



# SANDOR PLUS SMA

**DUAL OPTICAL**  
**INSTALLATION MANUAL**

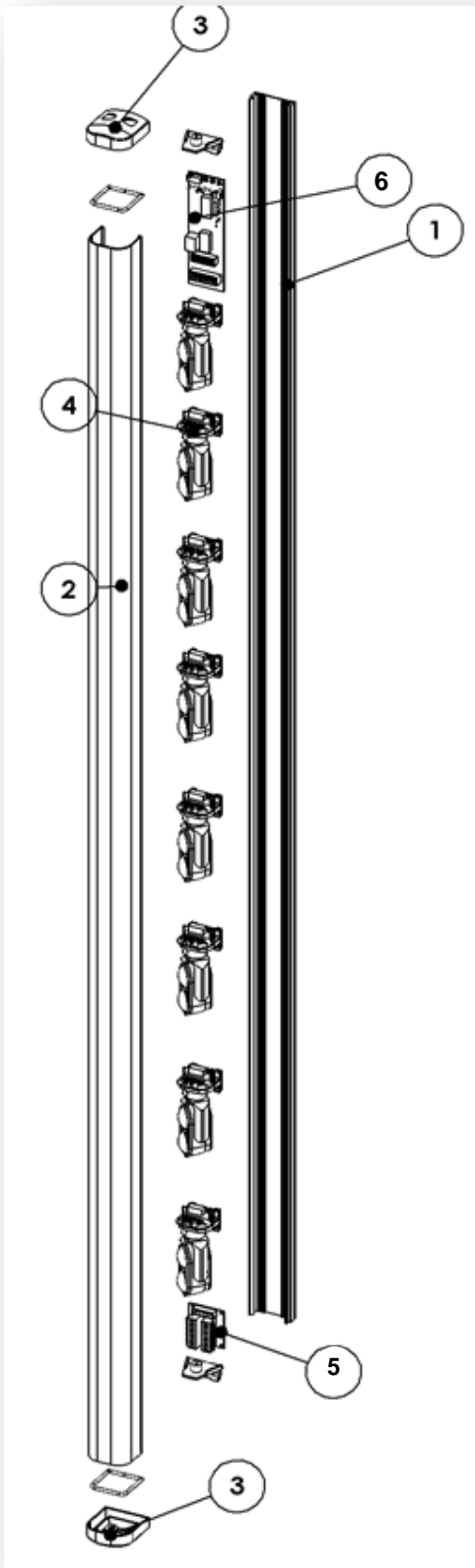
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## *Installation recommendation*

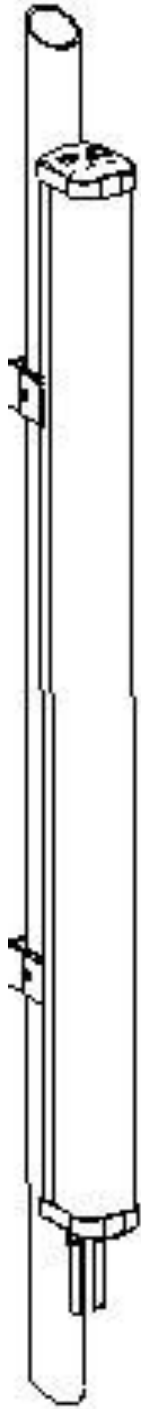
- *Verify that the beam tower is fully watertight once the cover and end caps have been correctly filled at the end of the installation.*
- *Use the cable glands supplied on the tower for all cabling must pass through the lower end cap using the cable glands supplied. The missed used of proper accessories decrease the IP grade protection of the tower.*
- *Avoid any type of obstruction between the transmitter and receiver.*
- *Avoid installing the receivers beams in a position where direct sunlight, at the same angle as the receivers beams, can enter directly into optics especially at sunset and sunrise*
- *Do not install multiple beams where the transmitter beam can interfere with other receiver beams. It is always better place either transmitter or receivers back to back.*

# 1 MAIN COMPONENT LIST

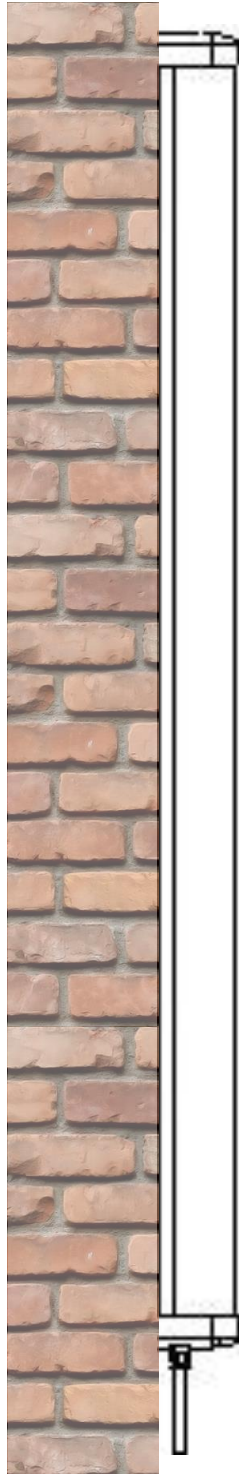


| Part N° | Descriptions                |
|---------|-----------------------------|
| 1       | Aluminum profile            |
| 2       | IR tube                     |
| 3       | Cap                         |
| 4       | Optics receiver/transmitter |
| 5       | Terminal block              |
| 6       | Motherboard                 |

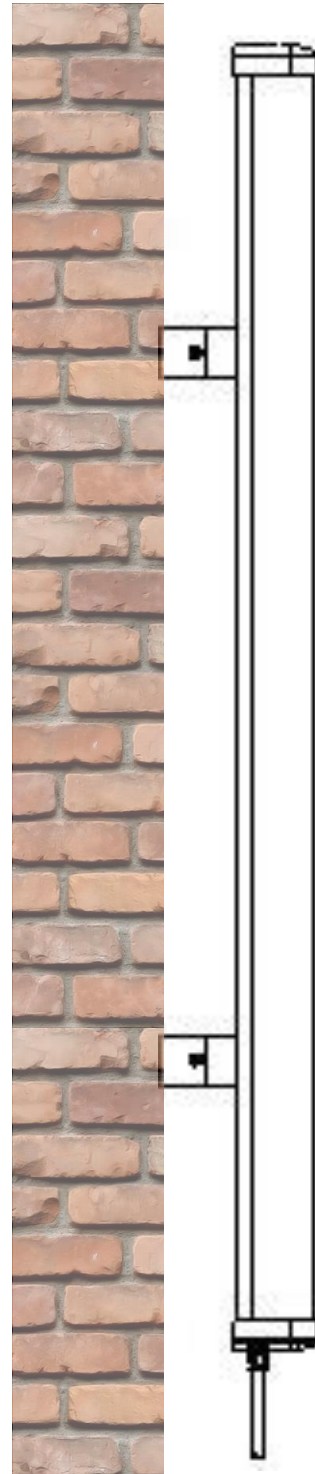
## 2 MOUNTING EXAMPLES



**Pole  
mounting  
with bracket  
SAN/PL**



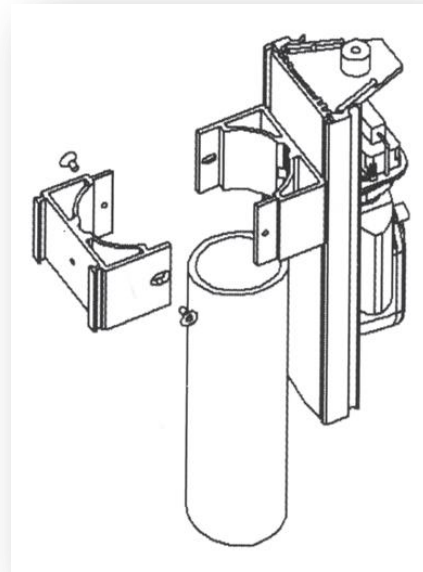
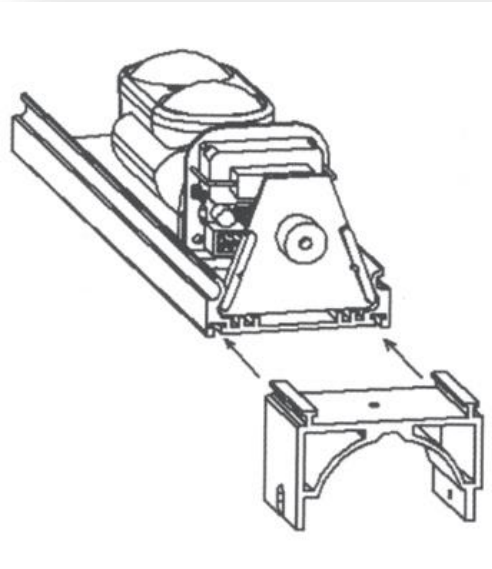
**Wall  
mounting  
with bracket  
SAN/SD**



**Wall  
mounting  
with bracket  
SAN/PL**

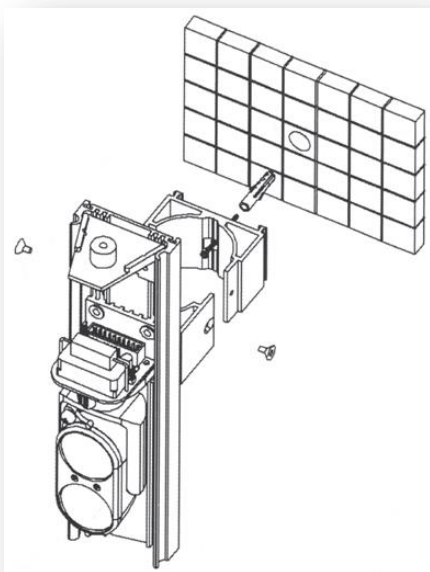
## 2.1. MOUNTING WITH BRACKETS

**Insert the bracket  
on the back**

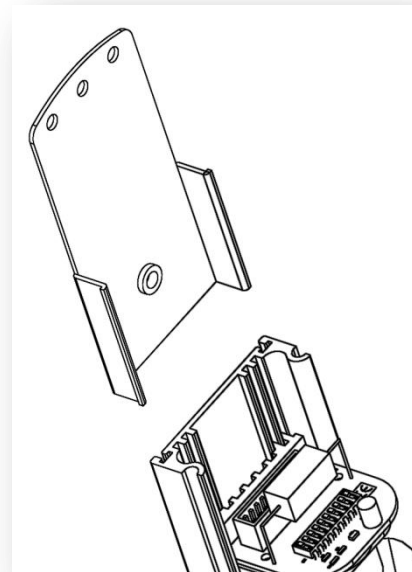


**On pole with  
SAN/PL**

**Pole Ø 48 mm max.**



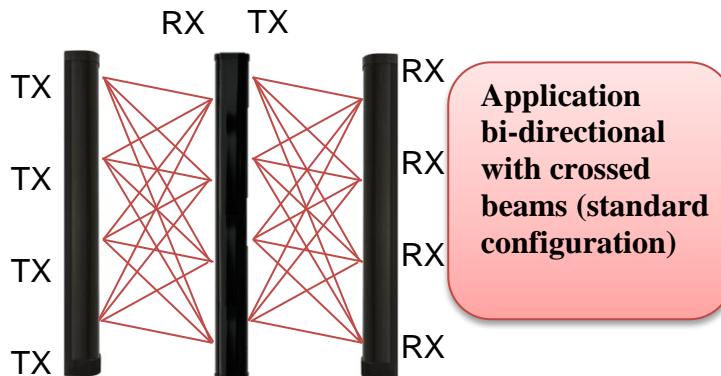
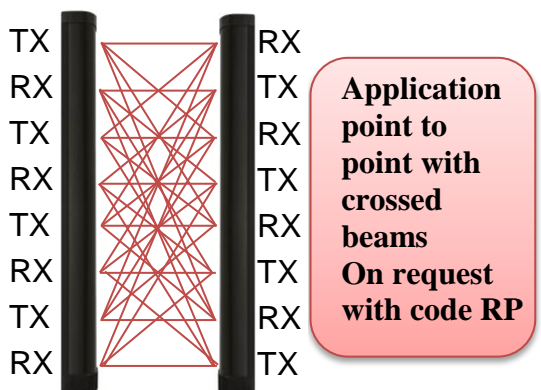
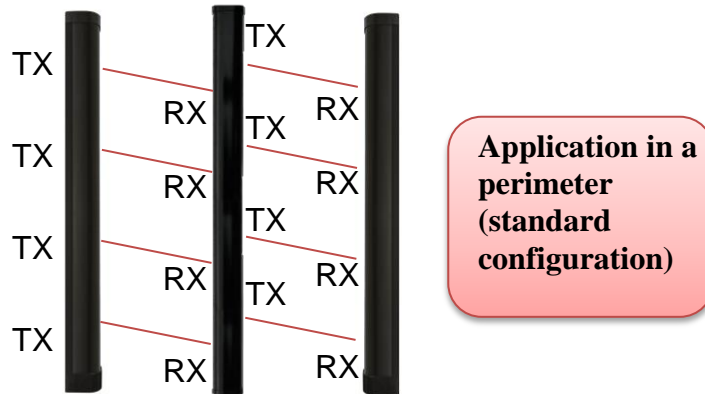
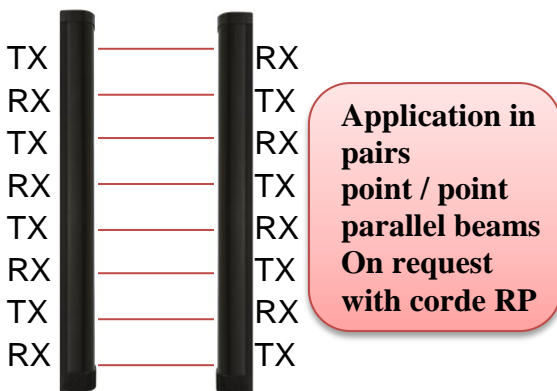
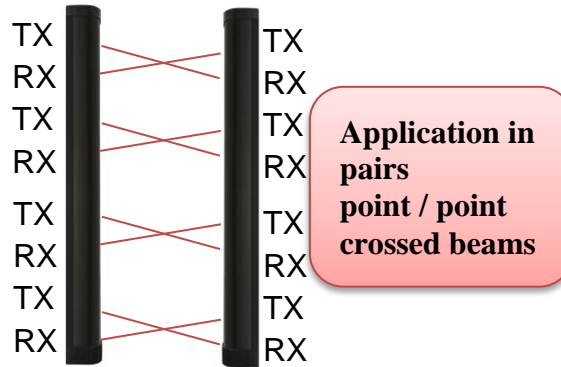
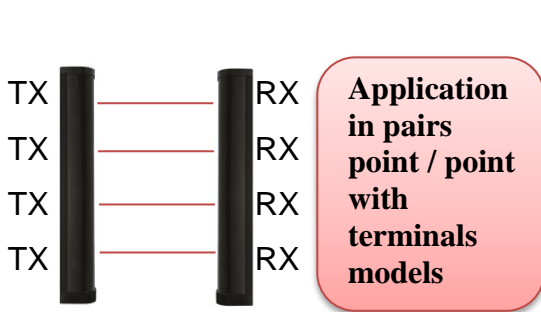
**On wall  
SAN/PL**



