to be protected); in this way a sort of invisible barrier is generated to the human eye.

High view



Signal interruption: ALARM

An active infrared barrier can contain multiple transmitting and receiving stages in special columns. Infrared barriers have multiple controls that greatly limit false alarms.

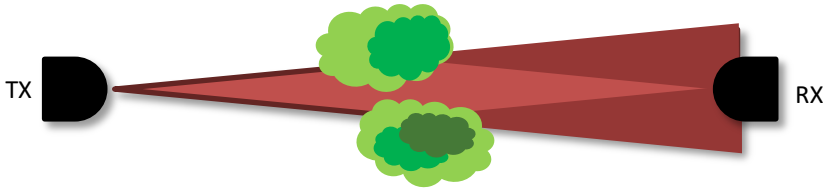


8. Positioning barriers

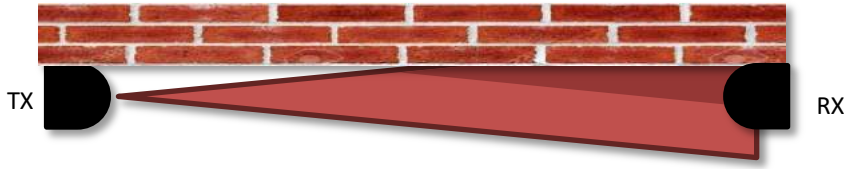
8.1 Carefulness before installation

Before placing the barriers in the external environment you must keep in mind that the infrared ray has a conical shape: the further the barriers are distant and the greater the diameter of the cone on arrival. In order to avoid false alarms you must place the barriers away from surfaces that reflect like walls or elements that can attenuate the signal.

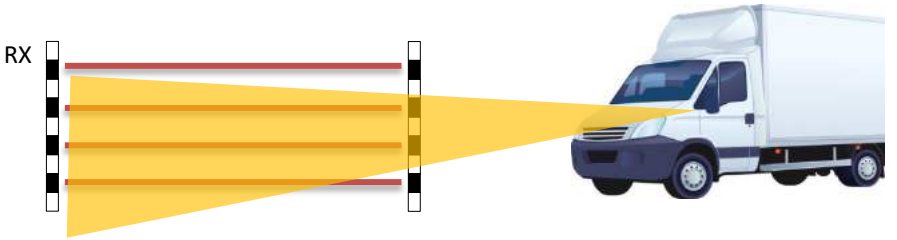
DO NOT place the barriers if there are plants, bushes or fixed objects in the range that obstruct the signal and create "shaded areas". Leave a 50 cm corridor for distances over 50 m.



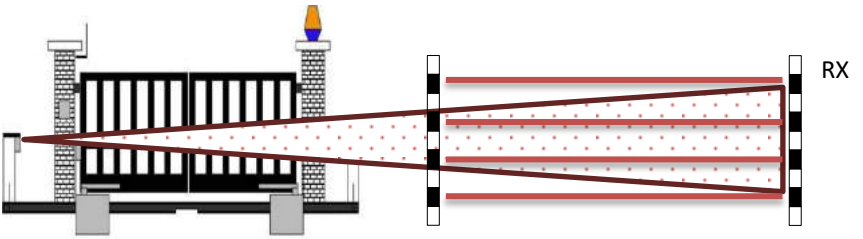
position the barriers close to walls by means of brackets that move the columns away from the wall so as not to decrease the quality of the signal: Example of poor application without brackets:



DO NOT place the barriers close to roads: the lights of the lights on the RX could create disturbances



DO NOT place the barriers with automatic gates: the photocell signals can create interference.



9. Wiring

9.1 Type of cable
Wiring requires the 12Vdc shielded power cable (ex. 2x0.5 + 8x0.22) with the metallic braiding connected to the negative to prevent the introduction of alternating voltage disturbances on the barrier.

The wiring requires **SEPARATING** the 12Vdc power supply cable (ex. 2x0.5 + Nx0.22), from the 24Vac heater power supply cable (optional for AQ 160m version) (ex. 2x0.75) to prevent the input of alternating voltage disturbance on the barrier.

