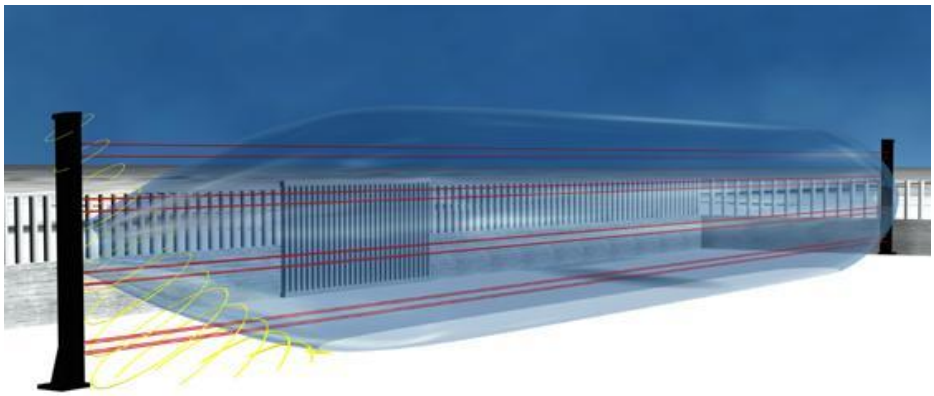
SICURIT
PERIMETER PROTECTION SYSTEMS

INSTALLATION MANUAL

Product:	**ABSOLUTE PRO™**
Part Number:	IMTDT50/X.X – IMTDT200/X.X
Description:	IP Native Outdoor Dual Technology Barrier (IR+MW)
Range:	50m (164ft) and 200m (656ft)



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Index

1. INTRODUCTION 4
2. FEATURES. 6
3. TECHNICAL SPECIFICATIONS 7
4. WARNINGS 10
4.2. BASE AND ASSEMBLY ALUMINIUM COLUMN 11
4.3. OPEN COLUMN 11
4.4. RECCOMENDATIONS 11
5. BASE 13
6. CARDS. 14
6.1. LOGIC IMT245 14
6.2. OPTICAL BOARD IMT242 15
6.3. OPTICAL TABLE ADDRESSES 15
6.4. OPTICAL SETTING BOARD TABLE 15
6.5. IMN230RSRX MW RECEIVER 16
6.6. Transmitter MW IMN230ANT 17
6.7. IME251 17
7. MECHANICAL ALIGNMENT 18
8.1. OVERVIEW 19
8.2. PASSWORD CHANGE 20
8.3. IP NETWORK PARAMETER 21
8.4. COM0 CONFIGURATION 22
8.5. COM1 CONFIGURATION 23
8.6. COM2 CONFIGURATION 24
8.7. SYSTEM CONFIGURATION 25
8.8. CHECKING INTERNAL COMMUNICATIONS 26
8.9. OPTICAL DATA ANALYSIS 27
8.10. SYSTEM ANALYSIS STATUS 28
9. ABSOLUTE PRO™ SW 29
9.1. SicuritPPS SW 29
(later than version 1.7) 29
9.2. LANGUAGE SELECTION 29
9.3. CONFIGURATION OF CARD PARAMETERS IN LAN NETWORK 30
9.4. DATA DIRECTORY SELECTION 30
9.5. FIRST PAGE 31
9.6. DIAGNOSTIC SYSTEM 32
9.7. STATE COLUMNS ANALYSIS 33
9.8. ANALYSIS SUPPLIES 34

9.9. STATE OF OPTICAL IMT242 ANALYSIS 35
9.10. BUTTONS DIAGNOSTICS PAGE 35
9.11. INTRUSION ANALYSIS 37
9.12. MW SETTING AND DIAGNOSTICS 38
9.13. OPTICAL SETTING AND DIAGNOSTICS 40
10. SELECTION OF THE TIMES OF INTERVENTION/ACTIVATION OF THE ALARM - “Alarm Config” 44
10.1. ALARM TIME SINGLE AND SCENARIO SETTING 44
10.1. NO ALARM MATRIX SCENARIO SETTING 45
10.2. BYPASS OPTICAL 45
10.3. SCENARIO, BYPASS, EXTERNAL INPUT ACTIVATION 46
10.1. OUTPUT FUNCTION 47
11. RELAY 47
11.1. ALARM 47
11.2. TIMES OF INTERVENTION TABLE IR BEAMS 48
11.3. TAMPER 48
11.4. ANTIMISTING 49
12. DISQUALIFICATION 49
13. LED INDICATIONS 49
14. INFRARED ALLIGNMENT 50
15. MW ALLIGNMENT 53
16. IME251 DOPPLER ALLIGNMENT 54
16.1. Switch 54
16.2. Set: 54
16.3. LED INDICATION: 54
17. INTRUSION TEST 55
18. SYSTEM FEATURES 55
18.1. 5-DS (5 Detection Scenario) 55
18.2. ODC (Optical Data Check) 55
18.3. IP Native 55
18.4. SUN Friendly 55
18.5. SEA (Signal Efficiency Analysis) 56
18.6. DAGC (Digital Automatic Gain Control) 56
18.7. TDA (Direction Intrusion Analysis) 56
19. CONNECTIONS 56
20. FAULT TABLE 57
21. VERSION AND DATE 59
21.1. Board FW 59
21.2. SW 59

WARNINGS	**Please read this manual before proceeding to the installation of the system**
	Use the product only for the functions and the uses specified
	Do not exceed the voltage and in general the parameters specified in this manual. Use the product only for the functions and the uses specified
	Check and verify the efficiency of the system periodically in accordance with the level of security specified in the plant project

1. INTRODUCTION

IMTDT200, is a double technology barrier IP Native (infrared and microwave), with multiplex optical IR synchronized and bidirectional, and a digital microwave.

IMTDT200 is a barrier that combines infrared technology and microwave technology, composed of a Slave column (RX) and a Master column (TX).

The safety and reliability of the system are the result of almost thirty years of Sicurit and continuous technological and functional implementations.

The intruder alarm is sent when both individual technologies installed in the column will detect an intrusion and the sophisticated processing of serial data received from the card analysis will determine the final outcome of intrusion has occurred.

The product is composed of a pair of extruded aluminum columns (IME series) with housing inside the equipment series product IMT. The product is made in its standard configuration of an analysis card (couple logic board IMT245) and a quantity of optical cards (optical card pair IMT242) depending on the height of the aluminum columns more active microwave.

All the internal connections of the column between the analysis card and the optics are made via flat cable and are made through RS485 serial internal as well as the MW receiver.

Different configurations (number of optical IR, the MW, the Doppler Under-crawl, anti-climb cap, the type of basement) are made available and with various heights of the aluminum columns.

Each optical element IMT 242 has its own microprocessor circuit and intelligence FW that allows you to program different types of intrusion detection and configuration of different sceneries / matrix pre-alarm IR.

The maximum distance between the Transmitter column (Master) and Receiver (Slave) is up to 200m/656ft, the maximum number of optical housed pairs is 10 units.

The optics pairs are bidirectional, allowing the timing and sequencing of transmissions without the use of cabling synchronism between the two units, (optical sync).

The system IMTDT200 wired LAN IP permit the full functionality of the system.

The bi-directional IR optics allows for an infrared system with a higher operating stability to the totality of the other mono directional ray systems, which are influenced by direct sunlight (COMPLETE IMMUNITY 'TO DIRECT SUNLIGHT).

An automatic control of the amount of the IR signal received (DAGC) by each optical receiver allows to further mitigate interference from sources or infrared lights present in the spectrum of detection range of the system ABSOLUTE PRO™.

There is an individual selection for each pair of optical detection times of the alarm.

Group Selection (Scenery) of the sensitivity of fast crossing detection is possible.

5 different Sceneries (matrix alarms) of intrusion detection can be created to increase the efficiency and reach of the system without necessarily increasing the probability of false alarms.

Selection mass and crossing speed through the settings of the MW.

The system provides for the overlapping areas / sections, in case this is impossible, for the narrowness of the visual corridor available you can add a doppler anti-crawling..

Interconnecting wiring through IP network.

The system also has separate output relays for alarm signaling, with tamper for the lid and for the climbing of each column (both Master and Slave) or failure of communication on the RS485 serial between the logic board (IMT245) and optical cards (IMT242).

The typology of the optics detects the direction of movement of the intruder in order to select (in the case of data link, IP) the activation of intrusion alerts only in the desired direction.

Each optical element IMT242 is equipped with anti-mist heaters to prevent the formation of internal misting of the frontal Plexiglas.

If the temperatures are below -25°C /-13°F it is possible to insert a heater (IMERES) inside the columns which will allow its use in those geographical areas where the temperature can drop to -40 °C /-40°F.

Thanks to the data present on the digital communication (IP), they are available all the conditions about diagnostics and parameters needed for system ABSOLUTEPRO™.

The SW SicuritPPS programming and diagnostics is available to the installer for a simple and fast preparation and analysis of the most important analog values. Correct programming of 5 different sceneries programming of trip times of groups of lenses, It allows the installer a step

further in favor of the stability and versatility of the dual technology, developed and produced by SicuritAlarmitalia S.p.A..

Each individual beam can be selected in the crossing speed, and create through the scenaries (matrix alarm which includes a choice of two or more pairs of optical IR) detection of crossing fast even at 30mS (about 12kmh/7mph , for object a diameter of 30 cm/0.98 ft).

In the case of individual crossings at maximum speed it is not guaranteed the indication of the direction of movement A and B (the direction of the intrusion).

The optics are easily aligned mechanically with the use of an appropriate knob and through the SW programming and diagnostics.

MW may be aligned manually with analogue instruments.

The SW SicuritPPS provides all the necessary parameters for calibration and overall conditions of the system under the control of a PC screen.

In the case of alignment using a laptop you can connect to each column singularly.

The intruder alarm DT is generated when both groups of optical lenses (3 + 3 lenses) are interrupted for the time of intrusion programmed, or when more groups of optical (scenarios / matrix alarms) are interrupted at the same time for a time of intrusion superior to the one selected, and the analysis card IMT245 comparing the data transmitted by the MW, detects the signaling of real intrusion, in the windows of time programmed, for each technology.

The web browser connection, present on board of the logic board IMT245, allows the internal configuration of the system.

2. FEATURES.

IMTDT200 is used in installations of perimeter security where high reliability of detection and a low incidence of undesired alarms are needed.

It consists of a pair of columns in extruded aluminum which contain a MW system and a multiplexed, synchronized and bidirectional infrared-beam optical beams with a column height of up to 3 meters/9.8ft for a wide detection coverage. A special protocol of the data transmitted and received by the optical pair IR beams means that it is possible to connect up to 10 optical pairs multiplexed in the same column.