**On wall  
SAN/SD**

**N.B.:** we recommend the use of the brackets SAN / PL on the wall when you place the protection of gates (windows, doors, ...) along the wall to avoid small obstacles (hinges, edges of window sills, ...) that could create signal attenuation.

### 3 INSTALLATION EXAMPLES



## 4 CABLES AND WIRING

The wiring requires to SEPARATE the power cable 12Vdc (ex. 2x0.5 + Nx0.22), to the power cable for heaters 24Vac (ex. 2x0.75) to prevent input of disorders of the AC voltage on the barrier.

**Note: is absolutely necessary to shield the cable that provides 12 Vdc power supply and put the metal braid to ground.**



The cable dimension depends on the columns consumption and on the same cable resistance, taking care about installation distances.

In the below table are shown the best cable section for relative distance for which are warranted optimal performances using the LAR22 power supply (12Vcc-2,5A / 24Vac-300W) and one column PARVIS MES SMA (4TX + 4RX).

| CABLE SECTION        | COMMON BOARDS SUPPLY | COMMON HEATHER SUPPLY |
|----------------------|----------------------|-----------------------|
|                      | 12Vdc                | 24Vac                 |
| 0,5 mm <sup>2</sup>  | 165 m                | 35 m                  |
| 0,75 mm <sup>2</sup> | 245 m                | 50 m                  |
| 1,5 mm <sup>2</sup>  | 490 m                | 100 m                 |
| 2,5 mm <sup>2</sup>  | 820 m                | 165 m                 |
| 4 mm <sup>2</sup>    | 1310 m               | 265 m                 |
| 6 mm <sup>2</sup>    | 1975 m               | 400 m                 |

The LAR 22 is able to furnish supplying up to 4 columns (at max configuration 4TX+4RX).

Since the LAR 22 box metallic, it must be installed inside or insert in a supplementary case with an built in IP grade usable for external installation.

In the box can be placed a battery up to 18Ah.

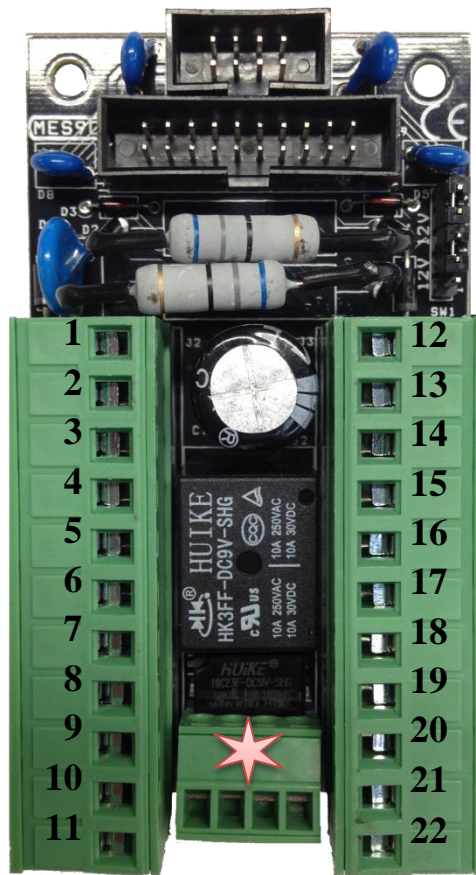
It is also possible to use the LAR 18 power supply (12Vcc-0,9A / 24Vac-60W) able to supply one single tower (at max configuration 4TX+4RX).


This supplying unit is enclosed in a PVC box with a built in grade protection IP68.

This power supply can also be twinned to LARB4 battery enclosed as well in a waterproof box.



## 4.1. CONNECTION TO TERMINAL BLOCK (MES9C)



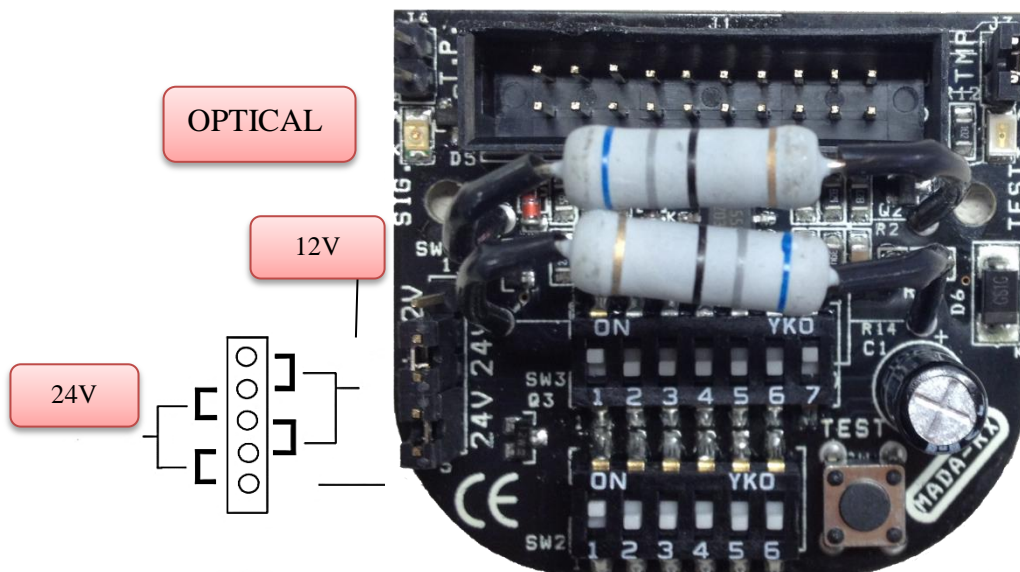
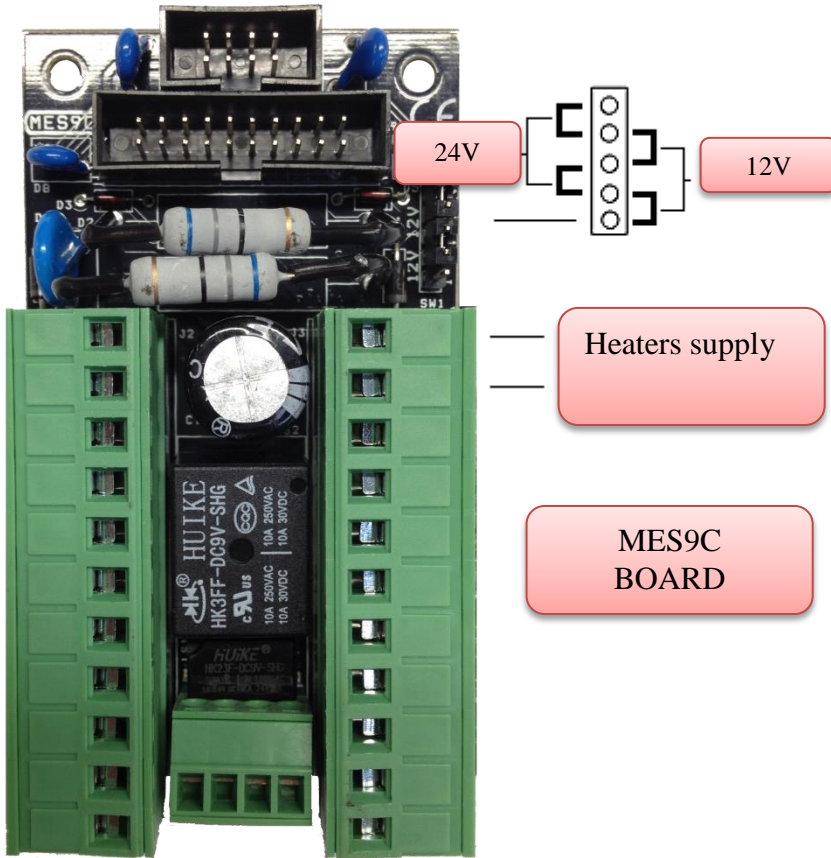
 Serial connection  
ADEBUS (pag. 11)  
(pag. 12)

|                              |             |    |    |              |   |
|------------------------------|-------------|----|----|--------------|---|
| Positive supply              | +10 – 30Vdc | 1  | 12 | 12/24 Vac-cc | Heaters supply  |
| Negative supply              | GND         | 2  | 13 | 12/24 Vac-cc | Heaters supply  |
| Tamper output                | TMP         | 3  | 14 | G.IN         | <b>Negative</b> input to exclude the barrier for 1 minute |
| Tamper output                | TMP         | 4  | 15 | AND          | <b>+12 Vdc</b> to have AND RX1+RX2                        |
| Alarm output (NO)            | NA          | 5  | 16 | BEAM         | <b>0V</b> to AND RANDOM                                   |
| Alarm output (NC)            | NC          | 6  | 17 | S.LOW        | <b>+12 Vcc</b> - exclude RX1                              |
| Alarm output (C)             | COM         | 7  | 18 | A.MASK       | <b>0 V</b> - exclude RX1+RX2                              |
| Positive sync input (TX=>RX) | + S IN      | 8  | 19 | + S OUT      | NEGATIVE  |
| Negative sync input (TX=>RX) | - S IN      | 9  | 20 | - S OUT      | OPEN COLLECTOR  |
| Not in use                   |             | 10 | 21 |              | <b>open in case of fog</b>                                |
| Not in use                   |             | 11 | 22 |              | NEGATIVE  |
|                              |             |    |    |              | OPEN COLLECTOR  |
|                              |             |    |    |              | <b>open in case of masking</b>                            |
|                              |             |    |    |              | Positive sync output (TX=>RX)                             |
|                              |             |    |    |              | Negative sync output (TX=>RX)                             |
|                              |             |    |    |              | Not in use  |
|                              |             |    |    |              | Not in use  |