N.B. it is absolutely necessary to shield the cable supplying the 12 Vdc power supply and ground the metallic braid.

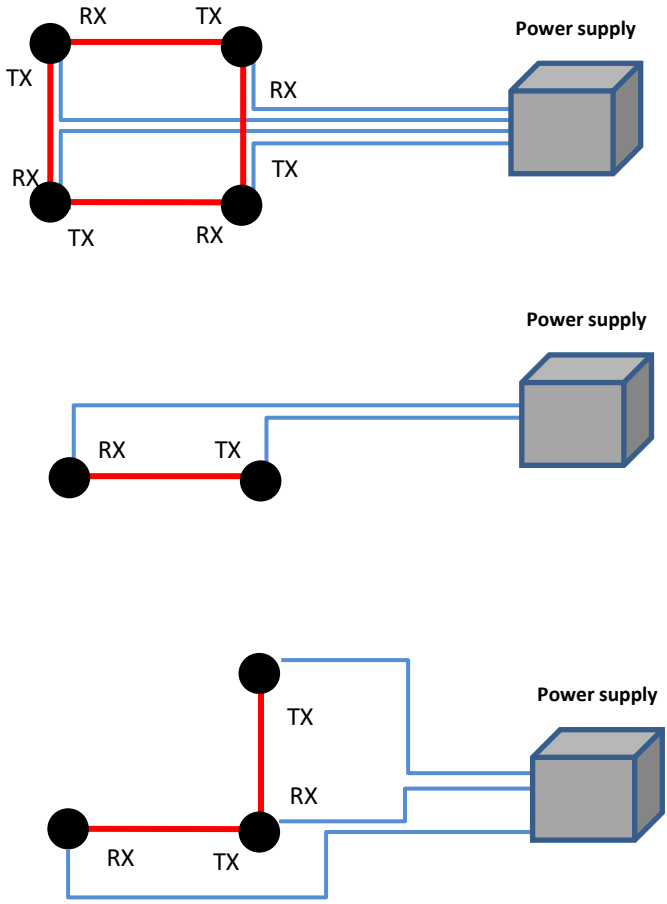
The sizing of the cables depends on the consumption of the columns and the resistance of the cable itself according to the distances involved.

The table shows the cable cross-sections and relative distances to ensure optimum performance using the LAR22 power supply (12Vcc-2.5A / 24Vac-300W) and an ALES QUAD barrier (1 pair)

CONDUCTOR SECTION	SUPPLY CARD TYPICAL 12Vcc	POWER SUPPLY HEATERS 24Vac
0,5 mm²	450 m	60 m
0,75 mm²	700 m	90 m
1,5 mm²	1400 m	180 m

LAR22 can supply up to 8 ALES QUAD barriers. The container of the LAR22 is metallic, so it must be positioned inside a room or inserted in a watertight container in case of external use. A battery up to 18Ah can be housed in the container.

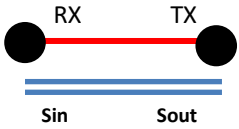
9.2 Connecting cables from barrier to power supply
Connect the barriers to a central power supply by applying a star-shaped cable.



9.3 Connection for wire synchronism
Synchronism connections can be made directly in the control panel. Using a cable
0.22 connections are made up to 500 m.

NB: Connect the power supply negatives of the columns in common. It is possible to carry out this procedure by connecting the stockings of the synchronization cables on both columns

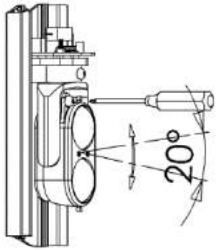
NB: In case of optical synchronism, the receiver must not receive IR signals from other sources



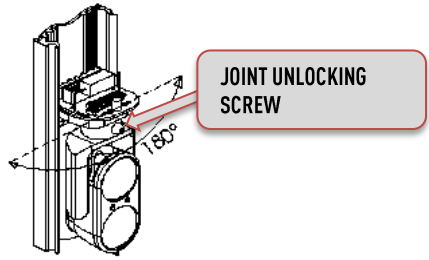
10. Barriers alignment

For a correct alignment, once the barriers are installed, orient the optical groups of the transmitters and the optical groups of the receivers in the direction of the others. Adjusting the lens holder horizontally through manual movement after loosening the locking screw on the joint, and vertically through the front screw to the left of the lens.