Caution: in the planning and placement of the visibility path, you need to keep in mind and avoid any source of infrared directly focused on the optical beams of infrared system present in ABSOLUTE PRO ™. Failure to observe this rule does not affect the operation of the system but reduces the safety and rejection to false alarms**.**

3. TECHNICAL SPECIFICATIONS

Feature	Description		
Range (Outdoor) IMTDT200/X.X	10- 200m/32,8-656ft		
Range (Outdoor) IMTDT050/X.X	10- 50m/32,8-164ft		
Optical beams	Codes, synchronized and multiplexed Master Slave		
MW technology	MW active pair Tx and Rx		
Power supply voltage	Logic: from 11 to 14,2 V c.c. Anti Mist: 24 V a.c.		
Number of optical beams (base)	3 (2mt/6.5ft)	4(2,5mt/8.2ft)	5 (3mt/9.8ft)
Number of MW (base)	1	1	1
Absorbed Current-TX+RX	450mA	650mA	850mA
IP connection	X		
Relay connection	X		
Maximum bandwidth occupied LAN	100Kbyte (per column)		
Maximum optical housed	4 (2mt/6.5ft)	5 (2,5mt/8.2ft)	6 (3mt/9.8ft)
Maximum MW housed	1	1	2
Maximum number of optical beams	10		
Operating Temperature	- 25 °C / +65 °C = -13°F/149°F		
Horizontal Adjustment	+/- 20 °		
Vertical Adjustment	+/- 10 °		
Time Intrusion Detection (sensitivity)	30 – 2.000mS		
Time delay disqualification	5-180 sec		
Scenarios of Intrusion Detection for Optical	5		

Feature	**Description**		
Input configurable (Dual Balanced 1KOhm)	4		
Output configurable (O.C.)	3		
Mass detectable (MW)	x		
Crossing speed (MW)	x		
Alarm relay output	Relay (N.C./C or C./N.O.) Contacts Free of Potential resistive load 30V 30mA		
Tamper protection Opening cover RS485 internal missing	C/N.C. cover protection		
Alarm conditions	Complete interruption IT technology (two horizontal optical beams 3+3 lenses) AND MW technology (MW or Doppler)		
Box	Extruded Aluminum column (BEC)		
level of protection	IP55		
Size of Base	280mm X 280mm/11x11 inches		
Column measurements	L=260 W=145 H=2000	L=260 W=145 H=2500	L=260 W=145 H=3000
IMTDTXXX/2.0	ABSOLUTE PRO™ Dual Technology Barrier (SlaveRX + MasterTX) Range: 50/200m-164/656ft Column Height: 2m/6.56ft Number optical IR beams : 3 Number of MW: 1		

Feature	Description
IMTDTXXX/2.5	ABSOLUTE PRO™ Double Technology Barrier (SlaveRX + MasterTX) Range: 50/200m- 164/656ft Column Height: 2,5m/8,2ft Number optical IR beams : 4 Number of MW: 1
IMTDTXXX/3.0	ABSOLUTE PRO™ Double Technology Barrier (SlaveRX + MasterTX) Range: 50/200m-164/656ft Column Height: 3m/9.84ft Number optical IR beams : 5 Number of MW: 2
IME207	Columns basement floor for height up to 2m
IME208	Columns basement floor reinforced with sail for height of more than 2 m
IMT242	Extra pair Optics Beam (Master TX + Slave RX)
IMN230RSRX	MW additional receiver
IMN230ANT	MW additional transmitter
IME205	Anti Climb Cover
BEA224ALIEX	Power supply unit Input: 230V AC Output:12Vc.c.@700mA - 24V AC.@2A
IMERES	PTC: Heating Element for operating temperatures below -25 ° C/-13°F

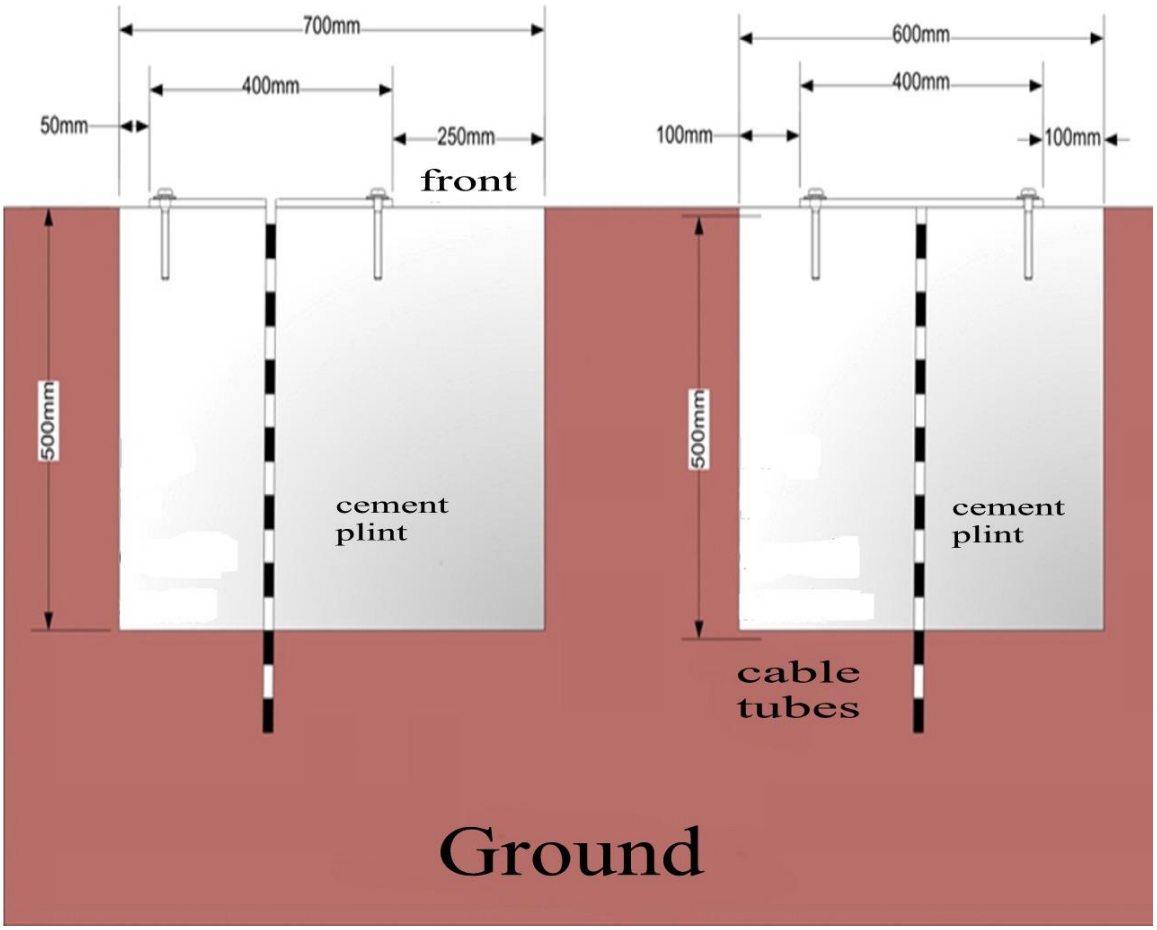
4. WARNINGS

4.1. CEMENT PLINTH

The base IME207 or IME208 is to be installed on the cement plinth.

Fix the base on the plinth so that the plinth itself protects the Plexiglas from possible splashes of water or soil that may smear the front. The successful installation of the base on a stable surface avoids the problems of undesired alarms due to displacement of the column in case of strong winds or freezing temperatures. The next figure shows and suggests the type of installation of the basement on the plinths. Note that the width and depth of the plinth must be suitable for the height and weight of the column that will be installed and the texture of the soil.

The recommend bases stand 60cm/24 inches side, at least.



4.2. **BASE AND ASSEMBLY ALUMINIUM COLUMN**

- Realize the cement plinth, resizing suitably according to the characteristics of the soil. More the ground is soft or marshy or subject to low temperatures (frost)more the artifact in cement must be increased in size.
- Insert the conduits (tubes) for the housing of the power cables and signal in correspondence with the access holes in the charge of the metal base.
- Fix the column and the eventual sailing back support to the base on the bottom with the fixing screws.
- Install and secure everything on the reinforced cement plinth.
- Lay the cables
- Connect the cables to the system ABSOLUTE PRO™

Do not leave the column without front Plexiglas or upper cap, in case of high humidity, rain, snow or direct sunlight on the equipment and not fed. Always connect the column, even if not powered, to the electrical ground or in any case to a ground connection.

4.3. **OPEN COLUMN**

The column is opened by turning the two screws on the upper cap.
Unscrew the screws and remove the lid and the cylindrical seals inside track housing Plexiglas. Remove the Plexiglas front by pulling the front side without forcing, being careful not to bend more than 30°.

4.4. **RECCOMENDATIONS**

- Do not install the system near shrubs or trees that would disturb the system MW or that might block or obscure even momentarily infrared optical beams
- Fix the column solidly to the plinth and base.
- Seal the inlet tubes to prevent cables from being damaged by small animals.

(Avoid completely seal the bottom of the plexiglass to the base; the column requires a minimum of air circulation inside to prevent moisture accumulation / liquid in the bottom of the same).

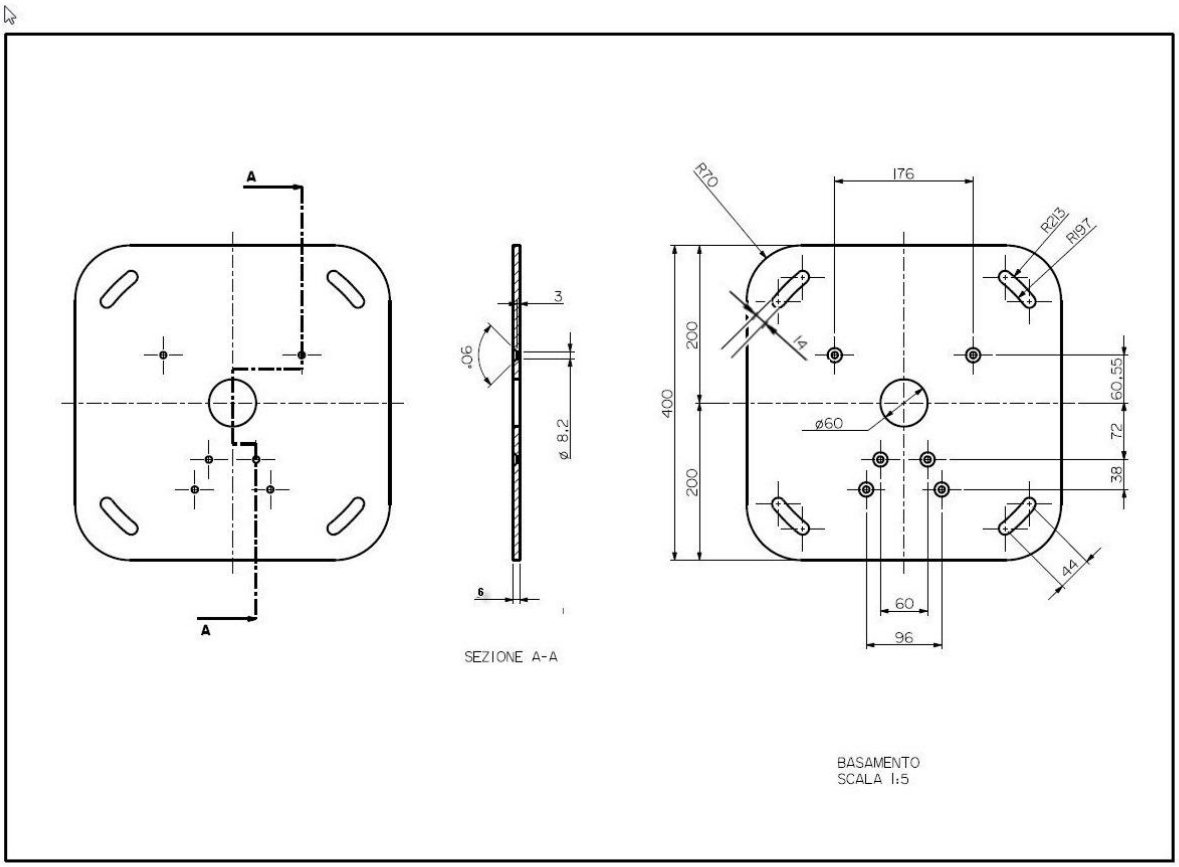
- Make the necessary electrical connections (power supply, network, contacts etc.)
- Ensure that all internal connections are wired (flat cable correctly inserted)
- A good alignment is of fundamental importance for the proper functioning of the system ABSOLUTE PRO™

- Always connect the extruded proper grounding
- Set up the system with the the protections planned by regulations.
- Power up the system
- **DISCONNECT POWER system before performing any maintenance or replacement of technical products**
- Connect each system one by one to the network (if the columns have not been pre-programmed with different IP addresses). The default IP address is 192.168.1.222 on all the boards unless otherwise indicated by the label sticks on IMT245.
- Access, via web browser, the individual circuit boards and schedule the configuration of each column and check the internal communication between the logic board and the optical cards
- Install the program SicuritPPS setting and diagnostics and run
- Configure all IP addresses and the column pairs
- Select by clicking on each programmed pair and enter the page display diagnostics and control analog data and system status
- Select by clicking on each copy programmed and enter the page display diagnostics and control analog data and system status.
- Check the data of the MW and the setup on the card Slave / Receiver
- Select beams and verify that each optical beam is displayed, and that there are no discrepancies between FW versions of the couples.
- Proceed with alignment and calibration (test) of the optics, as indicated in the relevant section, by mechanical adjustments and analog data displayed and stored at the end of the alignment in good infrared signal conditions (unfiltered calibration inserted), researching the minimum possible Gain value
- Open the page Set Up Alarms and select the timing intervention needed
- Select all the equipment in service at the end of the intrusion test
- Save any varied programming data
- To program and calibration of MW
- Insert the Plexiglas front
- Insert the gaskets supplied
- Securely close the anti-climb cap, properly adjusting the Tamper function via the retainer inserted in the center track of the column

- Ensure communication with the centralized system for collecting data and alarms with the corresponding status.