## 4.2. CONNECTION AND SETTINGS HEATERS

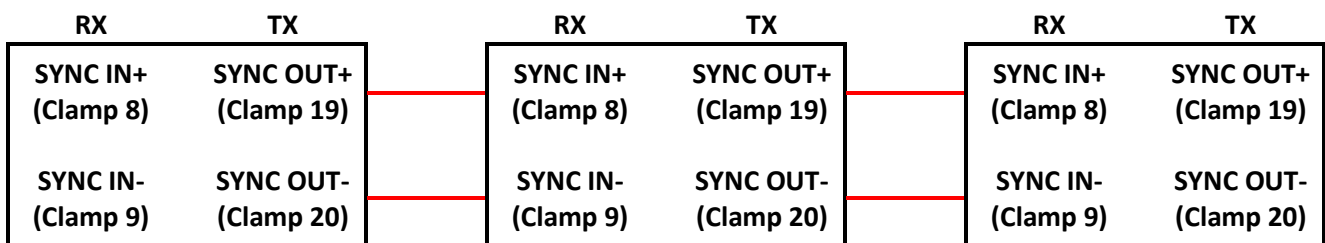
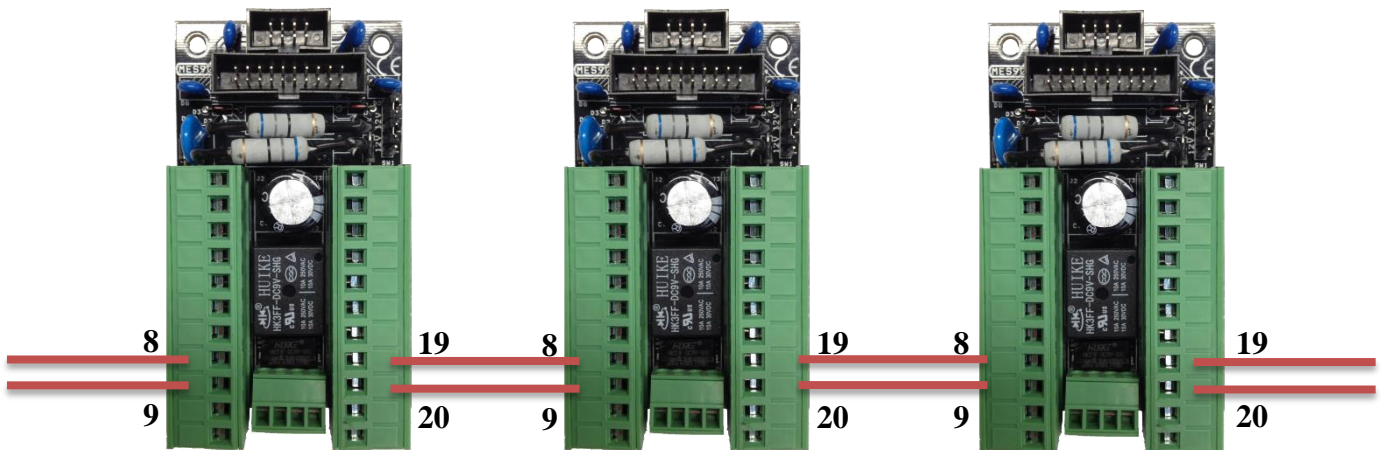
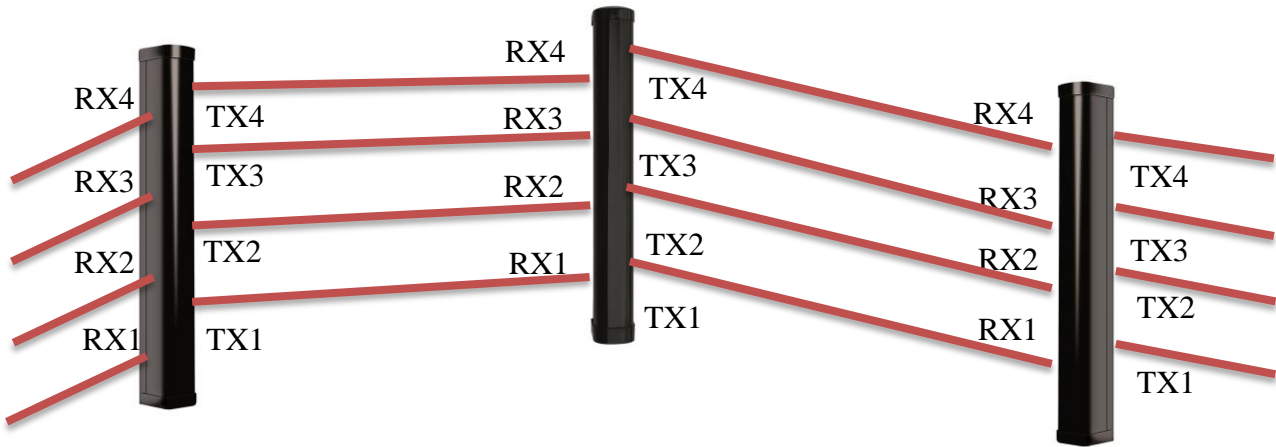
The power of the heaters is by default set to 24 V (ac or dc), but you can set it to 12 VDC repositioning the jumper on MES9C and on each optical as shown.



## 4.3. SYNCHRONIZATION

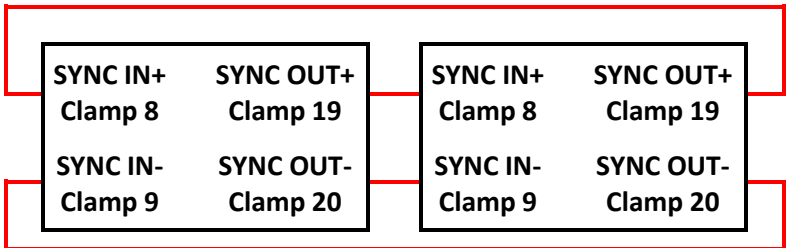
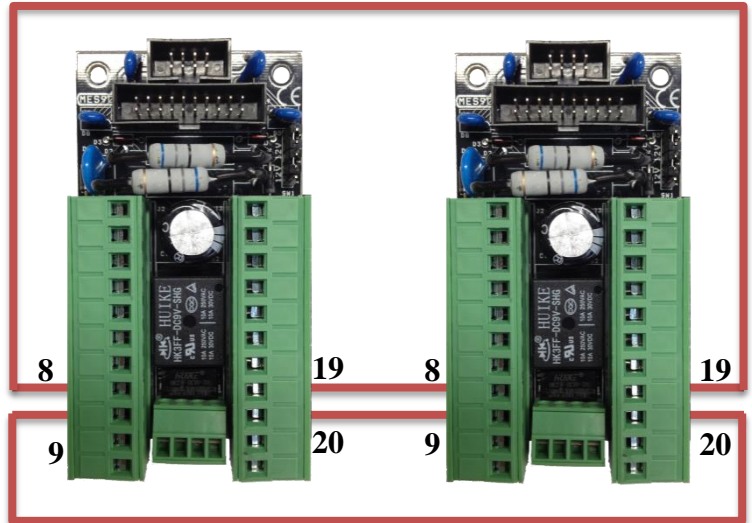
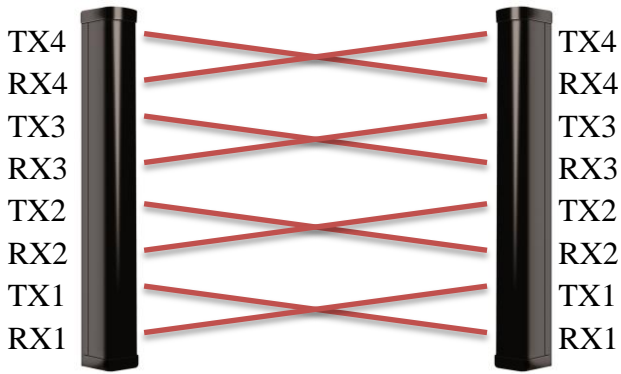
### 4.3.1. Wired SYNC

Disposition of TX and RX and relative synchronization.

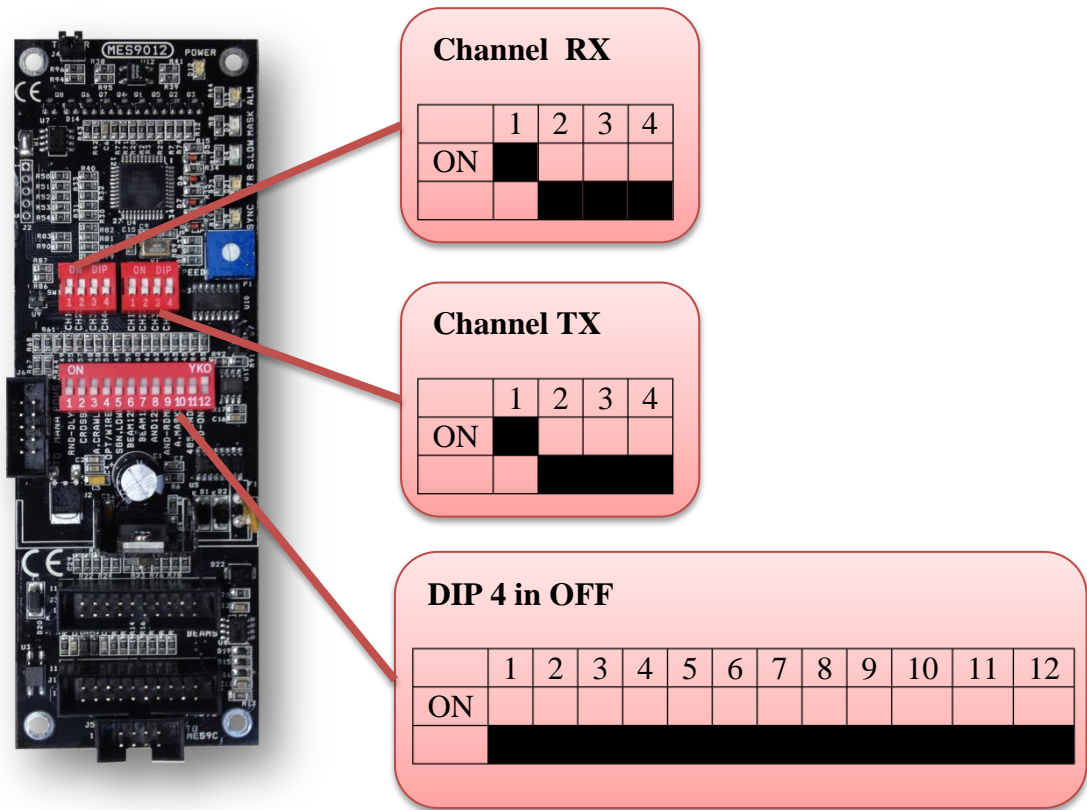


The synchronisms have to be connected according to the diagram above, the **Sync out** corresponds to the TX part of the column and will have to be connected to the **Sync in** on the RX opposite one. You must also connect the negative of power supply in common between the columns; so it is appropriate to use a shielded cable alarm, 2x0, 22, to connect the sync and the screens to negative Vdc of power supply on both columns.

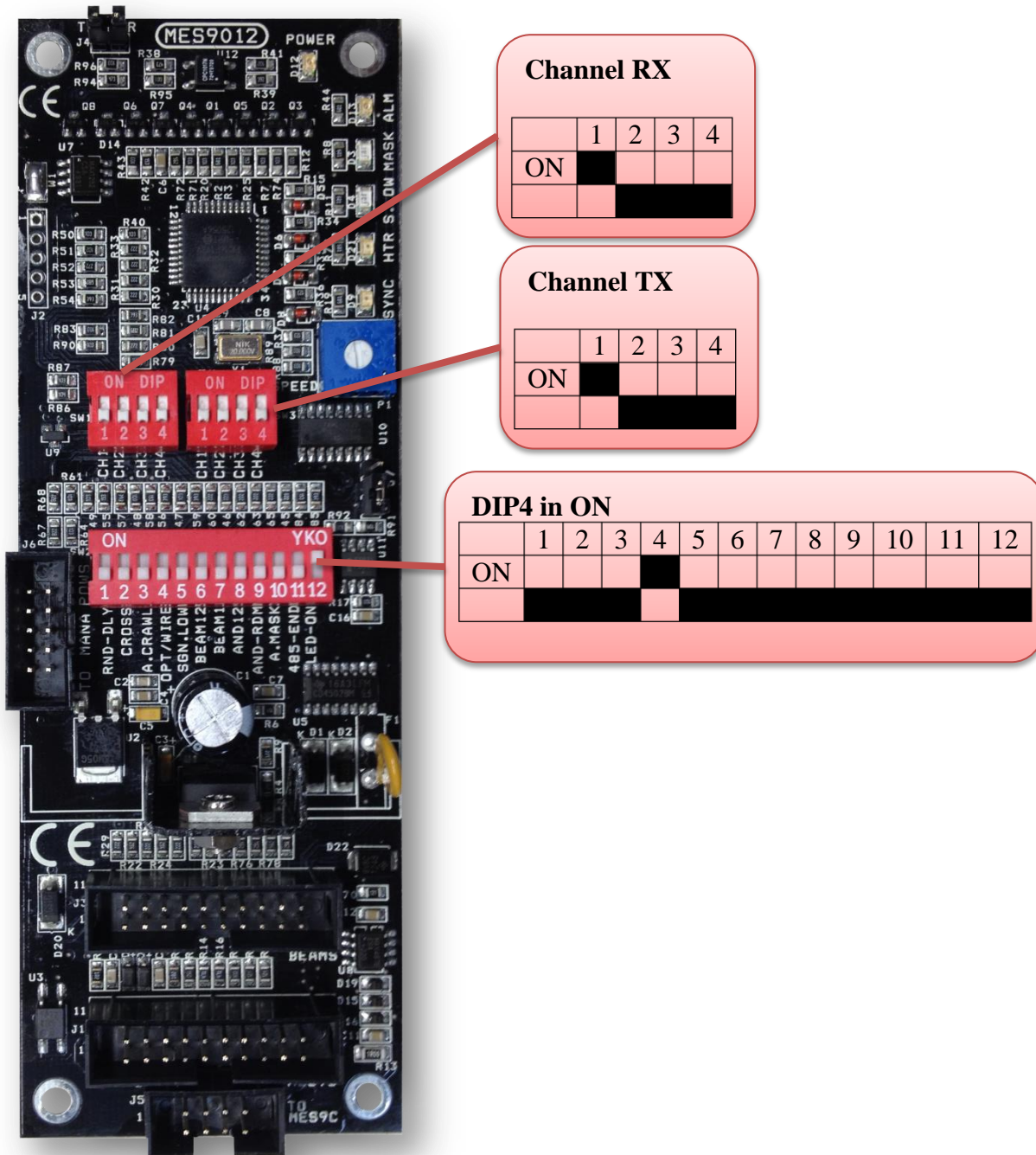
**COLLEGAMENTI PER SINCRONISMO A SBARRAMENTO UNICO**



**Note: SYNC OUT- and SYNC IN - should not be connected to ground but to the dedicated clamp (terminal numbers are related to the image of p. 11).**



## 4.3.2. Optical SYNC



Position in ON DIP 4 on the bench of 12 and select the transmission channel 1 to 3 (default is set to channel 1), on the bench of 4; the selected channel must be the same on both TX and RX boards.