Vertical orientation



Horizontal orientation

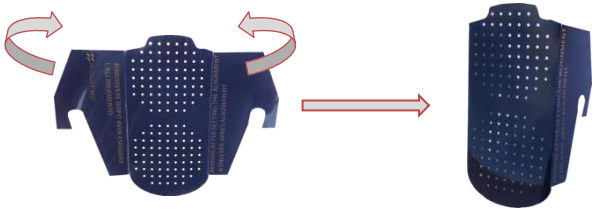


Note: tighten the articulation release screw after making the adjustment

10.1 Calibration through SMA system

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

1. Fold the device following the preset folds.



2. Position the filter in front of the TX optic, positioning the two hooks on the pins of the optic fork to perfect the search for the alignment signal with critical conditions.

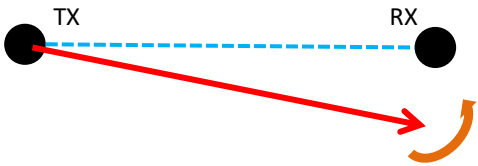
It is sufficient to apply the filter only on the TX, it is not necessary to repeat the operation also on the RX.

10.2 Alignment

- Remove the cover and power the unit electrically
- Set the parameters related to the different functions
- Adjust the inclination of the lens
- Activate the DIP TEST 1 on the RX motherboards to enter the test with RX1 optics.

- Activate DIP TEST 1 on the TX motherboard to enter the test with TX1 optic

- Orient the optics in the TX column towards the RX column, vertically and horizontally by adjusting the adjustment screws (horizontal and vertical) until you find the maximum alignment.



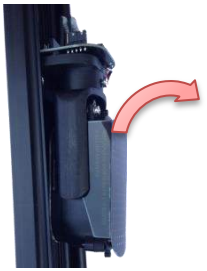
- The maximum alignment condition will be reached when the high intensity LEDs are on and the buzzer will sound continuously.

- The partial or total misalignment condition is signaled by the infrequent flashing of the LEDs and by the non-continuous buzzer whistle.
- Exit the optics test by repositioning the TEST1 DIP to OFF on the TX motherboard
- Raise the DIP of TEST2 to ON on the TX motherboards and repeat for the cross calibration of the barrier.
- Set the TEST 1 DIP of the RX motherboard and the TEST 2 DIP of the TX motherboard to OFF
- Turn the TEST 2 DIP of the RX motherboard and the TEST 2 DIP of the TX motherboard ON and carry out the same procedure for the parallel calibration
- Set the TEST 2 DIP of the TX motherboard to OFF and position the TEST 1 DIP of the TX motherboard in the ON position for the cross calibration.
- Once calibrated, place the TEST DIPs on both motherboards in OFF

NB: the fixed sound of the buzzer has a maximum duration of 3 minutes. To obtain a good alignment it is necessary to perform a COMPLETE rotation on the horizontal axis of the RECEIVER optic, thus performing the SCANNING of the optical signal.

After calibration, tighten the horizontal adjustment screw.
Once calibrated, there is the automatic WALK TEST phase for 60 seconds.

When the operation ends remove the screen that acts as an attenuator, having the certainty of having found the optimal value.



NB: If the barriers are to be aligned with optical synchronism to have the absolute certainty that the alignment of the optics is real (and therefore there are no false alignments due to gate photocells) cover the optic with your hand: if the beep is continuous, it means that the beam sees another source of infrared.