WARNING. In multiple linear installations with adjoining sectors, place the columns at an sufficient angle to ensure that the signal of a single column does not interfere with the next column, or in the case of a base at 180 °, verify that a column installed on this base creates a shadow onto the next one.

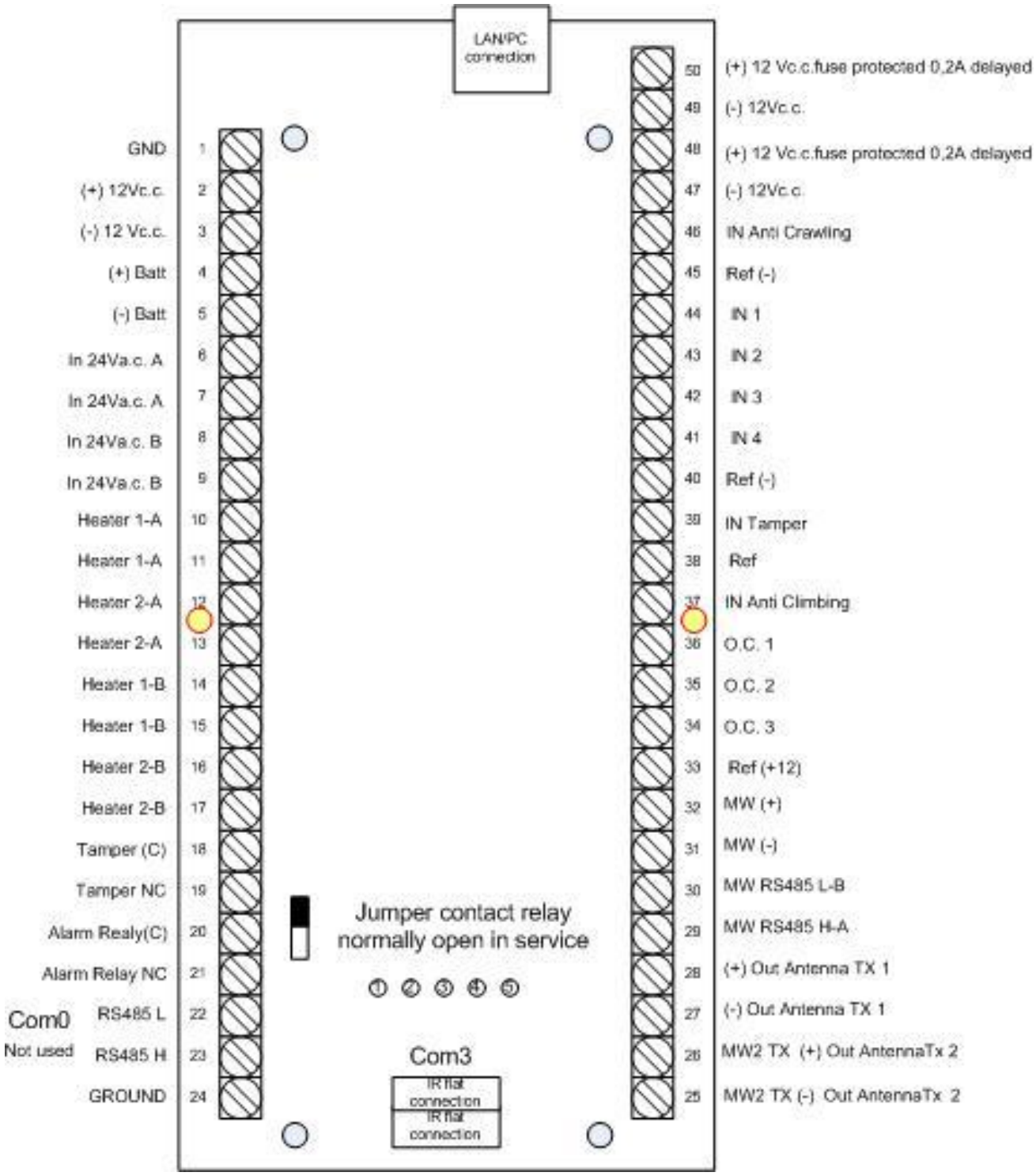
5. BASE



The above figures are approximate and may differ from the actual measurements.

6. CARDS.

6.1. **LOGIC IMT245**



6.2. OPTICAL BOARD IMT242

The optical board contains a bank of dip switches with 8 positions.

The function of each single dip is the following:

Dip 1 to 5: select card addresses, see table below (starting address all dip in OFF).

Dip 6: selects the type of optical card: Master = ON - Slave = Off

Dips 7 and 8 not are used and must be in OFF position

IMT 242 is equipped with 3 transmitting lenses and 3 receiving lenses that are not visible because they are covered by sun filter screens.

The card has the screw / knob for vertical adjustment of alignment and the top knob for horizontal adjustment of the optics.

Each optical head has an incorporated group of anti -mist heaters.

The lowest optical has address number 1 and the other from bottom to top in cardinal number sequence.

6.3. OPTICAL TABLE ADDRESSES

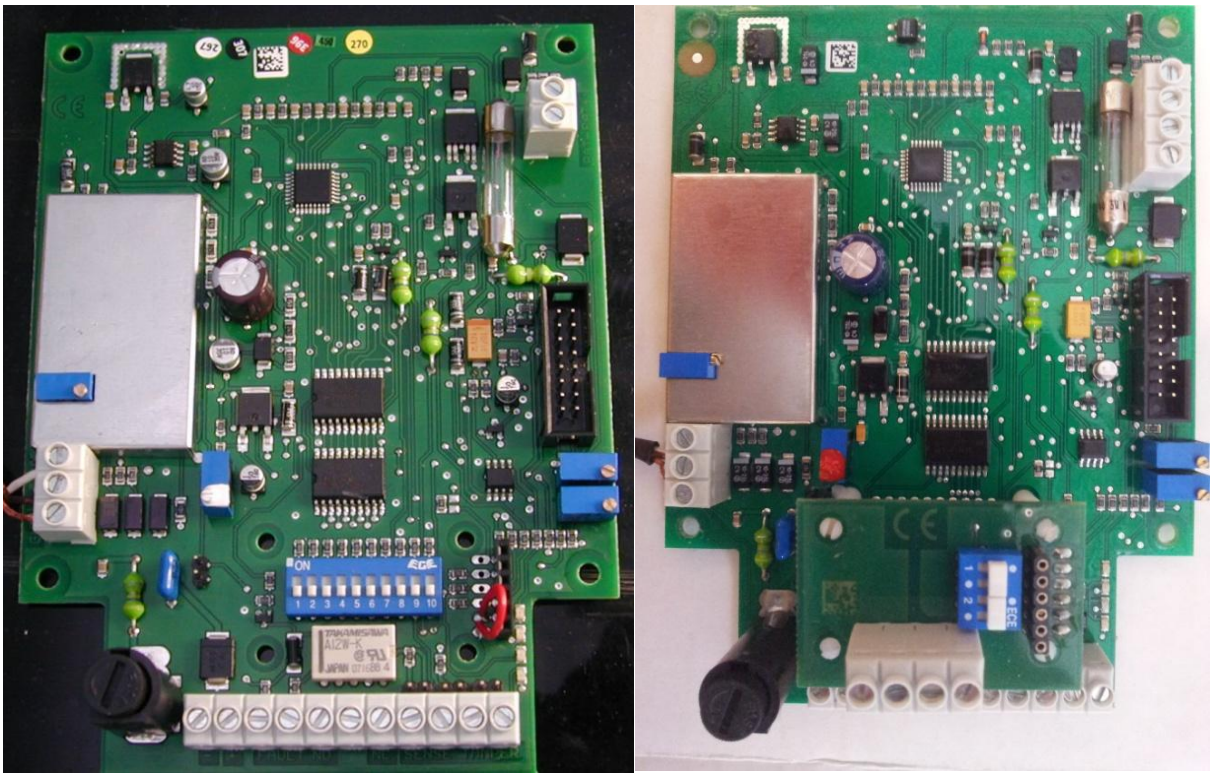
OPTICAL ADDRESSES	DIP 1	DIP 2	DIP 3	DIP 4
1	Off	Off	Off	Off
2	**ON**	Off	Off	Off
3	Off	**ON**	Off	Off
4	**ON**	**ON**	Off	Off
5	Off	Off	**ON**	Off
6	**ON**	Off	**ON**	Off
7	Off	**ON**	**ON**	Off
8	**ON**	**ON**	**ON**	Off
9	Off	Off	Off	**ON**
10	**ON**	Off	Off	**ON**

6.4. OPTICAL SETTING BOARD TABLE

TYPE	DIP 6
MASTER	**ON**
SLAVE	Off

6.5. IMN230RSRX MW RECEIVER

The logic board in microwave RX has a 10-position DIP switch (under the card 485) that allows the selection of the address of MW. Up to two MW can be connected to the system. The first 4 dip swithces are used for this function as shown in the following table. The dip switches on the board higher should be oriented inward. Programming via the WEB browser must have the RX MW selected as present. Preparation of the MW parameters are shown in the section on setting the MW through SW: SicuritPPS.



- **CONNECTION**

The card is connected to the IMT 245 with a 4-wire cable:

Board RS485 IMN230	**Description**	**Board IMT245**
(-) (1)	Supply (-)	31
(+) (2)	Supply (+)	32
A	RS485 A/H	29
B	RS485 A/H	30

The board power MW is in parallel to the circuit board 485 assembled on the basis of the MW. The eventual second MW is connected in parallel to the same terminals.