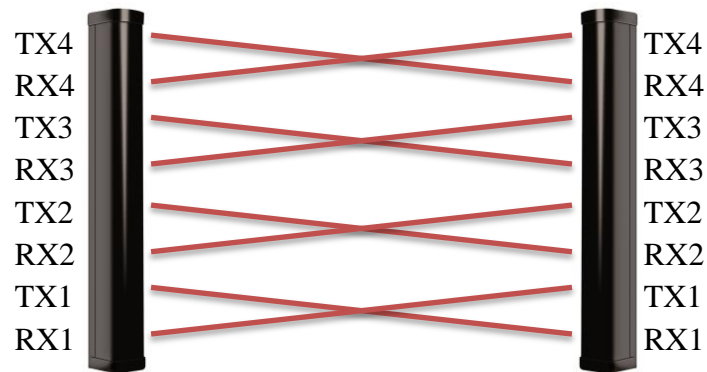
**Note:** for information and for other configuration of MES9012, please check page 27.



In the case of single barrier set the RX channel different than TX channel

**COLUMN 1**

**COLUMN 2**

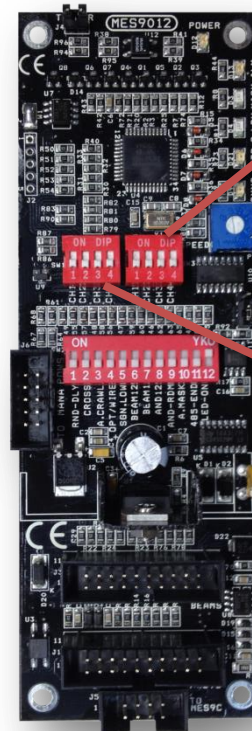
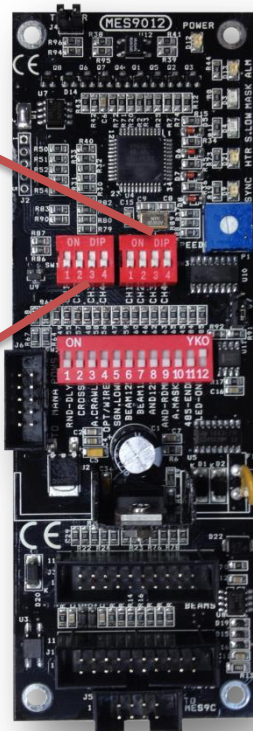


**Channel TX**

|    |   |   |   |   |
|----|---|---|---|---|
|    | 1 | 2 | 3 | 4 |
| ON |   |   |   |   |
|    |   |   |   |   |

**Channel RX**

|    |   |   |   |   |
|----|---|---|---|---|
|    | 1 | 2 | 3 | 4 |
| ON |   |   |   |   |
|    |   |   |   |   |



**Channel TX**

|    |   |   |   |   |
|----|---|---|---|---|
|    | 1 | 2 | 3 | 4 |
| ON |   |   |   |   |
|    |   |   |   |   |

**Channel RX**

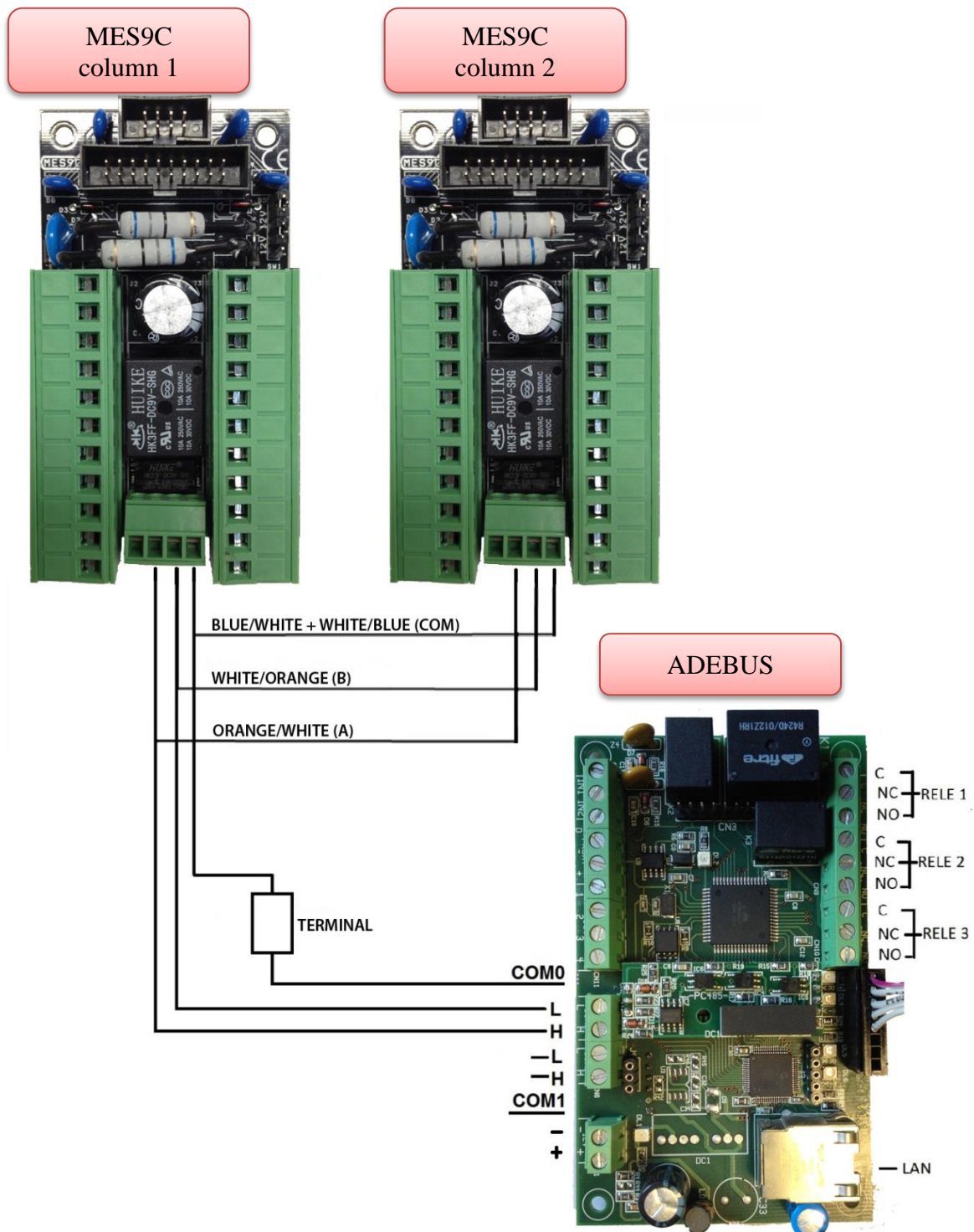
|    |   |   |   |   |
|----|---|---|---|---|
|    | 1 | 2 | 3 | 4 |
| ON |   |   |   |   |
|    |   |   |   |   |

## 4.4. SERIAL CONNECTION TO ADEBUS

Each column can be connected via the RS485 bus to the control panel ADEBUS for planning, monitoring and managing local or remote system.

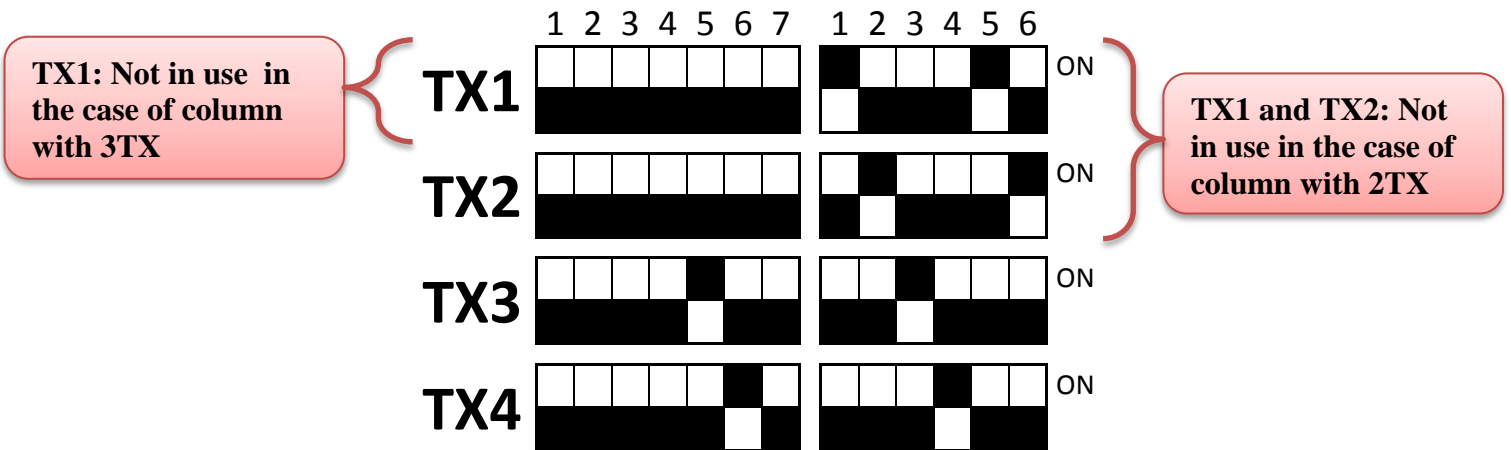
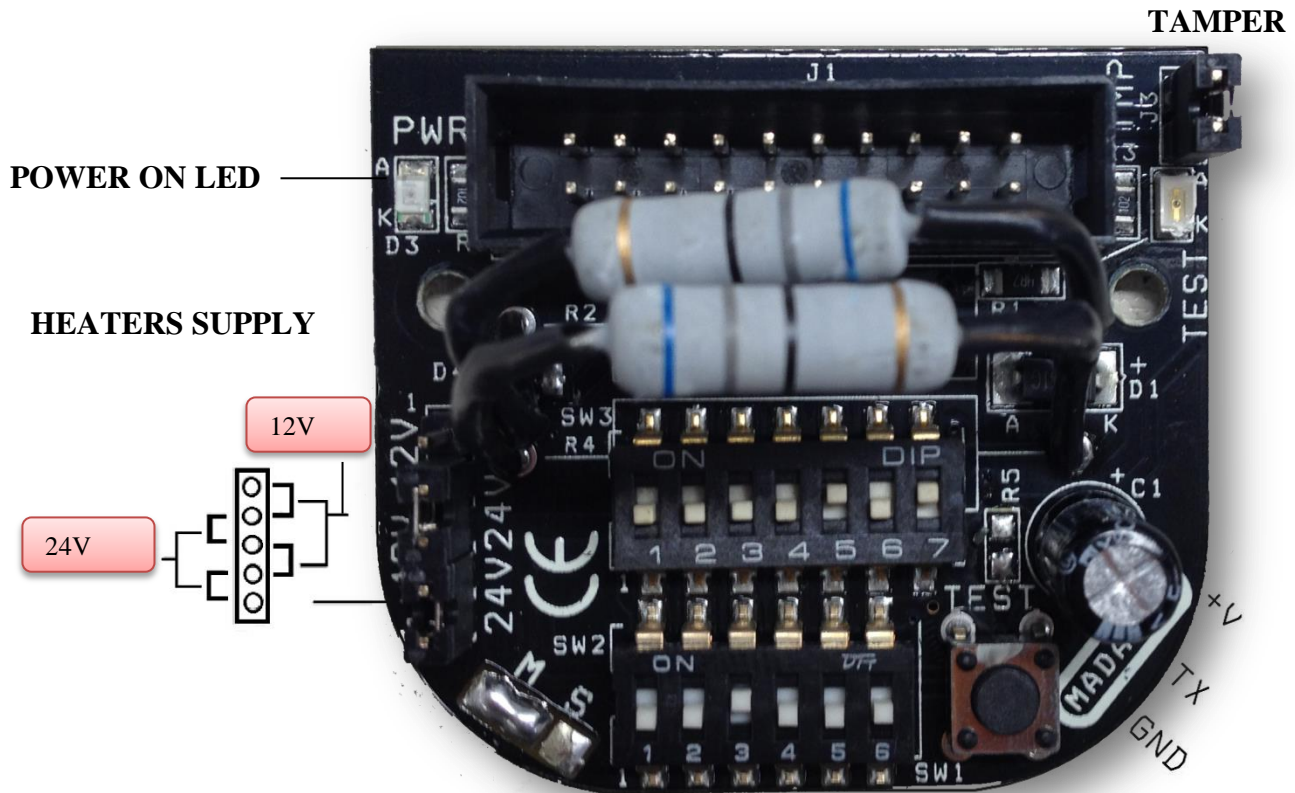
For more information, refer to "Manual ADEBUS EXPLORER"