11. Basic functions

11.1 Basic settings and programming - AQ BASE RX card

SIGNALING LED

- **POWER**: Lit if powered
- **HTR**: Heaters on if present
- **SL2**: Low optical RX upper signal
- **SL1**: Lower optical lower RX signal
- **SYNC**: Very fast blinking (side with RX optics inside and wire synchronism)
- **SLOW**: fog disqualification
- **AMASK**: antimask
- **ALM**: Lit if the barrier is in alarm

TRIMMER REGULATION OF INTERVENTION TIME

RECEIVING DIP

- Channel 1-4: Used with optical synchronism

TEST DI SMA

- DIP1: RX1 lower optical test
- DIP2: RX2 upper optical test

5 DIP BENCH FOR CONFIGURATION

- **DIP1**: Enable tear-proof tamper
- **DIP2**: Enable signaling LED
- **DIP3**: ON for sync OPTICAL, OFF for WIRED sinc
- **DIP4**: Enable disqualification from fog
- **DIP5**: Enable antimask

11.2 Basic settings and programming - AQ BASE TX card

SIGNALING LED

- **POWER**: Lit if powered
- **HTR**: Heaters on if present
- **SYNC**: Very fast blinking (side with RX optics inside and wire synchronism)
- **T2**: Upper optic TX2 in TEST
- **T1**: Lower optic TX1 in TEST

TRANSMISSION DIP

Channel 1-4: Used with optical synchronism

DIP TEST SMA

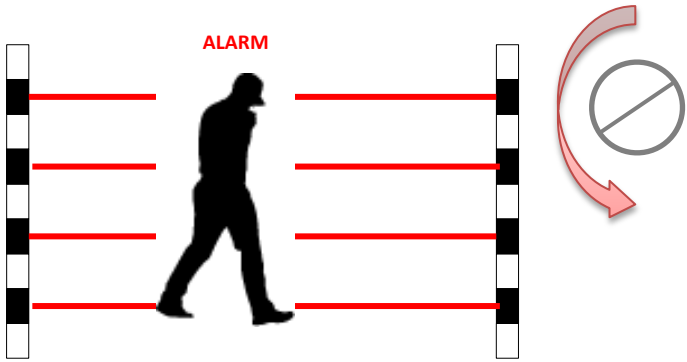
- DIP1: Lower optical test TX1
- DIP2: TX2 upper optical test

3 DIP BENCH FOR CONFIGURATION

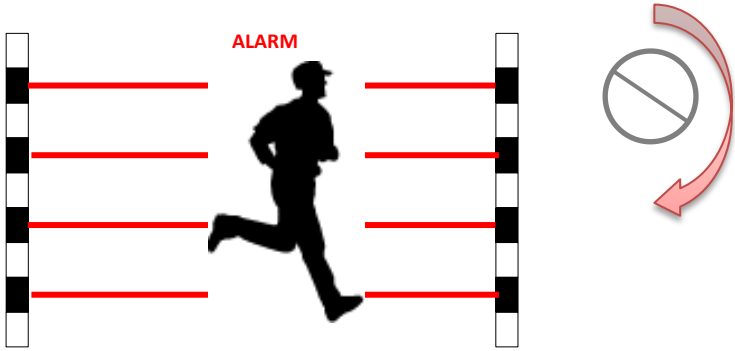
- **DIP1**: Enable tear-proof tamper
- **DIP2**: Enable signaling LED
- **DIP3**: ON for sync OPTICAL, OFF for WIRED sinc

12. Adjustment of the intervention time

There is a potentiometer to adjust the INTERVENTION TIME.
In particular it is possible to set the barrier for the rapid alarm (crossing during the run) or slow (crossing with walk).



Adjusting the potentiometer counterclockwise increases the tripping time up to 500ms. In this condition the alarm of a person crossing the barrier is guaranteed, with the advantage of excluding the possibility of possible false alarms (ex. Animals).
Adjusting the potentiometer clockwise decreases the tripping time up to 50ms. In this condition the alarm of a person crossing the barrier running at maximum speed is guaranteed.
When working with 2 beams, the barrier must be installed at a height greater than 70 cm from the ground to effectively detect a running person