- **MW TABLE ADDRESSES**

MW RX ADDRESSES	**DIP 1**	**DIP 2**	**DIP 3**	**DIP 4**
1	**ON**	Off	Off	Off
2	Off	**ON**	Off	Off

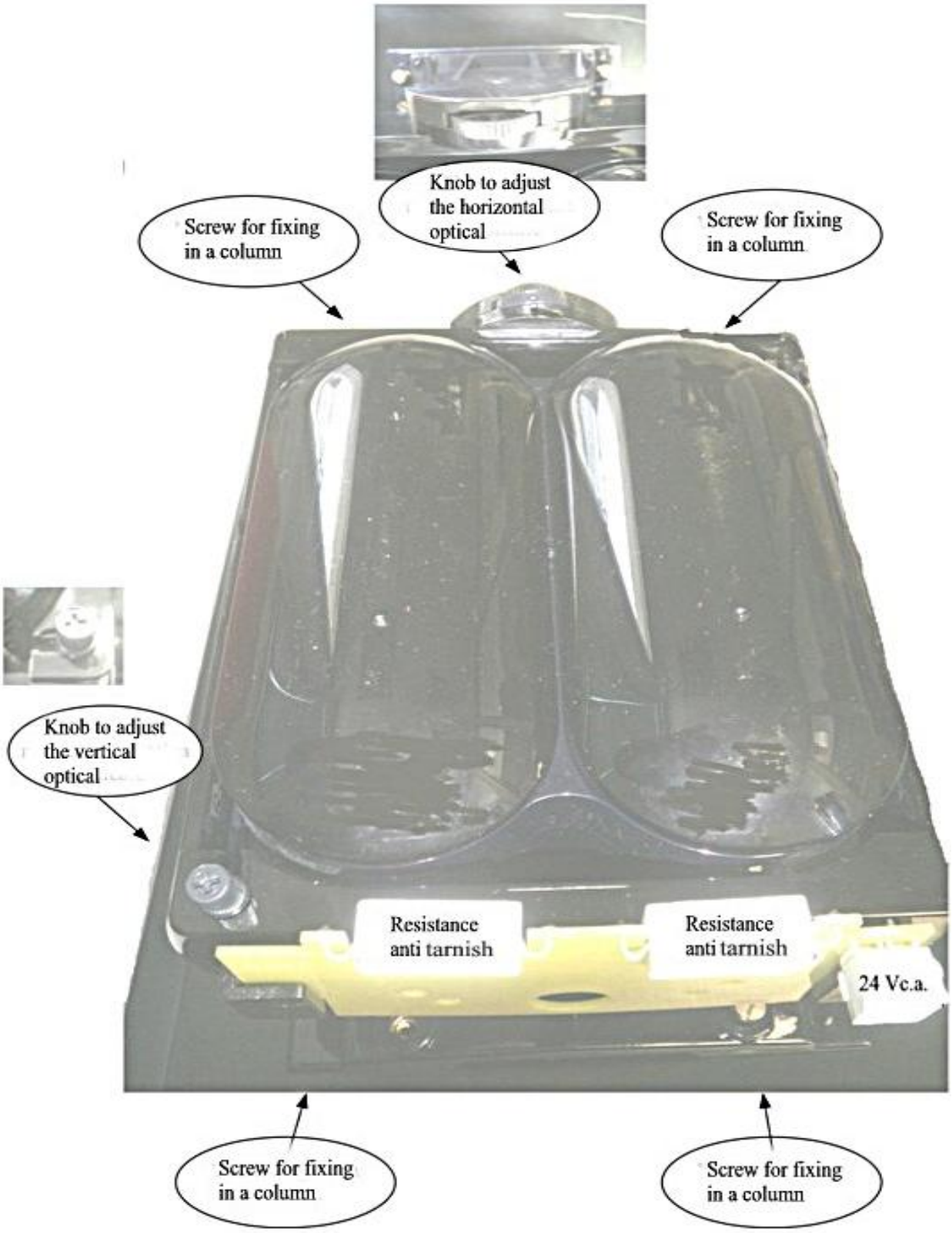
6.6. **Transmitter MW IMN230ANT**

The transmitting part is formed by the parable antenna transmitter connected by two-wire cable to terminals 27 (-) and 28 (+) of the output (antenna 1) card IMT245. The eventual second antenna is connected in the same mode to terminals 25 (-) and 26 (+).
Programming via Web Browser must have the MW TX selected as channel 1 to 4.

6.7. **IME251**

Microwave Doppler anti-creep (to be used only if there is no possibility of overlap of the routes leading to numb the area around the initial column) is connected via 4-wire cable to terminals 48 (+) 47 (-), 46 (NC), 45 (C) of the card IMT245. The card allows an adjustment of the sensitivity and consequently the length of the area to be protected.

7. MECHANICAL ALIGNMENT



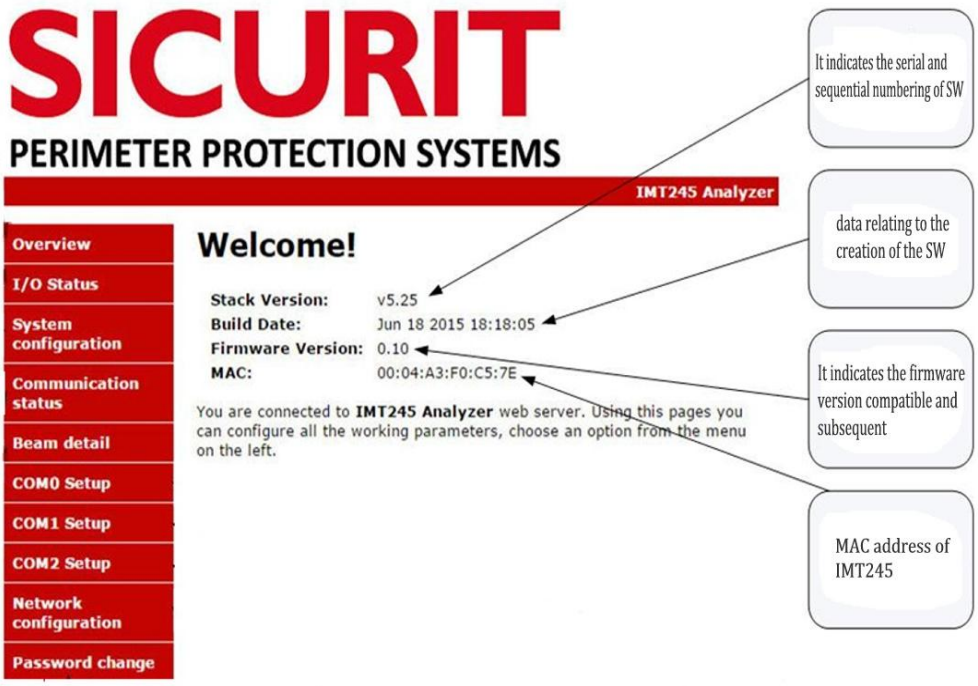
8. WEB BROWSER

Using the network connection and an appropriate arrangement of the addresses of every single card, you can access the web page via web browser and program all the parameters necessary for the proper functioning of the perimeter protection system IMTDT200.

8.1. **OVERVIEW**

Open your Internet browser and type the IP address of the card IMT245.

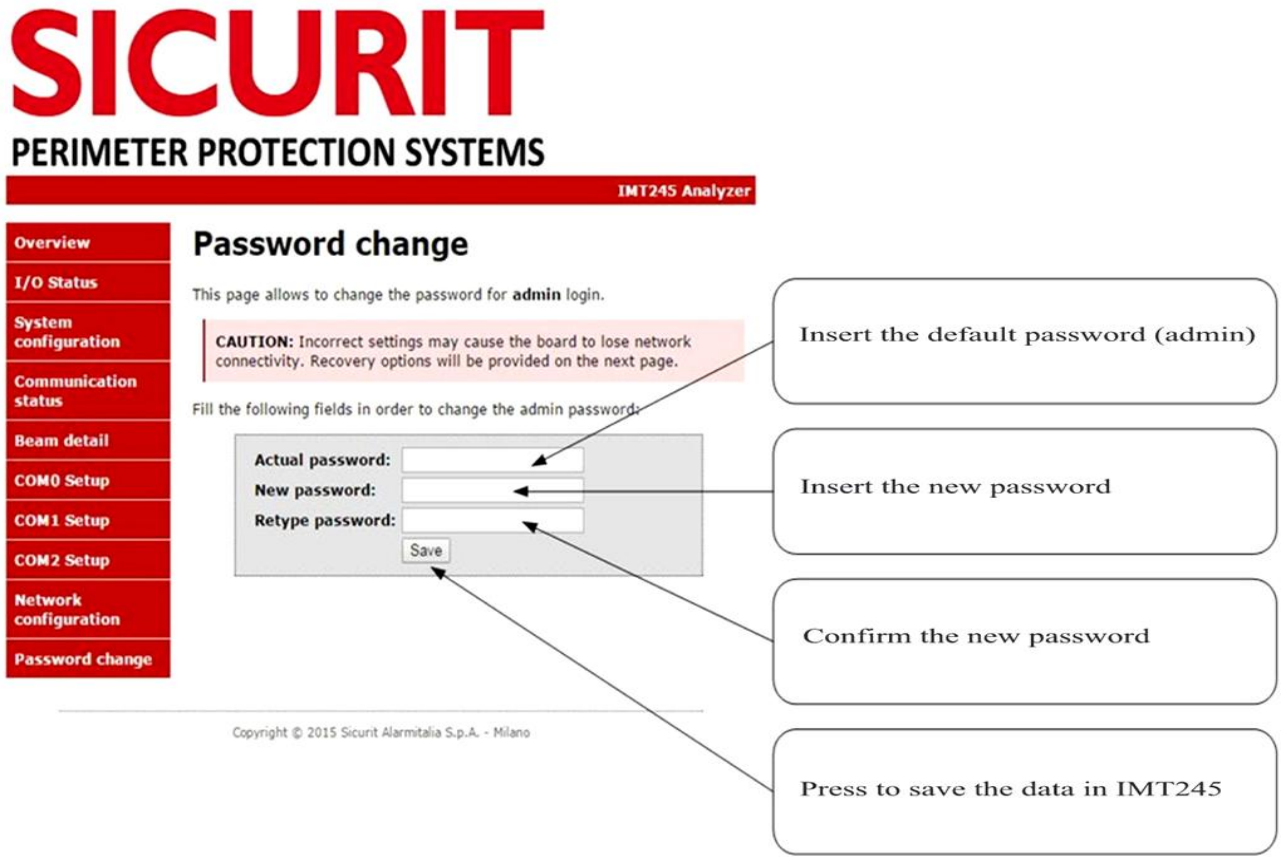
A page similar to the following is displayed (for FW version later than 1.12 of IMT245):



On the left side are the various types of programming procedures by web browser in order to properly configure the data of the logic board in the installed system ABSOLUTE PRO™.

8.2. **PASSWORD CHANGE**

Select (click) the window Password Change

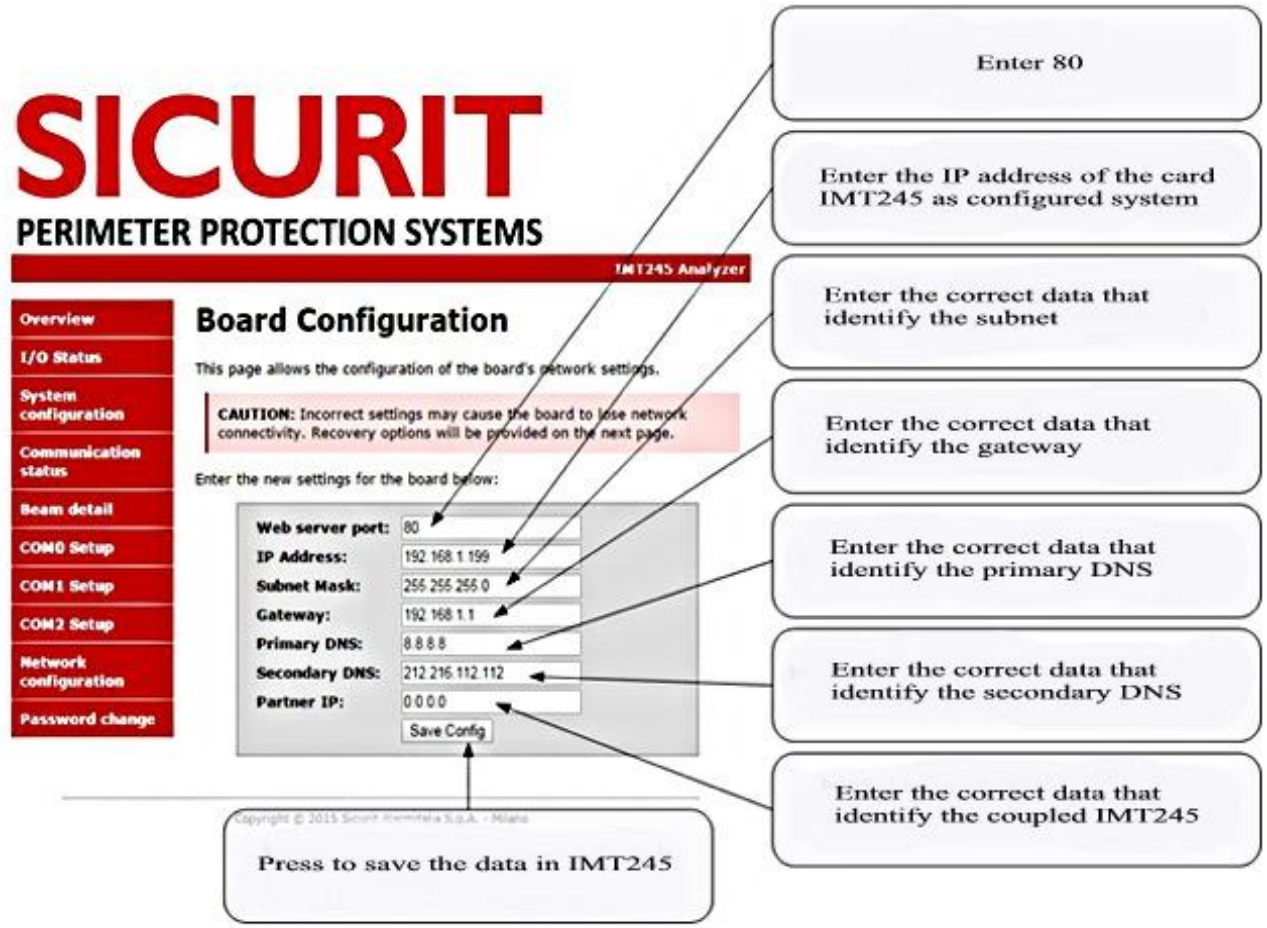


Substitute the default password (user: **admin** - password: **admin**) with its own installer password. Is a confirmation of the new password entered (Retype Password). Select the Save button to store the new password on the card.