### 4.4.1. Connection to serial port for each column



## 5. OPTICS CONFIGURATION

### 5.1. OPTICAL TX

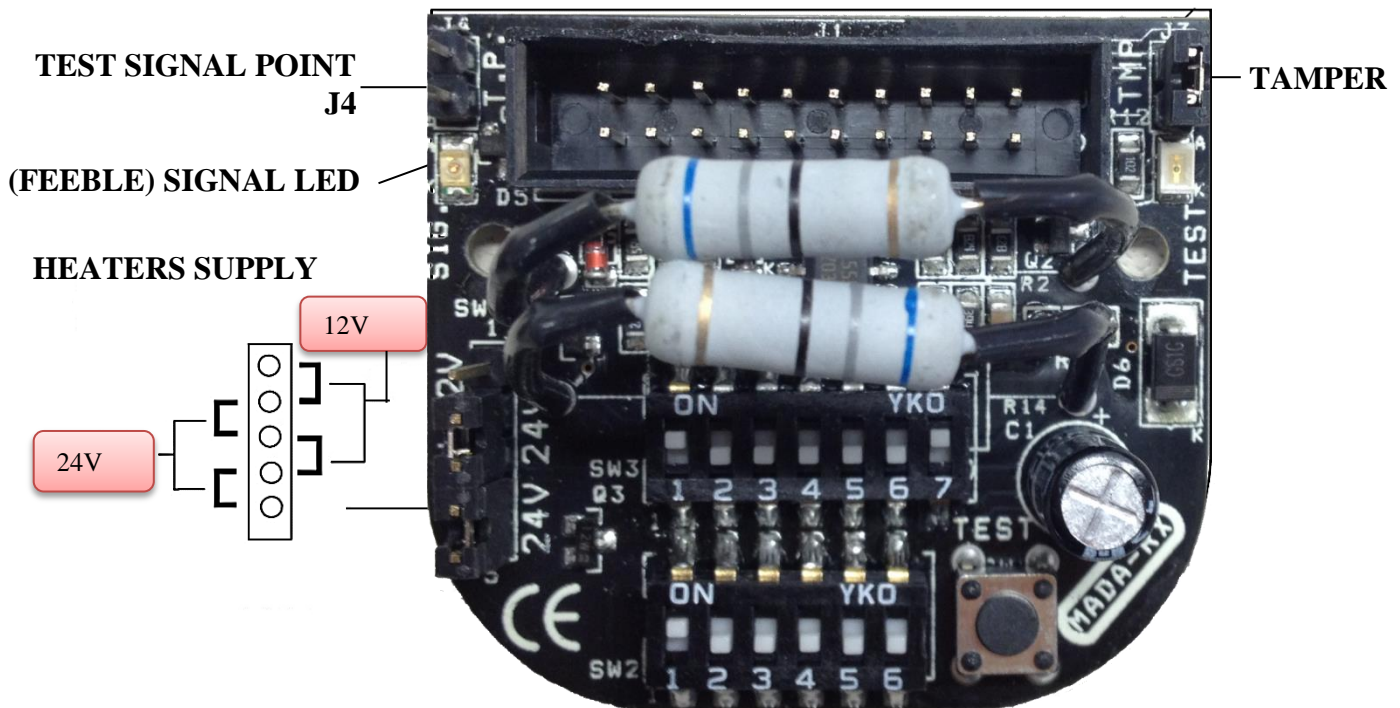


Through DIP 7 in ON (as default) and lighted LED POWER is occur the correct operation of TX optics. The power of the heaters is set by default to 24V; you can use 12V by changing the configuration of the jumper (SW4). The voltage can be both AC and DC.

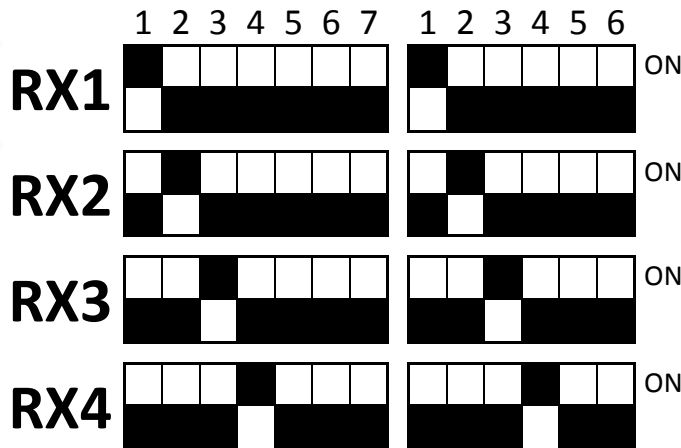
**Note: The settings and relative addresses are already set by Default.**



## 5.2. OPTICAL RX



**RX1: Not in use in the case of column with 3RX**



**RX1 and RX2: Not in use in the case of column with 2RX**

Through DIP 7 in ON (as default) and lighted LED POWER is occur the correct operation of RX optics.  
The power of the heaters is set by default to 24V; you can use 12V by changing the configuration of the jumper (SW4).  
The voltage can be both AC and DC.

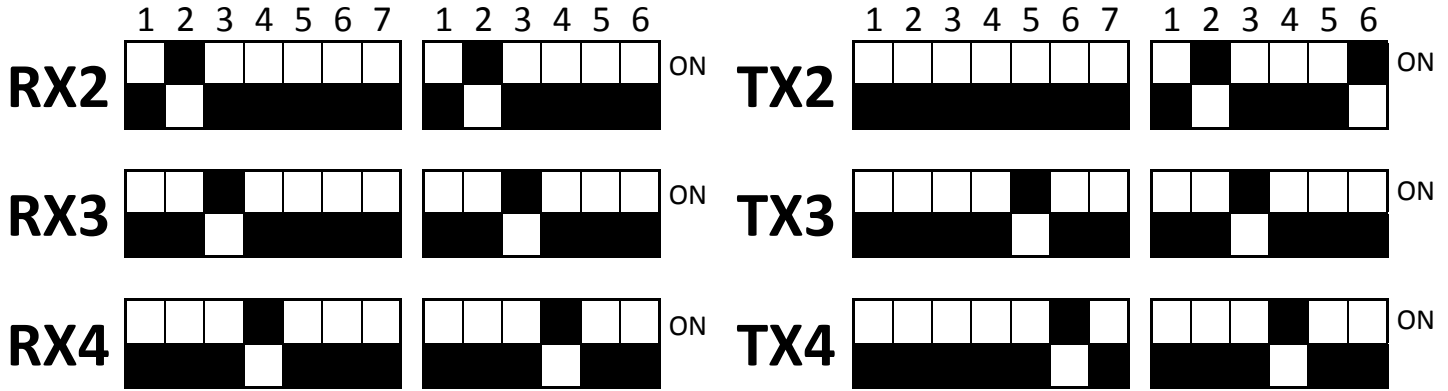
In jumper J4 is possible to read the signal value in volts.

**Note: The settings relating to addresses are already set to Default.**

Default barriers with 2 or 3 RX are set during testing in the factory. In case you want to change the original number of RX optics in the field it is necessary to set the DIP SWITCH six and seven as follows:

### 5.3. 3 TX/RX SETTINGS

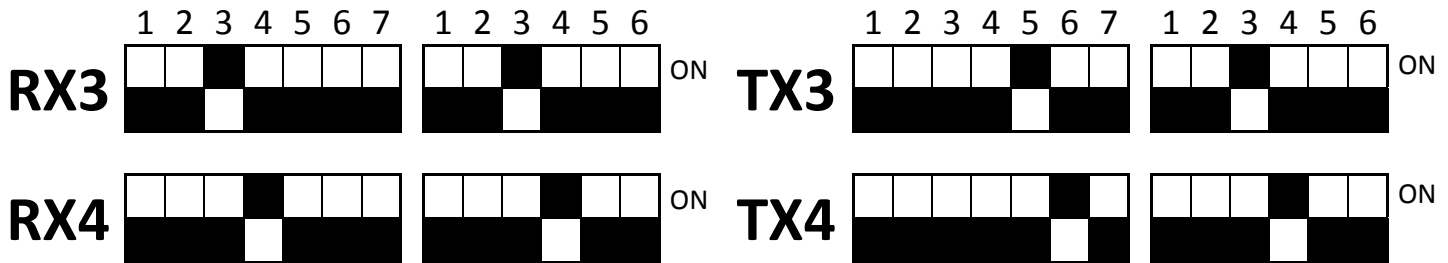
The setting of the DIP SWITCHES on the lenses is set:



It should be set to ON the DIP on the motherboard RX exclusion 1

### 5.4. 2 TX/RX SETTINGS

The setting of the DIP SWITCHES on the lenses is set:

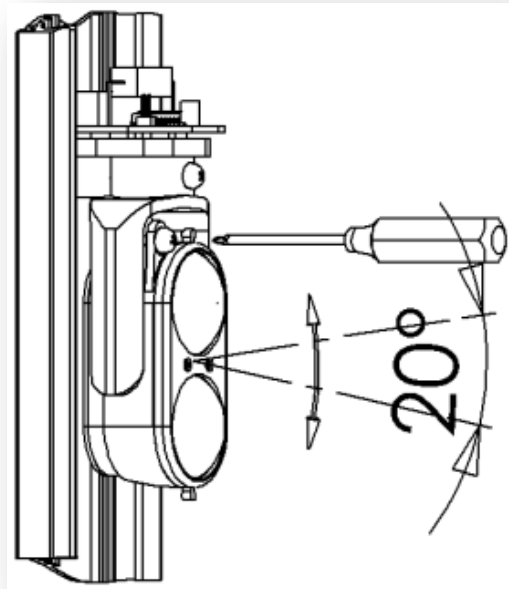


It should be set to ON the DIP on the motherboard RX exclusion 1 + 2

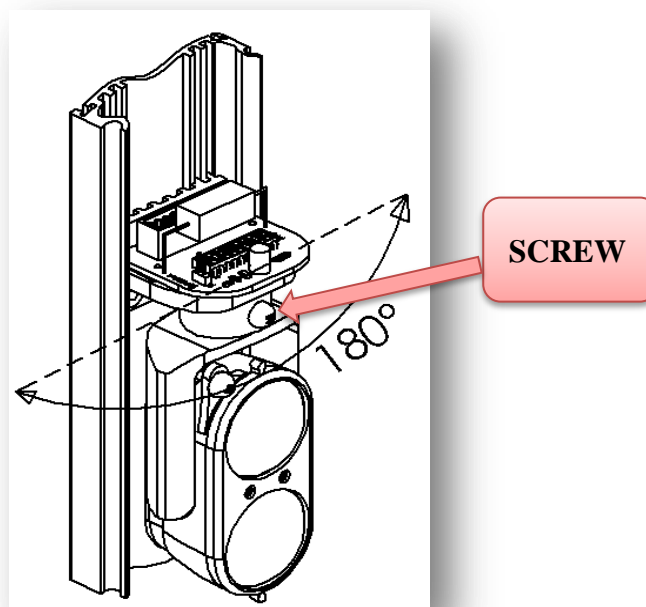
## 6. COLUMN ALIGNMENT

For proper alignment, once the barriers are installed, orient the optical of transmitters and receivers in the direction of each other by adjusting the lens holder horizontally through the manual movement after loosening the locking screw on the joint, and vertically through the front screw on the left side of the lens.

### Vertical adjustment



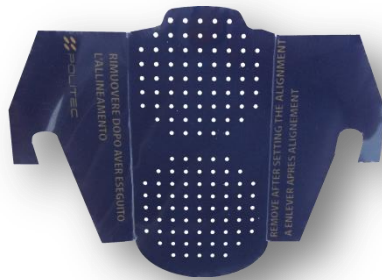
### Horizontal adjustment



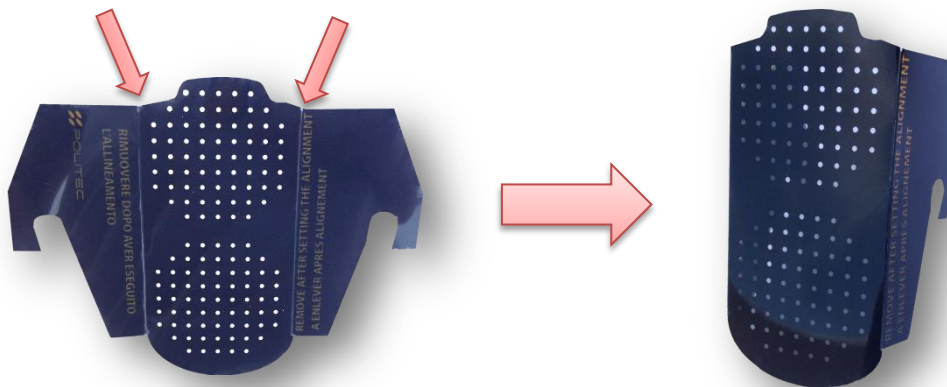
**N.B.: FASTEN THE UNLOCKED SCREW AFTER THE ADJUSTMENT**

## 7. CALIBRATION THROUGH SMA SYSTEM

It is possible to improve the alignment using the trough the filter provided



2) Fold the filter along the preset line.