13. Technical characteristics

MAX RANGE IN INTERNAL	500 m (AQ 250m) - 320 m (AQ 160m)
MAX LOAD OUTDOOR	250 m (AQ 250m) - 160 m (AQ 160m)
SYNCHRONIZATION	Wired / Optical
Optical sensors	Double optical with impulsive rays 950 nm
CALIBRATION	Crossed rays
DISQUALIFICATION	Automatic, if enabled, with external signaling, negative open collector
MASKING	Detection of blinding with another infrared signal with signaling to the outside, negative open collector.
OPERATING TEMPERATURE	- 25 ° C / + 70 ° C. Available Heaters kit for temperatures up to -50 ° C.
ALIGNMENT CORNERS	20 ° Vertical - 180 ° Horizontal
DETECTION SYSTEM	AND
EXTERNAL COATING	Infrared with UV filter.
COVER	With Tamper.
DEGREE OF PROTECTION	IP 65

STANDARD MODELS: ALES QUAD 160m – ALES QUAD 250m

Total rays	2TX + 2RX
Power supply	12-24Vcc.
Absorption	50 mA
Internal column heaters	25W 24Vca with thermoregulator

14. F.A.Q.

I can't align	Check that there are no obstacles of any kind interposed between RX and TX and that the compliance of the site does not represent an impediment;
	N.B. remember to reactivate the optics once the alignment operation is completed.
	Check that the power supply on the terminal block is sufficient;
	Use the shielded cable for the power supply by connecting the shield to the ground (in the event of a persistent problem, it is advisable to connect alarm and power / tamper with two separate shielded cables);
	Check the correct sizing of the power cables;
	Make sure there are no external light sources that interfere with the correct reading of the signal (gate photocells, other barriers, infrared, ...);
	For barriers with multiple devices positioned on the same line it is necessary to switch off the TXs on which you are not performing the alignment operation
The system goes into disqualification even in the absence of fog	Make sure the heater power supply is above 20 **Vac at the barrier terminal board**.
	Check the accuracy of the alignment of each single optic and if necessary re-perform the procedure making a complete scanning, making sure that there are no light sources that could influence the calibration;
	For a more precise alignment place one side of the column cover in front of the lenses so as to have two surfaces interposed between TX and RX to double the attenuation of the beam.

After accurately aligning the sensor (LED light on steady and BIP continuous) the system remains in alarm	Make sure that all the negatives of the barriers are in common with each other and with the negative of the control unit in case of operation with wire synchronism;
	Make sure the connectors are well inserted and the DIP configuration is correct;
	Make sure there are no external light sources that interfere with the correct reading of the signal (gate photocells, other barriers, infrared
	Use the shielded cable for separate power supply and synchronism by connecting the shield to the ground;
	Check the sizing of the power cables;
With fog or rain the system goes into alarm	Check that the fog disqualification function is active
	Make sure the heater power supply is above 20 Vac at the barrier terminal board.
	Make sure the structure is well sealed and check that there are no disturbing elements (water, insects, ...);
	Check the accuracy of the alignment of each single optic and if necessary re-perform the procedure by completing a complete scan, making sure that there are no light sources that could influence the calibration;
	For a more precise alignment place one side of the column cover in front of the lenses so as to have two surfaces interposed between TX and RX to double the attenuation of the beam.

Repeated false alarms	Check the accuracy of the alignment of each single optic and if necessary re-perform the procedure by performing a complete scanning, making sure that there are no light sources that could influence the calibration.
	If possible, increase the intervention time.
	Make sure the heater power supply is above 20 Vac at the barrier terminal board.
	Use the shielded cable for separate power supply and synchronism by connecting the shield to the ground;
	Check the correct sizing of the power cables;

15. Product disposal.

All components of this barrier are an integral part of the equipment and must be disposed of together with it.
As for the installation operations, even at the end of the life of these products, the operations of dismemberment must be performed 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 recycling or disposal systems, for this product category, foreseen by the 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 cause harmful effects on the environment and human health.
As indicated by the symbol on the side, it is forbidden to throw these products in domestic waste.
Then, carry out the "separate collection" for disposal, according to the methods required by the regulations in force in your area or return the products to the seller when purchasing a new equivalent product.
Warning! - The local regulations in force can provide for heavy penalties in the event of abusive disposal of these products.

Via Adda, 66/68
20882 Bellusco (MB) • Italy
T +39 039.6883019
F +39 039.6200471
info@politecsrl.it
www.politecsrl.it