The same password is used to enter the SW diagnostic and programming (SicuritPPS), use the same password for all the logic boards of the same installation. Different passwords will not allow the recognition of the columns with incorrect password in SW SicuritPPS.

8.3. **IP NETWORK PARAMETER**

Select (click on) the Network configuration window and you will see the following screen:



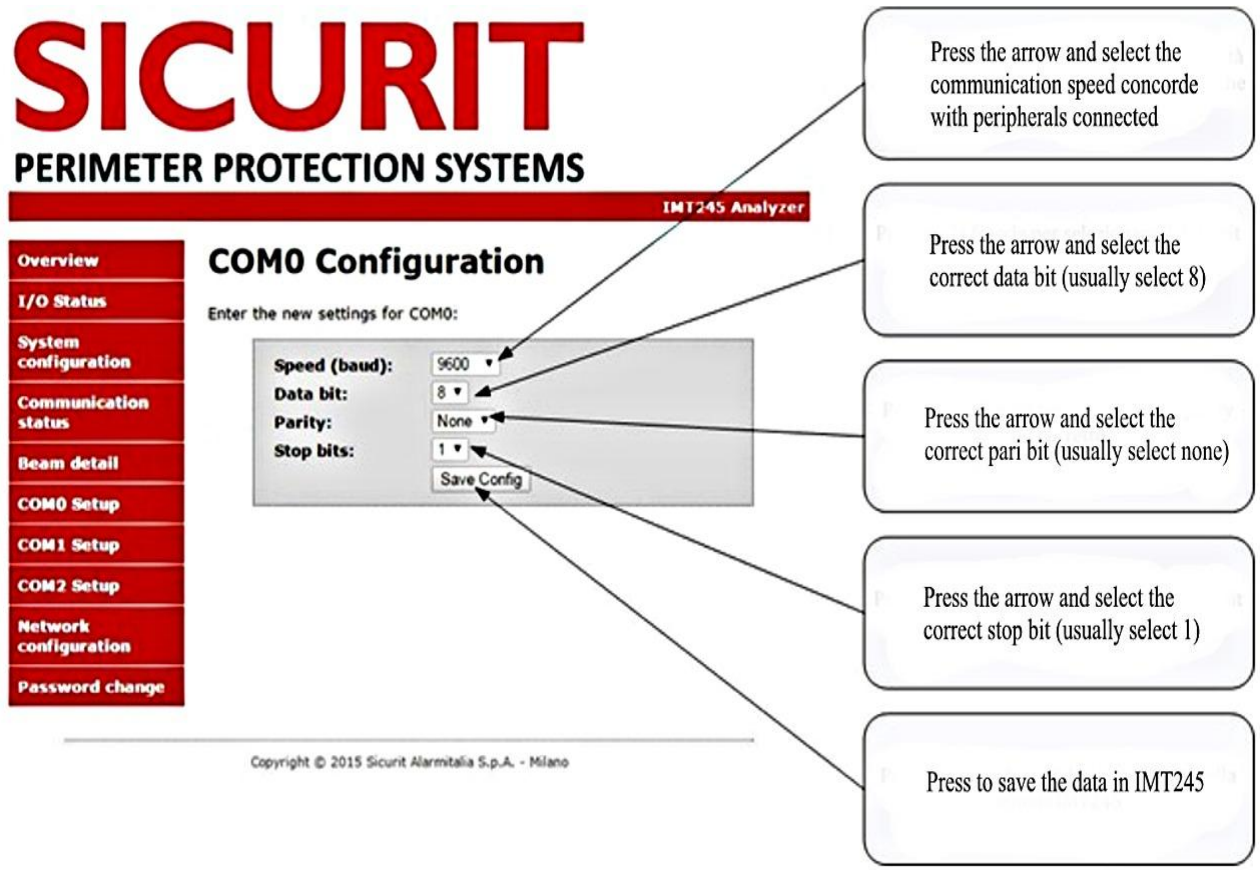
Enter the correct data and the necessary system configuration without creating conflicts with other network addresses.

The Web port has to be selected as 80.

Select the Save Config window to store data in memory card IMT245.

8.4. **COM0 CONFIGURATION**

Select COM0 Setup window which opens the following screen:



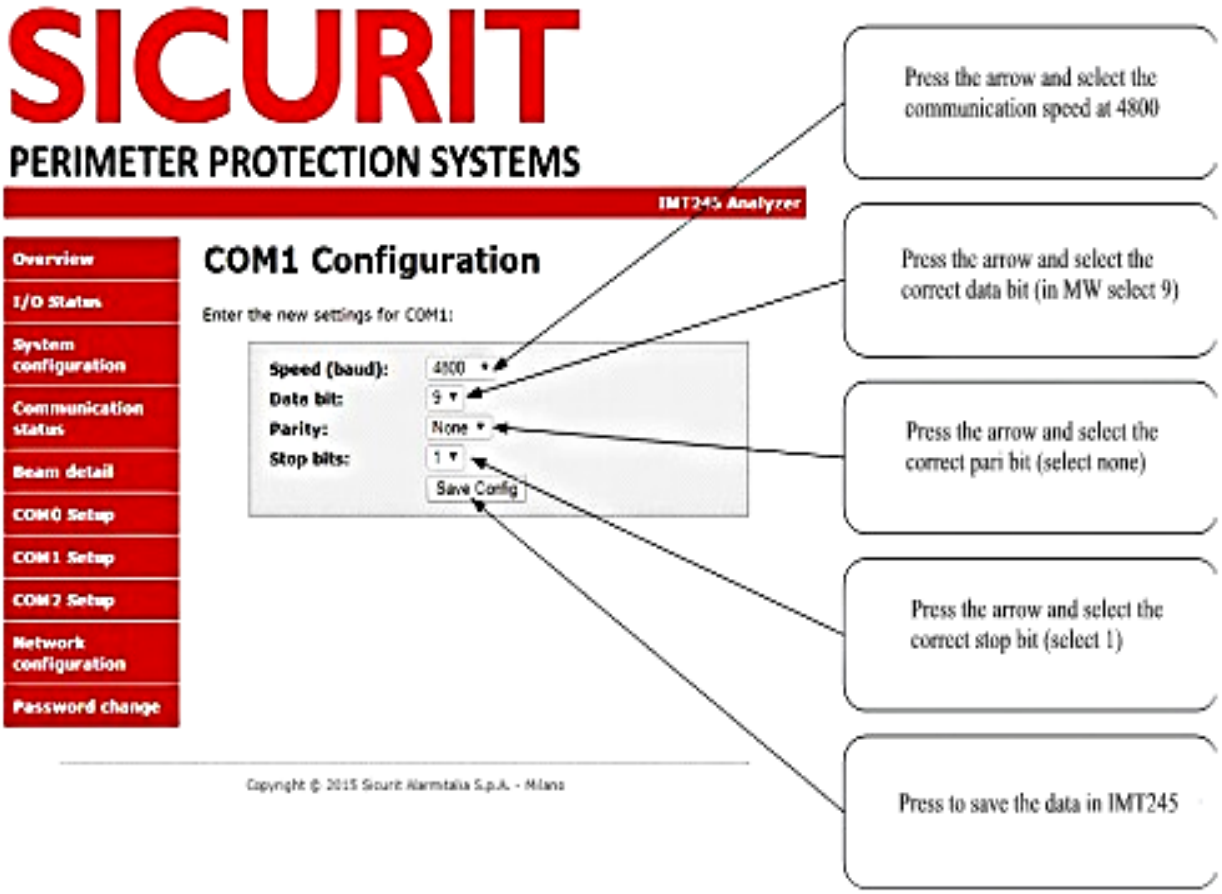
The COM0 port is the communication port of the card IMT245 with external devices.

This port indicates the communication parameters with the Hyper Power devices in general.

The communication speed must be related to those of the connected devices.

8.5. **COM1 CONFIGURATION**

Select COM1 Setup window which opens the following screen:



COM1 is the dedicated serial data communication between the internal logic board IMT245 and IMN230RXRS MW board.

Set up the communication speed and all other parameters as shown in the figure.

Speed: 4800

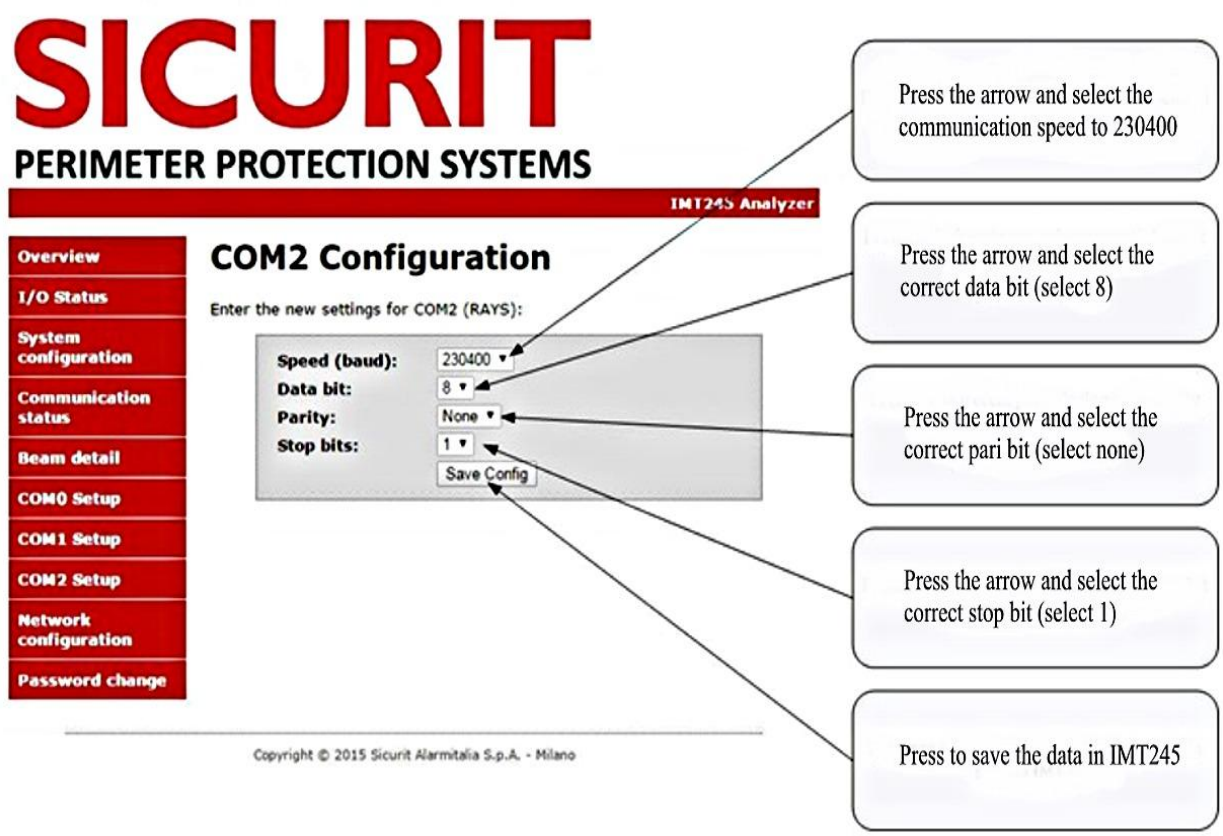
Data bit: 9

Parity: None

Stop bits: 1

8.6. **COM2 CONFIGURATION**

Select COM2 Setup window, which opens the following screen:



COM2 is the dedicated serial data communication between the internal logic board IMT245 and optical cards IMT242. Set up the communication speed and all other parameters as shown in the figure.