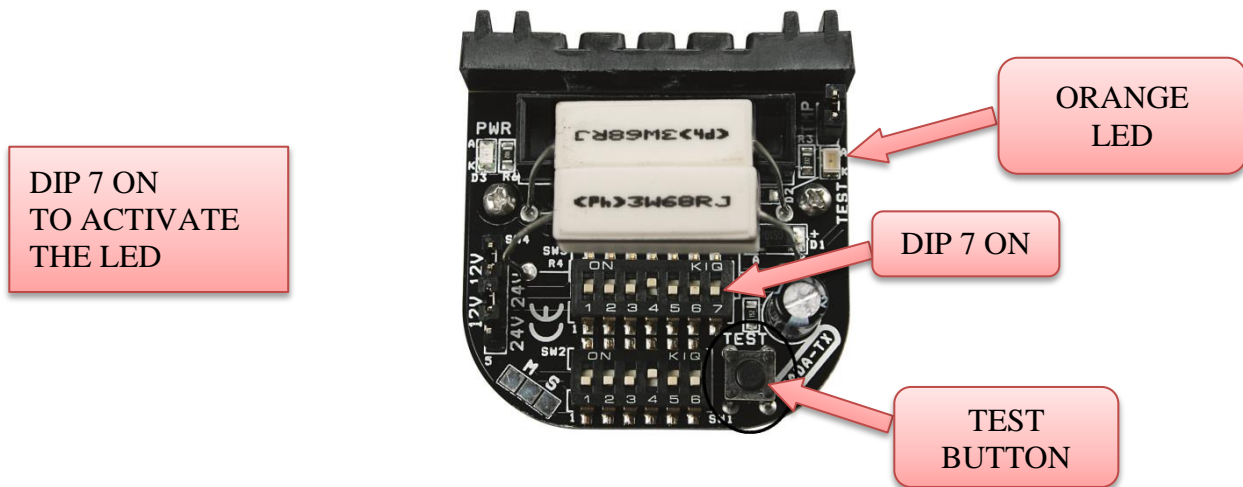


3) Place the filter in front of the optics TX, hooking it to the fork, to improve the effectively search of alignment signal in critical conditions.

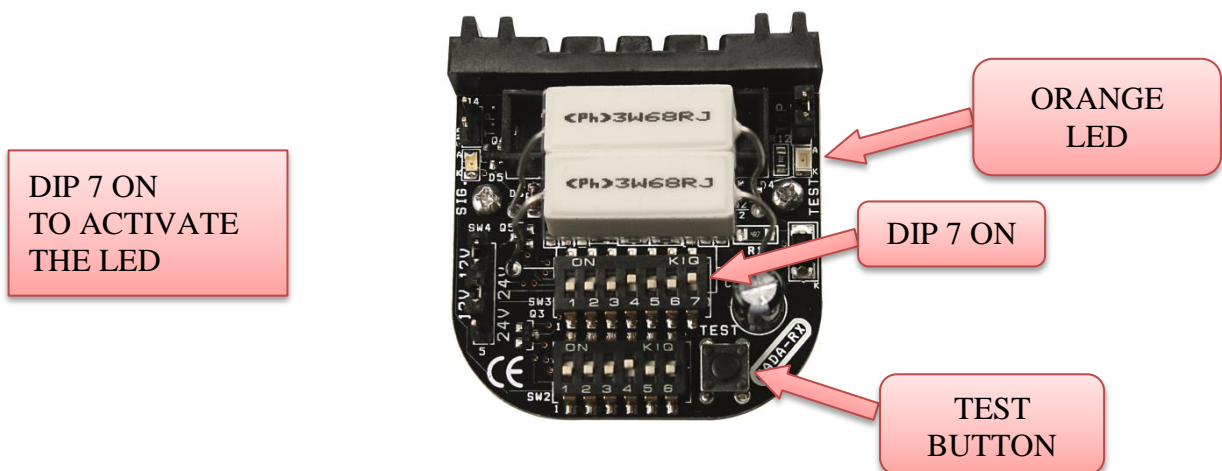


It is enough to apply the filter on TX optic, do not repeat the operation on RX.

- 4) Start the alignment of the transmitter is on the barrier by checking the position of the DIP switch 7 to ON and activating the TEST optics TX (1 or 2 or 3 or 4), by pressing the dedicated button for about 3 seconds until the orange LED TEST will lit up.



- 5) Place in the corresponding optical TEST (1 or 2 or 3 or 4) on coral receiver, checking the position of the DIP switch 7 to ON and pressing the dedicated button for 3 seconds until the the BUZZER and the LED TEST turns ON, (with high brightness)

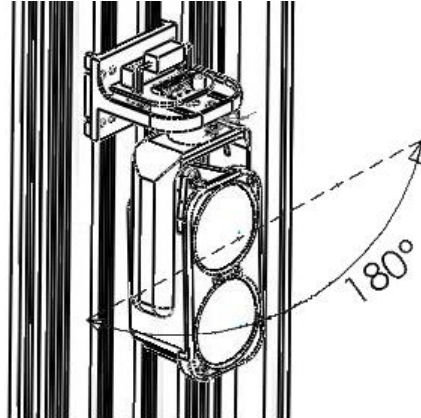


- 6) Through the TRANSMITTER lens shifts, find the maximum optical alignment based on the Buzzer and LEDs (with high brightness), the increase in the frequency of flashing (until the LEDs is fix on and the whistle of the corresponding BUZZER) indicate a better ALIGNMENT.



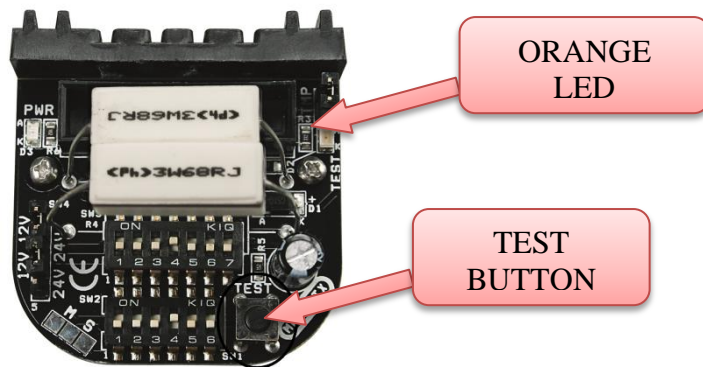


7) With a FULL rotation on the horizontal RX lens, is carried out the SCANNING of the optical signal.

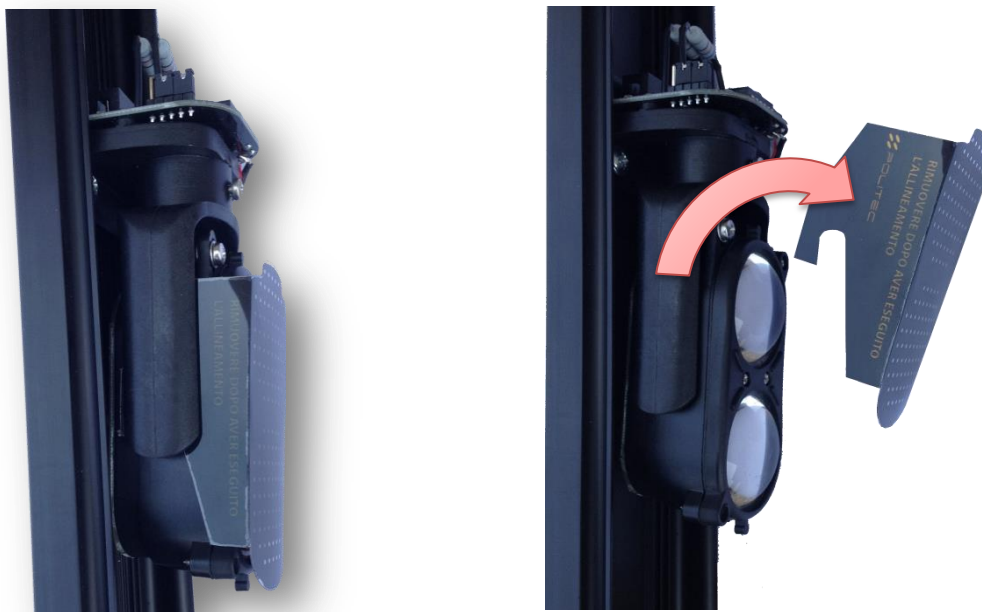


8) Rotating the lens RX find the maximum value of ALIGNMENT corresponding to the LEDs (with high brightness) FIXED and the whistle of the BUZZER CONTINUOUS.

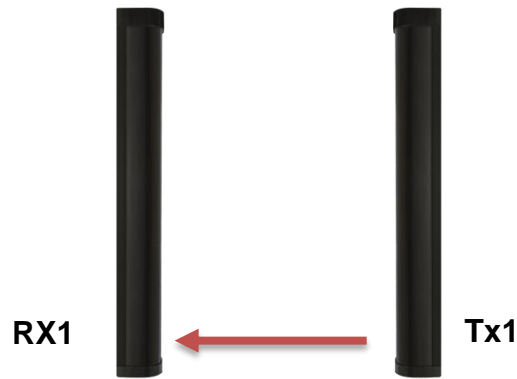
9) Exit the function of by repressing the ALIGNMENT TEST button for about 3 seconds on both optics (TX-RX) making sure that the orange LED TEST is shown in original condition.



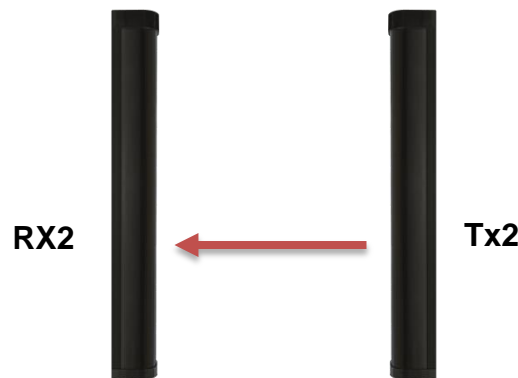
10) Once finish the alignment remove from the optic the filter, sure to have achieved the best signal.



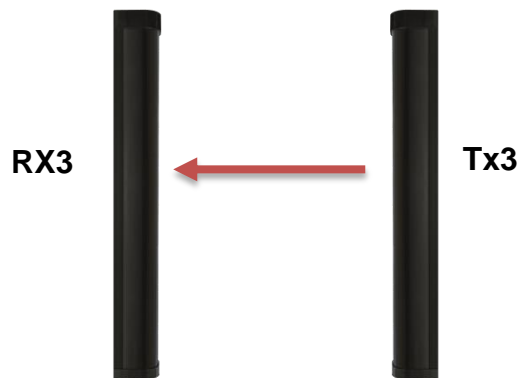
## 8. CALIBRATION WITH PARALLEL BEAMS



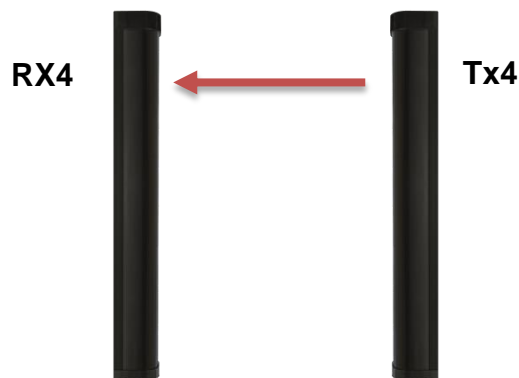
- 1) Put in test the optical TX1 and RX1 (if present see p.11-12) and proceed with the calibration as explained



- 2) Put in test the optical TX2 and RX2 (if present see p.11-12) and proceed with the calibration as explained



- 3) Put in test the optical TX3 and RX3 and proceed with the calibration as explained



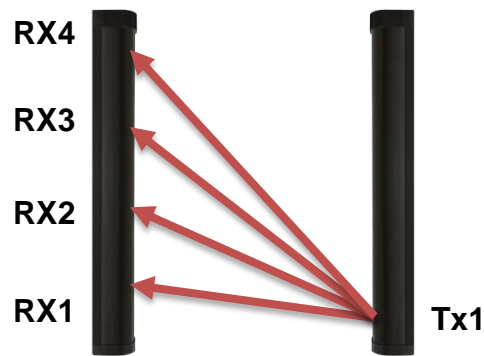
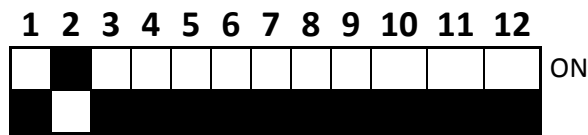
- 4) Put in test the optical TX4 and RX4 and proceed with the calibration as explained

**N.B.:** during the testing phase of an optical transmitter the other TX not in test are switched off automatically

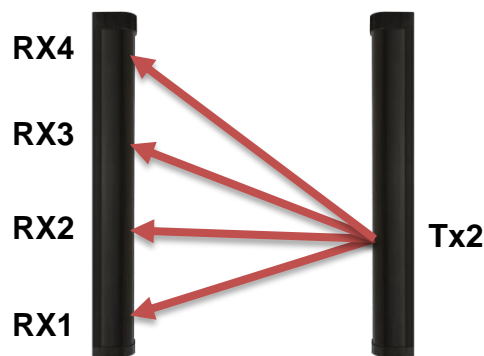


## 9. CALIBRATION WITH CROSSED BEAMS

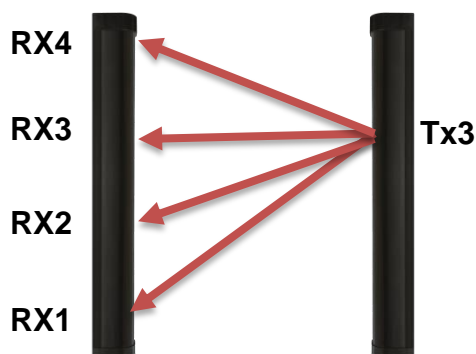
To activate this function move the DIP. 2 bench of 12 DIPSWITCH of MES9012 ON.



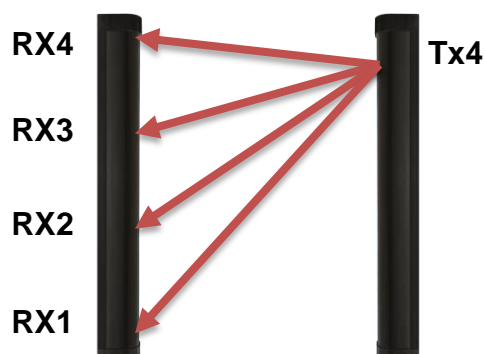
1) Put in test the optical TX1 and RX1 (if present see p.11-12) and proceed with the calibration as explained on p. 13 and 14. REPEAT the setting of RX2, RX3 and RX4. Make sure that it still aligned with RX1.



2) Put in test the optical TX2 and RX1 (if present see p.11-12) and proceed with the calibration as explained on p. 13 and 14. REPEAT the setting of RX2, RX3 and RX4. Make sure that it still aligned with RX1.

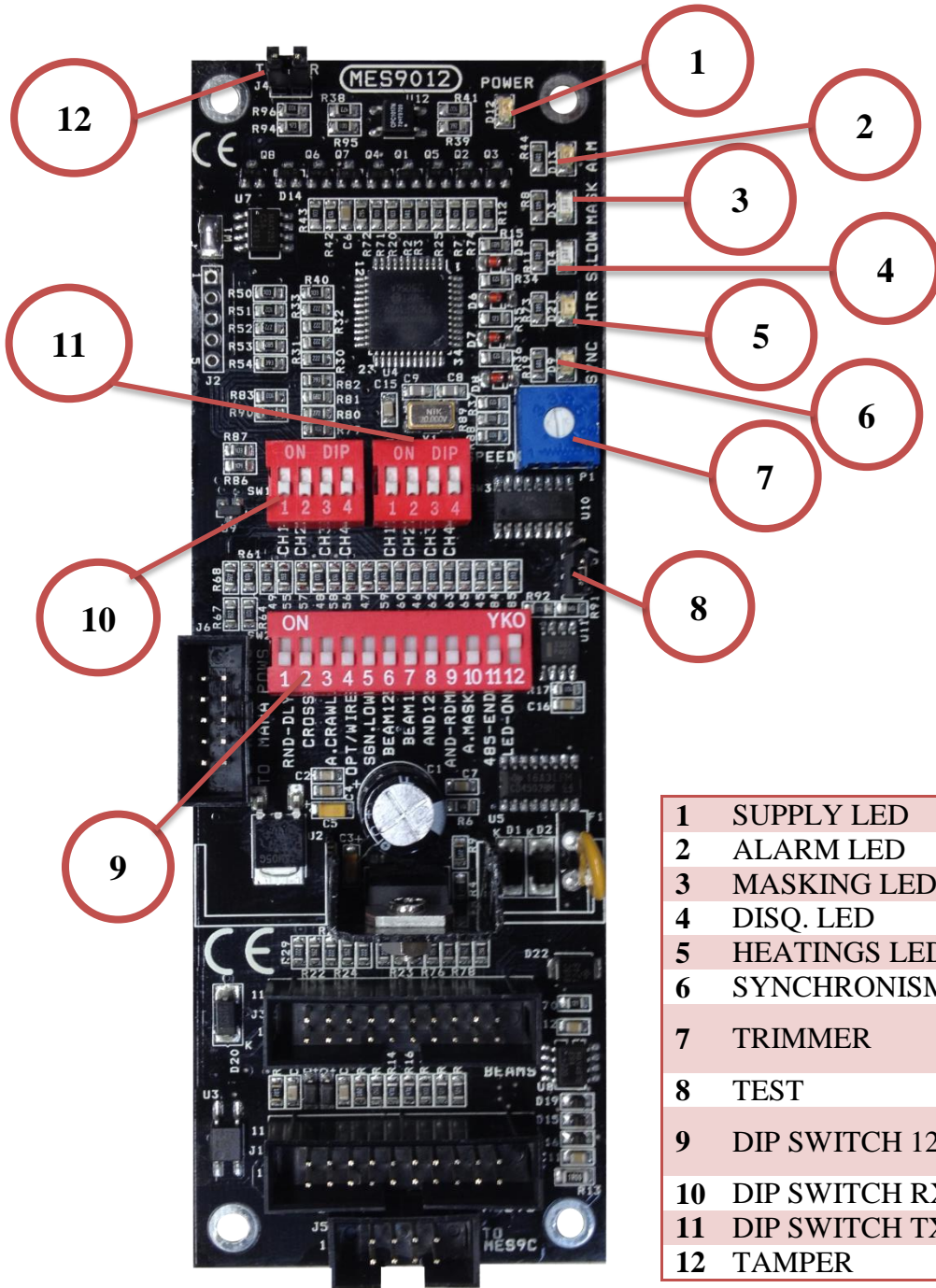


3) Put in test the optical TX3 and RX1 and proceed with the calibration as explained on p. 13 and 14. REPEAT the setting of RX2, RX3 and RX4. Make sure that it still aligned with RX1.



4) Put in test the optical TX4 and RX1 and proceed with the calibration as explained on p. 13 and 14. REPEAT the setting of RX2, RX3 and RX4. Make sure that it still aligned with RX1.

# 10. SETTING AND PROGRAMMING MOTHER BOARD (MES 9012)



|    |               |                             |        |
|----|---------------|-----------------------------|--------|
| 1  | SUPPLY LED    |                             | Red    |
| 2  | ALARM LED     | ALM                         | Red    |
| 3  | MASKING LED   | MASK                        | Green  |
| 4  | DISQ. LED     | S.SLOW                      | Green  |
| 5  | HEATINGS LED  | HTR                         | Yellow |
| 6  | SYNCHRONISM   | SYNC                        | Yellow |
| 7  | TRIMMER       | Response time adjustment    |        |
| 8  | TEST          | J7                          |        |
| 9  | DIP SWITCH 12 | Function selector (pag. 23) |        |
| 10 | DIP SWITCH RX |                             |        |
| 11 | DIP SWITCH TX |                             |        |
| 12 | TAMPER        |                             |        |

## 11. LED FUNCTIONING

The motherboard has six LED signaling and control, which can be activated via the dip switches 12 on the board MES9012S dedicated in the ON position.

It is recommended that at the end of the testing set dip switches in the OFF position, both to avoid a glimpse of the signals, both to reduce consumption of the system.

|  |  |
|--|--|
| <b>POWER</b><br><i>Supply led</i>  | The SUPPLY LED is the only one to always be on in normal conditions of operation, confirm that the card is properly powered.   |
| <b>LED ALM</b><br><i>Alarm led</i>   | Normally off, in the event of ignition, indicates the alarm status. The alarm condition will depend on the setting of the jumpers composing the board and the delay time set on trimmer SPEED will be adjusted from a minimum of 50 msec to 500 msec. Increasing clockwise.  |
| <b>LED MASK</b><br><i>Signals of Masking</i>                                   | The ignition of the MASK LED indicates the presence of an infrared signal modulated not desired. On the terminal, in the presence of an attempt to blindness, it can obtain the signaling ANTIMASK.<br><b>N.B.:</b> In normal operation the LED should be OFF. In the event that is either on or flashing check the setting of the jumpers for selecting beam on the various transmitters.   |
| <b>LED SIG LOW</b><br><i>Indicates the low level of signals (fog presence)</i> | The lighting SIG LOW LED indicates the presence of FOG INTENSE. In the presence of intense fog before having an alarm condition due to lack of signal, the LED SIG LOW lights on the terminal and you can have the message DISQUALIFICATION.<br><b>N.B.:</b> By placing the jumper SIG LOW in the ON position, and by the intervention of the disqualification is obtained the exclusion of the barrier, which will return to work as soon as the fog lifts. |
| <b>LED HTR</b><br><i>Indicates the heaters functioning</i>                     | The automatic heating system, electronically controlled to ensure in all climatic conditions an internal temperature between 17 ° C and 22 ° C.<br>Normally off, when turned on the heater is on.  |
| <b>LED SINC</b><br><i>Indicates the functioning of the synchronism</i>         | The LED SINC continuously flashing indicates the proper operation and wiring of sync both outgoing and incoming.   |

## 12. CHARACTERISTICS AND DIP SWITCHES SET

The motherboard has several configurations programmable via dip switches.

### DIP SWITCH 12 DIP

|    |                       |   |
|----|-----------------------|---|
| 1  | <b>RND DLY ON</b>     | In the ON position the alarm from time to time is generated with a random delay varying from 0 to 1 sec<br>This function serves to confuse and mislead the intruder who wants to identify the detection system  |
|    | <b>HEATER TEST</b>    | Turn ON and OFF DIP1 for 3 times in order to switch on heaters for 20 min bypassing thermostat.   |
| 2  | <b>CROSSING</b>       | In the ON position activates the detention Crossed beams  |
| 3  | <b>A.CRAWL</b>        | In the ON position it has the "normal" operation of the barrier, set to OFF mode is activated to "ANTI CRAWLING" means that the darkening of the radius RX1 (the first down) for at least 2 sec. causing the alarm condition, regardless of whether it was previously set to OR or AND.   |
| 4  | <b>SYNC</b>           | Irrelevant.   |
| 5  | <b>DISQ</b>           | In the ON position activates the disqualification (with at least two optics that detect a low signal).  |
| 6  | <b>BEAM OFF 1 + 2</b> | In the ON position you get the exclusion of the first two rays starting from the bottom while the remaining rays continue to operate. The function can also be programmed remotely giving a positive control on the 12V + terminal of the terminal block marked BEAM. If you want to enable this function remotely DIP6 must remain OFF.  |
| 7  | <b>BEAM OFF 1</b>     | In the ON position is obtained the exclusion of the first beam in the bottom, while the remaining continue to function.<br>The function can also be programmed remotely giving a negative command 0 V on terminal marked BEAM ON on the terminal block MES9C.<br>If you want to enable this function remotely DIP7 must remain OFF.   |
| 8  | <b>AND 1 + 2</b>      | In the ON position is obtained the AND function of the first two receivers, that is to say that both must be interrupted to generate the alarm condition, while the remaining Rx remain be alarmed individually.<br>This configuration can be useful in the presence of tall grass or small animals.<br>The function can also be programmed remotely giving a positive command +12V on the terminal marked AND.<br>If you want to enable this function remotely DIP8 must remain OFF. |
| 9  | <b>AND RND</b>        | In the ON position is obtained the AND between two random Rx, ie that to have an alarm condition should always be alarmed at least two Rx among all those used.<br>The function can also be programmed remotely giving a negative command 0 V on the terminal block labeled AND.<br>If you want to enable this function remotely DIP9 must remain OFF.  |
| 10 | <b>ANTIMASK</b>       | In the ON position the enable function ANTI MASKING (ANTIMASK activating the output on the terminal MES9C.  |
| 11 | <b>CLOSE RS485</b>    | In the ON position closes the RS485 communication. To finish you need to put in ON only the switches of the column as far as the entire line.   |
| 12 | <b>LEDS</b>           | In the ON position activates the LEDs.  |