Speed: 230400

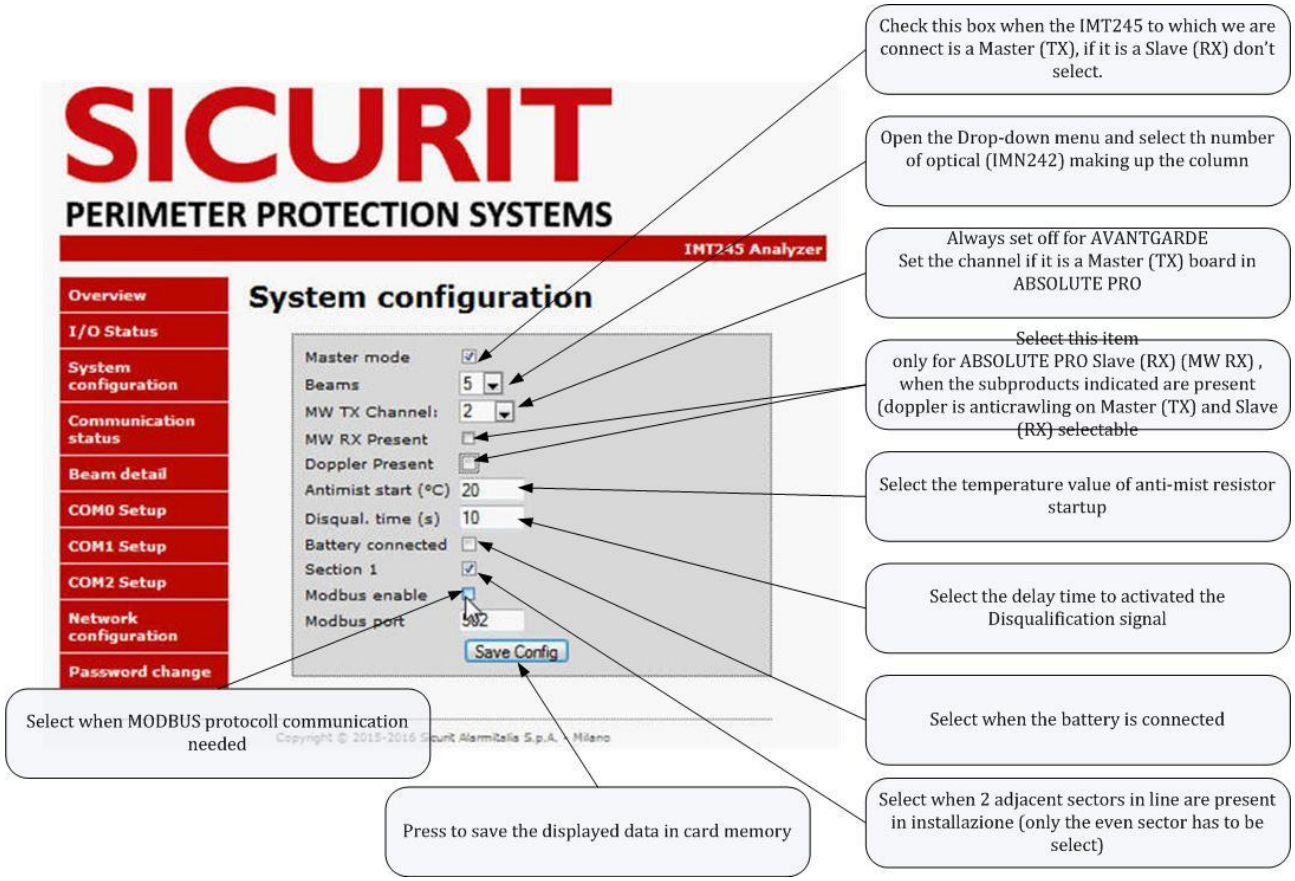
Data bit: 8

Parity: None

Stop bits: 1

8.7. **SYSTEM CONFIGURATION**

Select the System Configuration window which opens the following screen:



Set up:

If the card is inserted in the Master (Transmitter) column or Slave (Receiver) column

The number of optical beams present in the column (maximum 10 pairs)

Select MW TX channel = 1 o 2 o 3 o 4

Select the box MW Present with symbol √

Select the box Doppler Present with symbol √ when anti crawling is present

Select the setting temperature of misting resistor

Select the time delay to the disqualification

Select the battery backup presence (if it is installed)

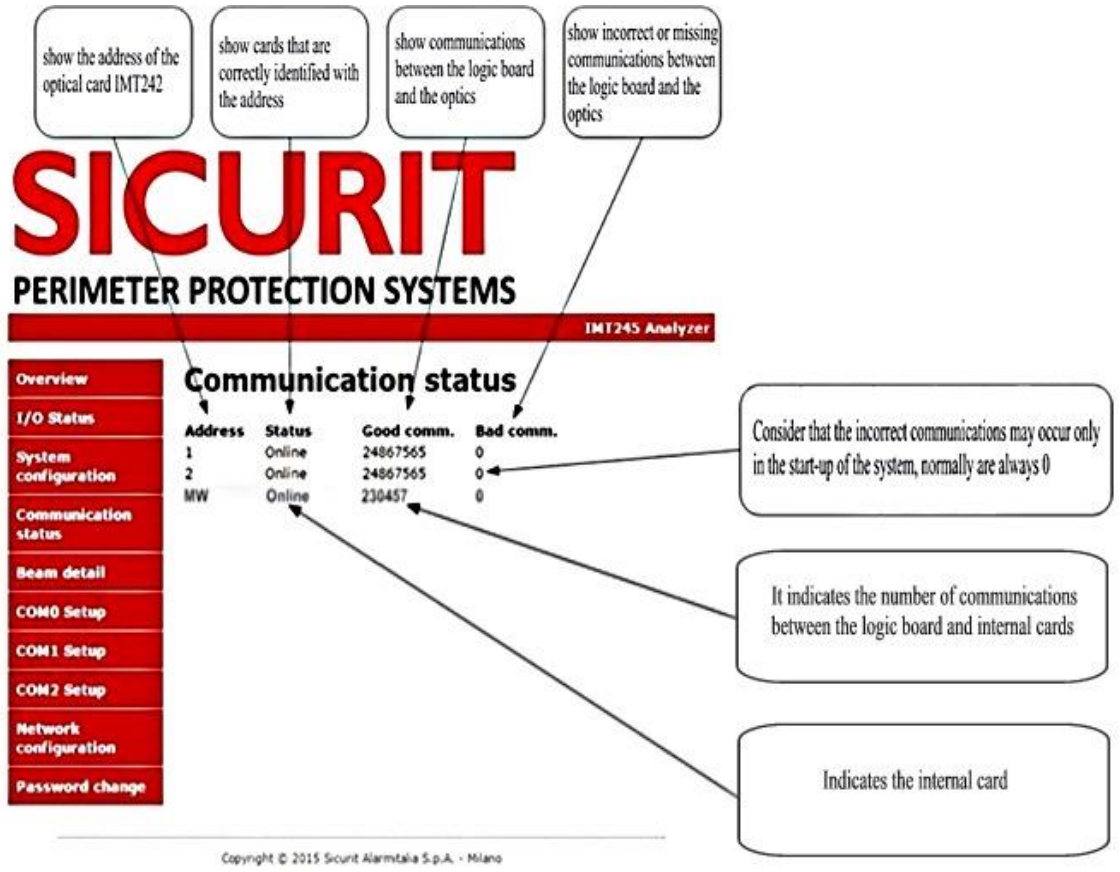
Select the Section 1 in the odd sector when more than one sector is sequentially in line

Select the Modbus when the data needs to communicate through Modbus communication

Proceed to save the data on the card (Save Config)

8.8. **CHECKING INTERNAL COMMUNICATIONS**

Once the configuration of the column is selected, select the window “Communication status”, which opens the following page:



This page allows you to check the quantity, but more importantly, the quality of communications between the optical card and the logic board. The number of incorrect communications (Bad Comm.), must not exceed 1 / 1000.

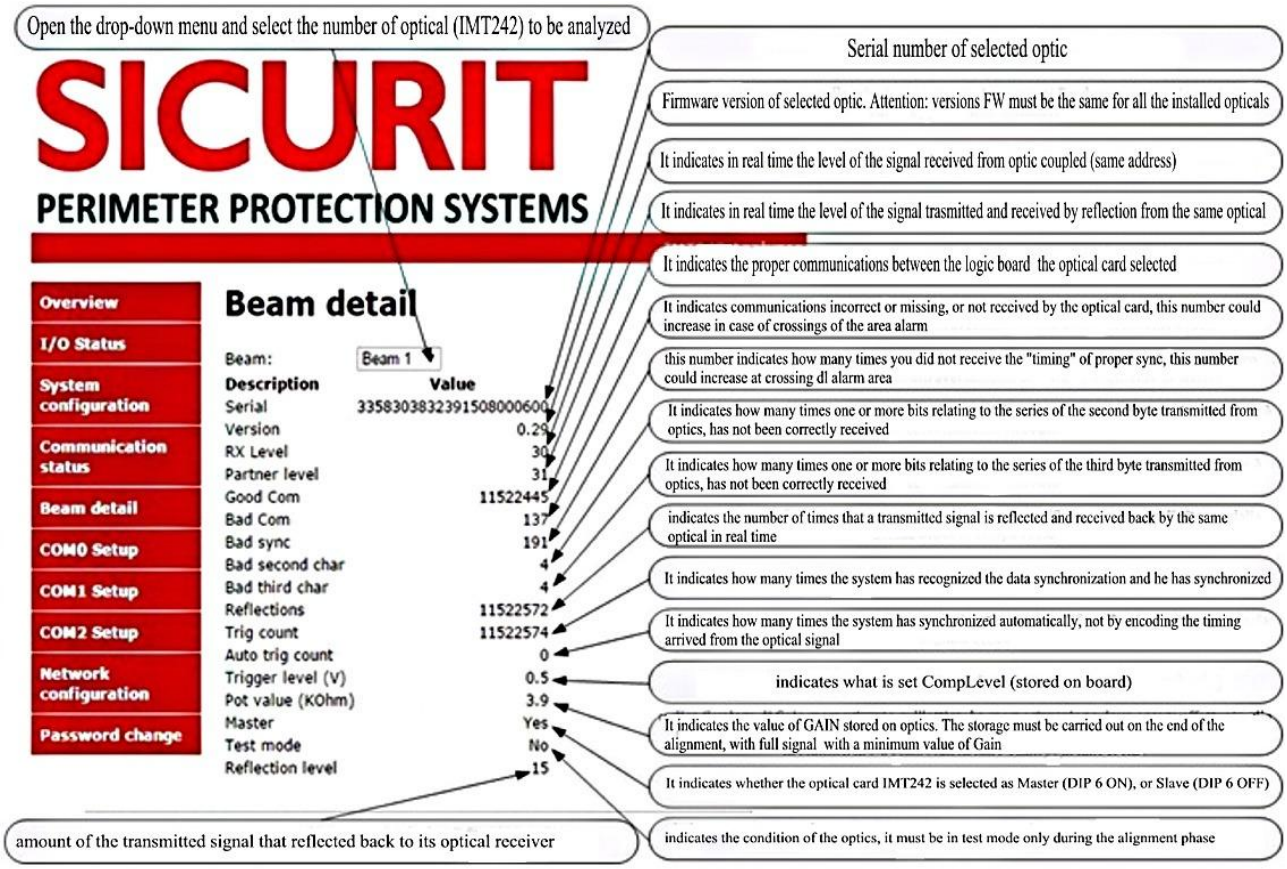
Check that all the optical beams are displayed online with counting and increasingly fast communications (= Good comm.), and counting miscommunication almost nonexistent (=Bad comm.)