### 4 DIP SWITCH TX

|                |  |            |  |
|----------------|--|------------|--|
| <b>TEST TX</b> | By setting all DIP to OFF will turn off all transmitters of the column; moving all DIP ON transmitters are activated at high frequency in order to allow a first visual contact between transmitter and receiver in case of difficulties at great distances. |            |  |
| <b>1</b>       | <b>CH 1</b>  | <b>ON</b>  | Wire sync: normal operation of transmitter                                       |
|                |  | <b>OFF</b> | Optical sync: operation with transmission frequency 1                            |
| <b>2</b>       | <b>CH 2</b>  | <b>ON</b>  | Wire sync: not in use  |
|                |  | <b>OFF</b> | Optical sync: operation with transmission frequency 2                            |
| <b>3</b>       | <b>CH 3</b>  | <b>ON</b>  | Wire sync: not in use  |
|                |  | <b>OFF</b> | Optical sync: operation with transmission frequency 3                            |
| <b>4</b>       | <b>CH 4</b>  | <b>ON</b>  | Wire sync: not in use  |
|                |  | <b>OFF</b> | Optical sync: operation with transmission frequency 4, only 2 transmitter active |

### 4 DIP SWITCH RX

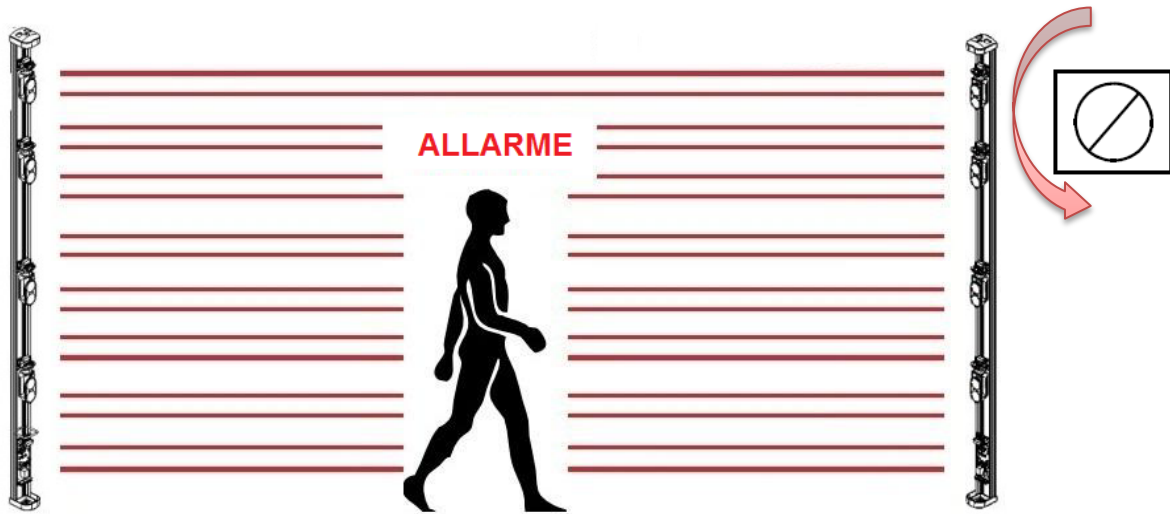
|                             |  |            |   |
|-----------------------------|--|------------|---|
| <b>TERMINAL and only TX</b> | All DIP ON: deactivates the alarm relay. This setting is used when the column has only optical transmitter |            |   |
| <b>1</b>                    | <b>CH 1</b>  | <b>ON</b>  | Wire sync: normal operation of receiver                                       |
|                             |  | <b>OFF</b> | Optical sync: operation with transmission frequency 1                         |
| <b>2</b>                    | <b>CH 2</b>  | <b>ON</b>  | Wire sync: not in use   |
|                             |  | <b>OFF</b> | Optical sync: operation with transmission frequency 2                         |
| <b>3</b>                    | <b>CH 3</b>  | <b>ON</b>  | Wire sync: not in use   |
|                             |  | <b>OFF</b> | Optical sync: operation with transmission frequency 3                         |
| <b>4</b>                    | <b>CH 4</b>  | <b>ON</b>  | Wire sync: not in use   |
|                             |  | <b>OFF</b> | Optical sync: operation with transmission frequency 4, only 2 receiver active |

### JUMPER J7

If the disqualification function is activated, you can increase the sensitivity of the disqualification by jumper J7

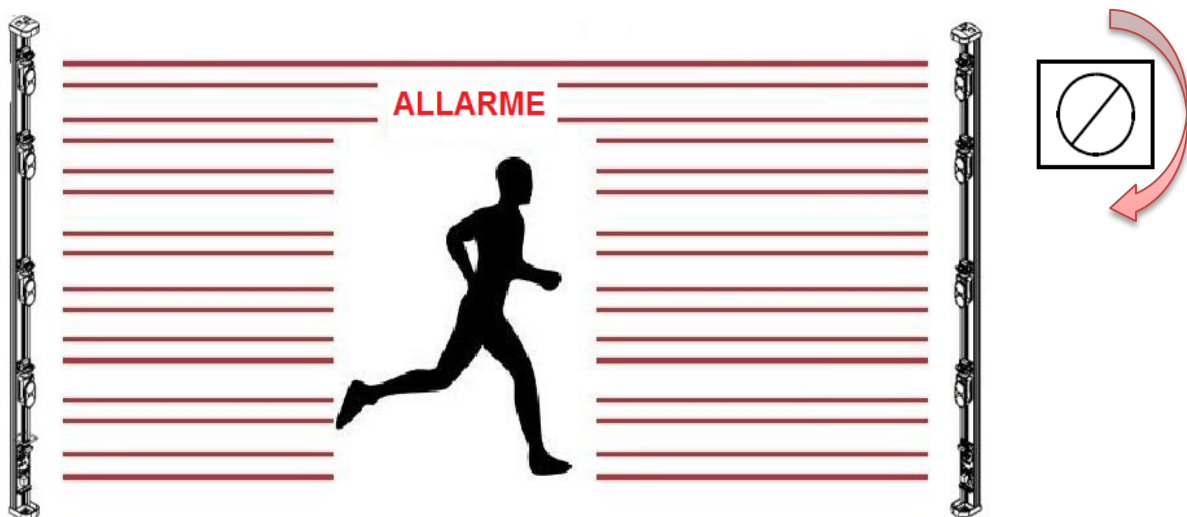
## 12.1. RESPONSE TIME ADJUSTMENT

There is a potentiometer to adjust the TIME OF INTERVENTION. In particular, you can set the barrier for the rapid alert system (cross running) or slow (cross by walk ).



By adjusting the potentiometer counterclockwise to increase the trip time up to 500ms. In this condition ensures that the alarm of a person walking through the barrier, with the advantage of excluding the possibility of any false alarms (ex. animals).

Adjusting the potentiometer clockwise decreases the trip time until 50ms. In this condition ensures the alarm of a person crossing the barrier running at maximum speed.





## 13. TECHNICAL CHARACTERISTICS

|                              |  |
|------------------------------|--|
| <b>MAX RANGE INDOOR</b>      | 450 m  |
| <b>MAX RANGE OUTDOOR</b>     | 100 m  |
| <b>SYNCHRONISM</b>           | Wired and optics   |
| <b>OPTICS</b>                | Impulsive double lenses 950 nm   |
| <b>OPERATION MODE</b>        | Parallel or crossed beams  |
| <b>DISQUALIFICATION</b>      | Automatic with signaling out, open collector negative  |
| <b>MASKING</b>               | Detection of blindness by another infrared signal by signaling out, open collector negative. |
| <b>OPERATING TEMPERATURE</b> | - 25°C / + 65°C. Available Kit heaters for temperatures down to -50 ° C.                     |
| <b>ADJUSTMENT ANGLE</b>      | ± 10° vertical – 180° horizontal   |
| <b>DETECTION OPTIONS</b>     | And/Or on Rx / AND 1° + 2°.  |
| <b>BEAMS EXCLUSION</b>       | 1° / 1° + 2°   |
| <b>REMOTE CONTROLS</b>       | AND Random / AND 1° + 2° beam / exclusion 1° o 1° e 2°                                       |
| <b>PLASTIC SCREEN</b>        | Specific for Infrared with HUV filter.   |
| <b>TOP CAP</b>               | With Tamper.   |
| <b>PROTECTION DEGREE</b>     | IP 54  |

| <b><u>STANDARD MODEL</u></b> | <b>2 TX + 2 RX<br/>PLUS SMA 94xx</b> | <b>3 TX + 3 RX<br/>PLUS SMA 96xx</b> | <b>4 TX + 4 RX<br/>PLUS SMA 98xx</b> |
|------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| <b>Total n. optics</b>       | 2TX + 2RX                            | 3TX + 3RX                            | 4TX + 4RX                            |
| <b>Power supply</b>          |                                      | 12-24Vcc.                            |                                      |
| <b>Absorption</b>            | 120 mA                               | 135 mA                               | 150 mA                               |
| <b>Heaters in column</b>     | 30W 24Vca<br>with thermostat         | 40W 24Vca<br>with thermostat         | 50W 24Vca<br>with thermostat         |

| <b><u>TERMINAL MODEL</u></b> | <b>2TX o 2RX<br/>92xx TX/ 92xx RX</b> | <b>3TX o 3RX<br/>93xx TX/93xx RX</b> | <b>4TX o 4RX<br/>94xx TX/ 94xx RX</b> |
|------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| <b>Total n. optics</b>       | 2TX o 2RX                             | 3TX o 3RX                            | 4TX o 4RX                             |
| <b>Power supply</b>          |                                       | 12-24Vcc.                            |                                       |
| <b>Absorption</b>            | 80 mA                                 | 100 mA                               | 120 mA                                |
| <b>Heaters in column</b>     | 30W 24Vca<br>with thermostat          | 40W 24Vca<br>with thermostat         | 50W 24Vca<br>with thermostat          |

For single barrier or couple (TX and RX) or in case of open perimeter.



## 14. F.A.Q

### I can't calibrate the columns

- Make sure that there are no obstacles whatsoever interposed between RX and TX and that the conformity of the site does not pose an impediment; **Note: Remember to enable the optics once finished alignment.**
- Make sure that TX is being tested (orange LED of optic in question switched on and others turned off);
- Make sure the connectors are securely attached and that the configuration of the DIP is correct;
- Ensure that power on the terminal board is enough;
- Use shielded cable for power supply; connecting the shield to the ground (is recommended in case of persistent problem to connect power and alarm / tamper with two separate, shielded cables);
- Check the correct sizing of the power cables;
- Make sure that there are no external light sources that interfere with the correct reading of the signal (photocell gates, other barriers, infrared, ...);
- For barriers with multiple devices positioned on the same line it is necessary to turn off TX on which you are not performing the alignment operation; to do this you must move the four DIP TX (Cap. 11) in the ON position, making sure that the orange LED are off;
- If the system uses a switching power supply replace it with corresponding linear to avoid electrical interference from the network, it is recommended that the power supply **LAR22**.

### After precisely aligned sensor (light LED steadily on and continuously BIP sound) system remains in alarm

- Make sure the connectors are securely attached and that the configuration of the DIP is correct;
- Make sure there is synchronism, led SYNC-RX Yellow On (see chap. 11), otherwise the alarm will not be constant, then check the connections (see Sec. 7) making sure that the terminal block is well inserted;
- Verify that optic receiver senses the corresponding transmitter. To do this, set the AND mode, if the barrier is no longer in alarm obscure individually each ray finding one that does not generate the alarm general, this ray is not aligned;
- Make sure that there are no external light sources that interfere with the correct reading of the signal (photocell gates, other barriers, infrared, ...); to do that you can check a masking activating DIP 10 (**antimasking**, see chap. 10 and 12);
- Use two different shielded cables for power and sync, connecting the shield to the ground;
- Check the correct sizing of the power cables;
- If the system uses a switching power supply replace it with corresponding linear to avoid electrical interference from the network, it is recommended that the power supply **LAR22**.

### With fog or rain, the system goes into alarm

- Check that the function of disqualification from fog is active (see chap. 12);
- Make sure the power of the heaters is higher than 20 Vac to the **terminal block** of the barrier.
- In case of very thick fog activate DISQ1 (see chap. 12);
- Make sure that the structure is properly sealed and check that there are not already present within disturbing elements as water, insects, ...;
- Verify the accuracy of the alignment of each optic and in case re-perform the procedure possibly making a complete scanning that there are no light sources that can influence the calibration;
- For a more precise alignment position a side of the column cover in front of the lens in order to have two surfaces interposed between TX and RX for doubling attenuation of the beam.

### Repeated false alarms

- If they are caused by the passage of animals, use either **AND, BEAM 1** or increase the **intervention time**
- Verify the accuracy of the alignment of each optic and in case re-perform the procedure possibly making a complete scanning that there are no light sources that can influence the calibration;
- Make sure the power of the heaters is higher than 20 Vac to the **terminal block** of the barrier.
- Use two different shielded cables for power and sync, connecting the shield to the ground;
- Check the correct sizing of the power cables;
- If the system uses a switching power supply replace it with corresponding linear to avoid electrical interference from the network, it is recommended that the power supply **LAR22**.
- If you can increase the intervention time;

### The system goes into disqualification even without fog

- Make sure the power of the heaters is higher than 20 Vac to the **terminal block** of the barrier..
- Verify the accuracy of the alignment of each optic and in case re-perform the procedure possibly making a complete scanning that there are no light sources that can influence the calibration;
- For a more precise alignment position a side of the column cover in front of the lens in order to have two surfaces interposed between TX and RX for doubling attenuation of the beam.



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