Attention: In case that the number of optical select in this page is more than the optical present in the column, a tamper alarm will be activate.

The count is reset to zero each time the columns are powered off.

8.9. **OPTICAL DATA ANALYSIS**

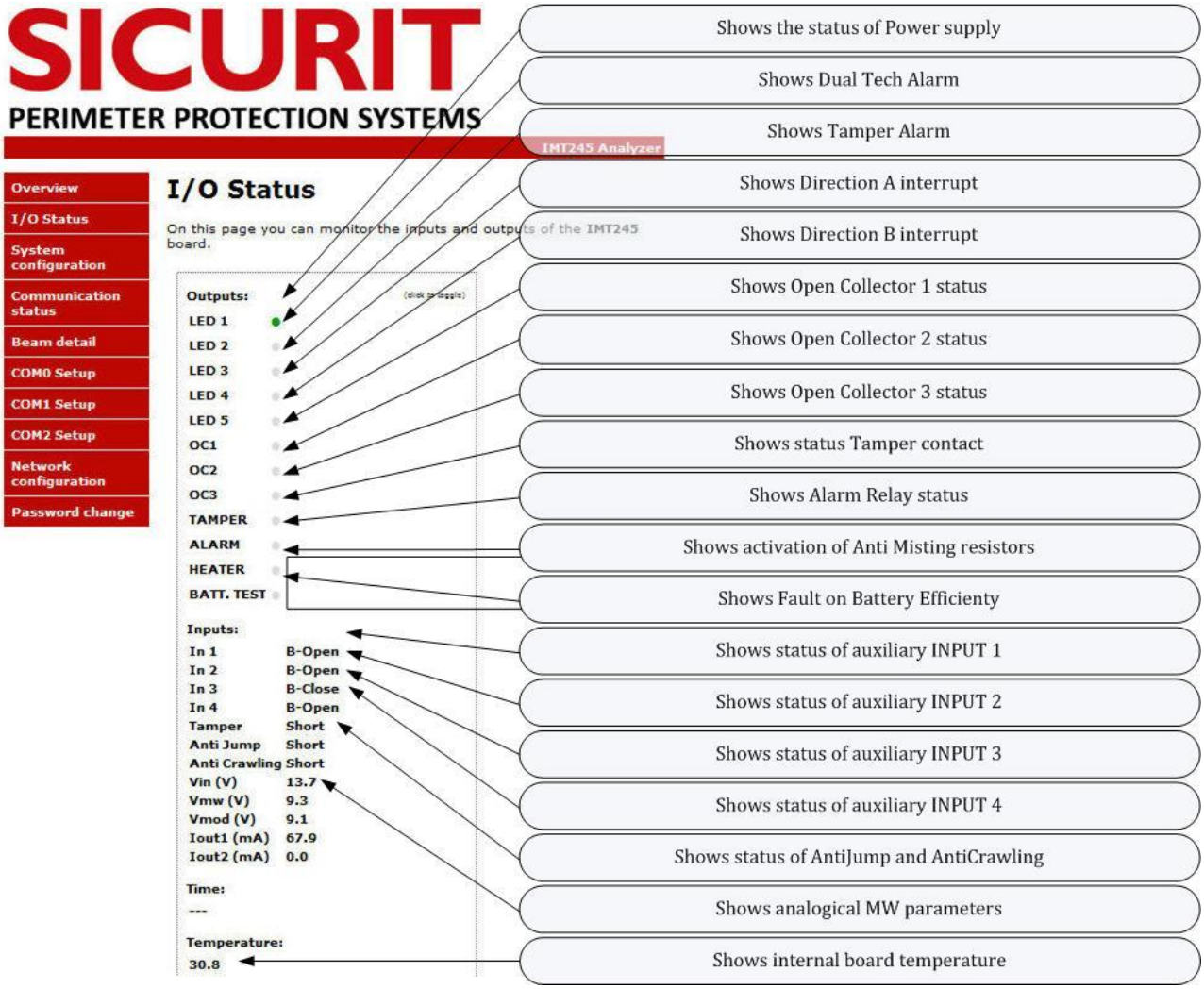
Select the window Beam details to verify diagnostic parameters of each beam.



All information contained on the pages relating to communication and status of each optical beams are reset each time the system is powered off.

Each optical pair in the system must have the same serial number FW version and more than 1.01

8.10. SYSTEM ANALYSIS STATUS



9. ABSOLUTE PRO™ SW

The management software and diagnostics for the product AVANTGARD™ is identified with SicuritPPS. This SW handles various products and the data shown are obtained depending on the configuration programmed in the browser.
On the first page, the SW (press File and Configure) must configure the address of the Master column and the Slave column of each line as configured in the web page of each single card, as described above.

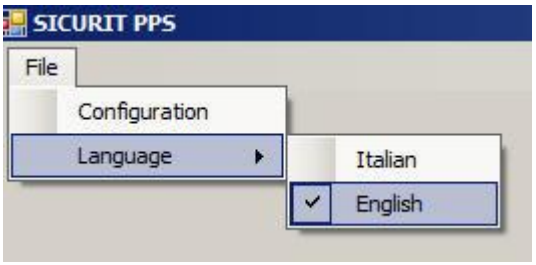
9.1. SicuritPPS SW

(later than version 1.7)

The product contains a CD with the files needed for the correct installation of SW programming analysis of the columns in question. The web page browser allows you to configure the equipment (sub products) assembled in each column.
The data connection with the columns is via LAN. In the CD or in the webpage of SicuritAlarmitalia a **SicuritPPS** and the setup file is stored and it needed for the installation of **SicuritPPS** SW.
In general terms the data analysis analog shown without coloration of the window are properly selected or detected, those yellow / orange are outside the correct range but do not involve a malfunction of the system, but should try to correct them, while data with colorful window in red must be absolutely correct.

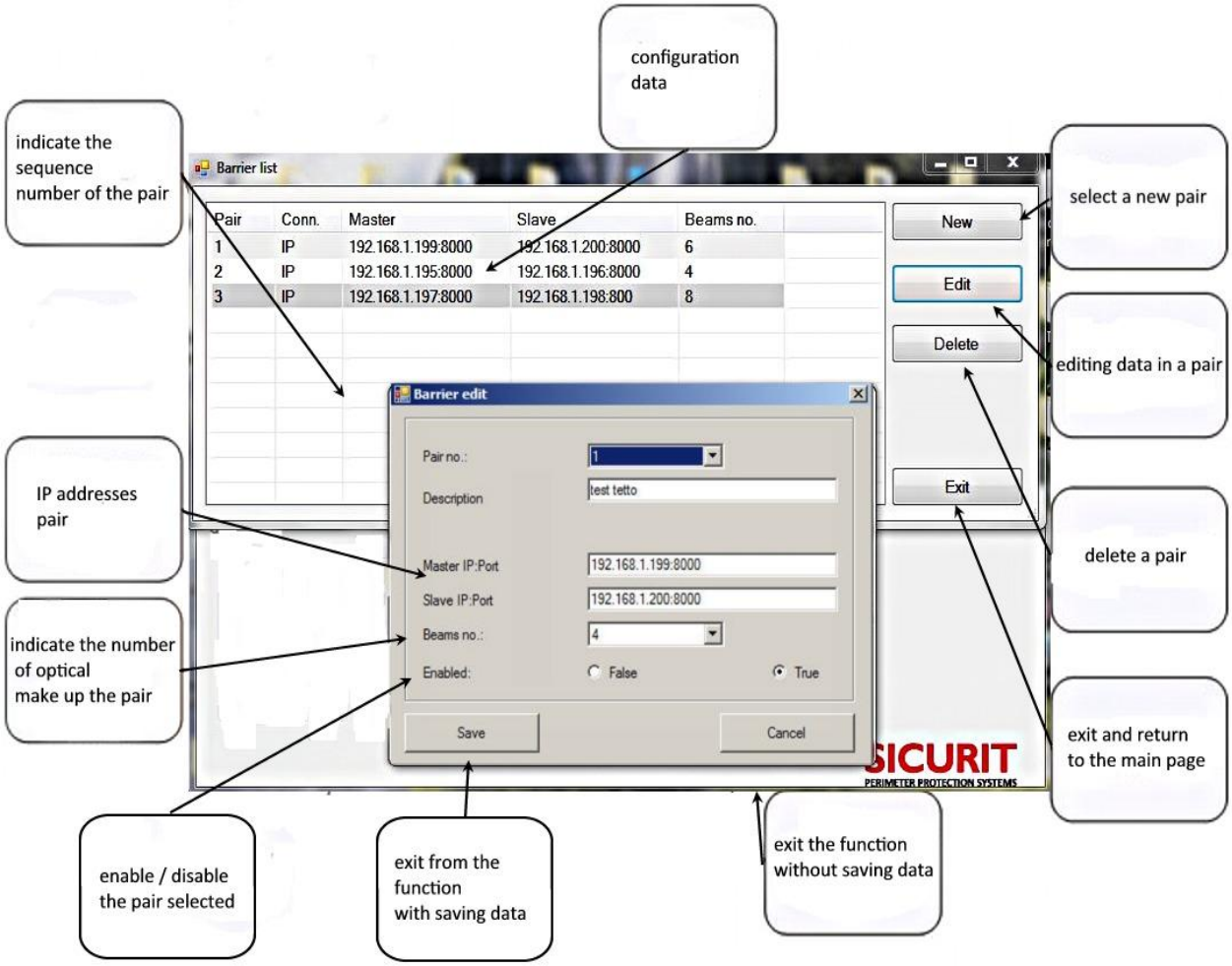
9.2. LANGUAGE SELECTION

Select the language by press: File - Language



Select the language and restart the SW.

9.3. **CONFIGURATION OF CARD PARAMETERS IN LAN NETWORK**



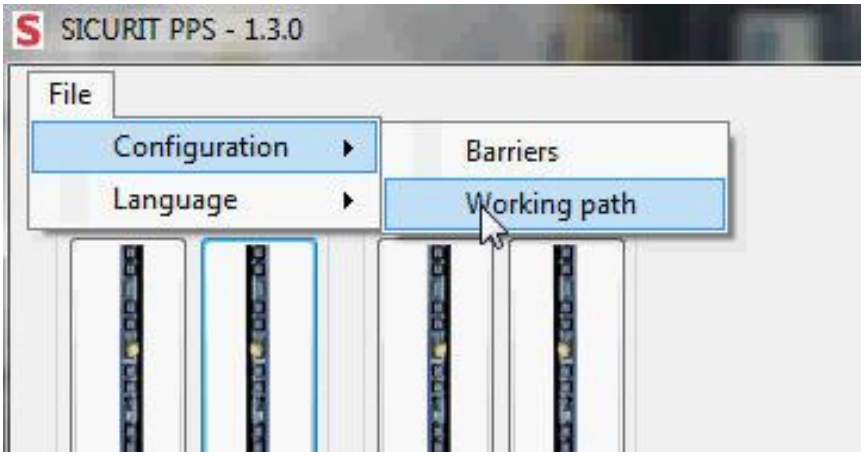
The IP address must be associated with the communication port 8000.

Enter ":8000" after IP address as shown in the figure above.

9.4. **DATA DIRECTORY SELECTION**

Configure the folder where data will be saved to the system event log by selecting IR:

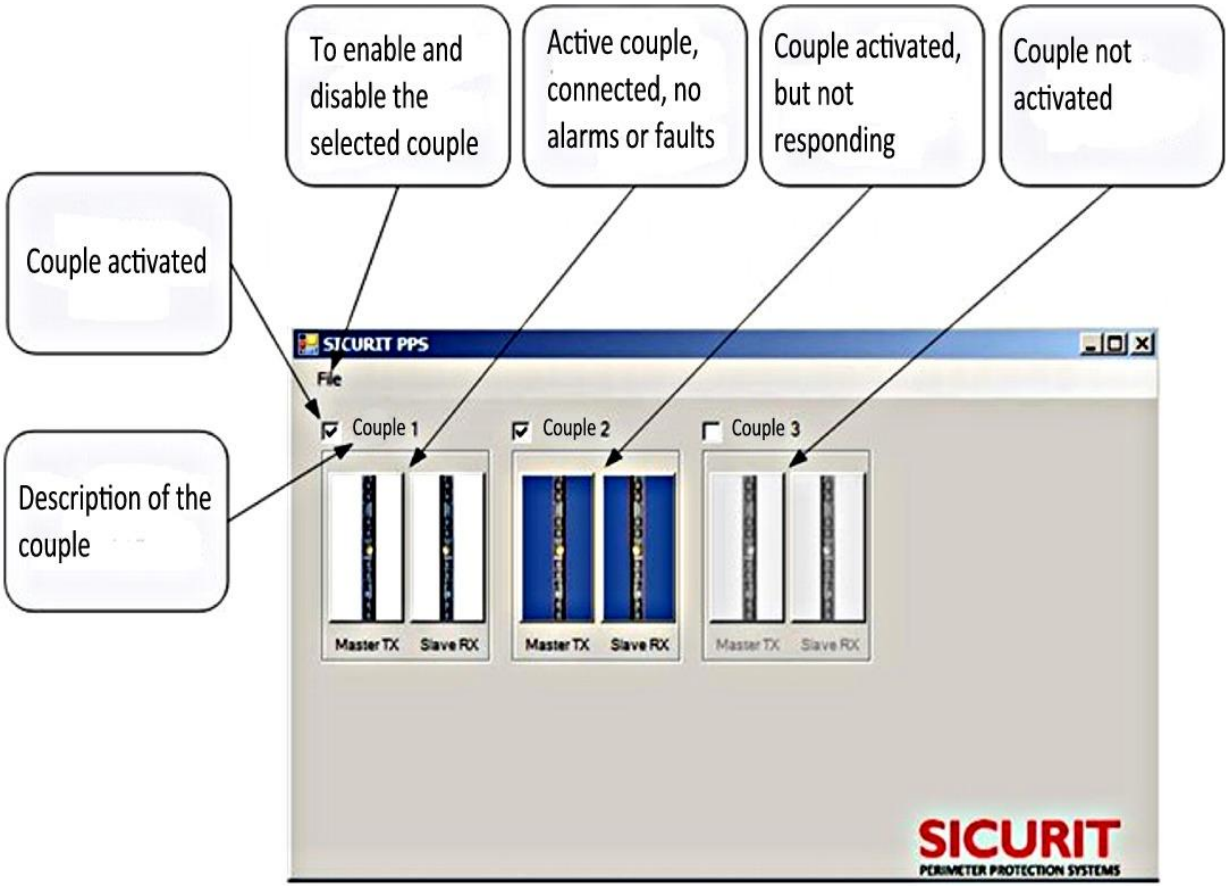
Enter a folder where data will be saved and the event log of each is present in the system.



9.5. **FIRST PAGE**

The figure below shows one of the possible system configurations ABSOLUTE PRO™.

The maximum number column configurable are 64, 32 pairs.



Check the box with symbol √ the couples present (active) and used in the system.

The couples displayed in clear on the screen, are programmed with correct address and connected to the system. Black couples are not recognized or not programmed.

The coloring of the couple indicates a fault or alarm.

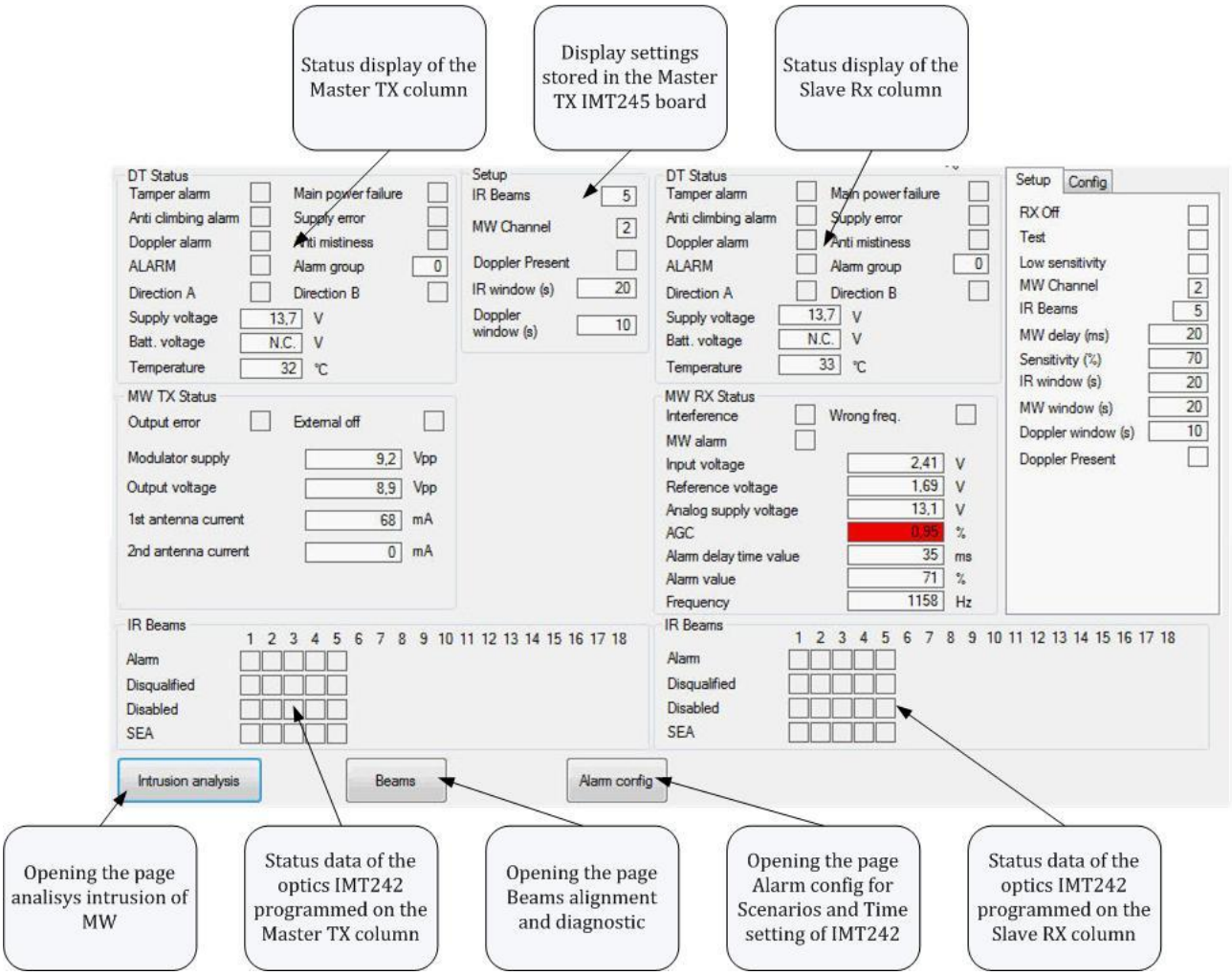
Couples shows in transparence way are not activated.

The description of the couple is important because the events file (.txt) is automatically saved in the working path folder with the description of each couple

Maximum number columns configurable are 32 pairs of ABSOLUTE PRO.

9.6. **DIAGNOSTIC SYSTEM**

Select the pair of ABSOLUTE PRO™ to be analyzed and the following screen will open:



In the top panel the general parameters of the system status of the connected system will be shown.

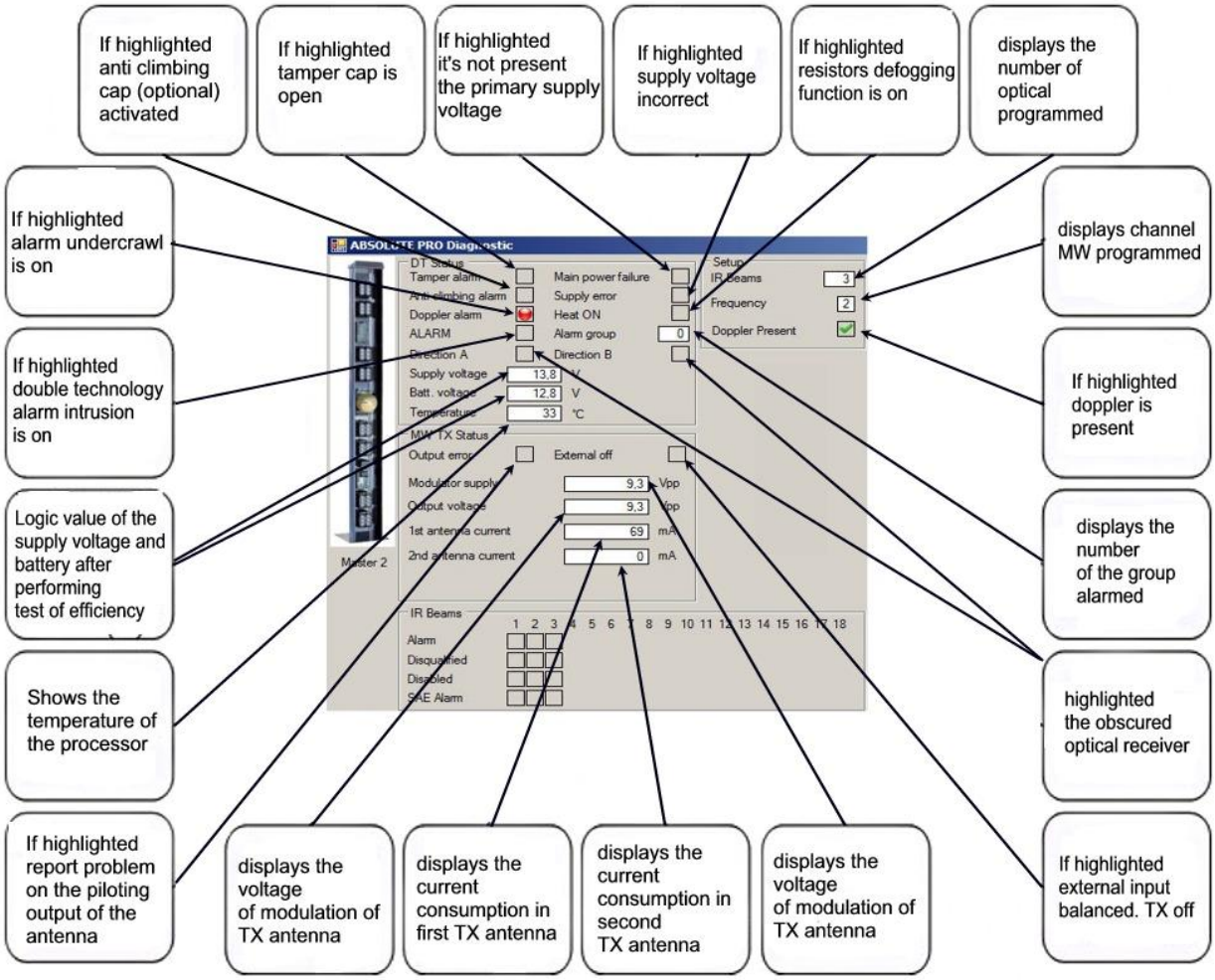
At the bottom the programmed optical beam relating to the selected column will be shown. The square windows indicate the status of each single optical (alarm and disqualification) beam.

The bottom squares allow the exclusion of relative optics with a double click. This function is useful when one of the optics is covered by tall grass, snow, or has failed.

The SEA indication will appear when the optical beam will be degraded to a value that doesn't admit a sufficiently stability of the system.

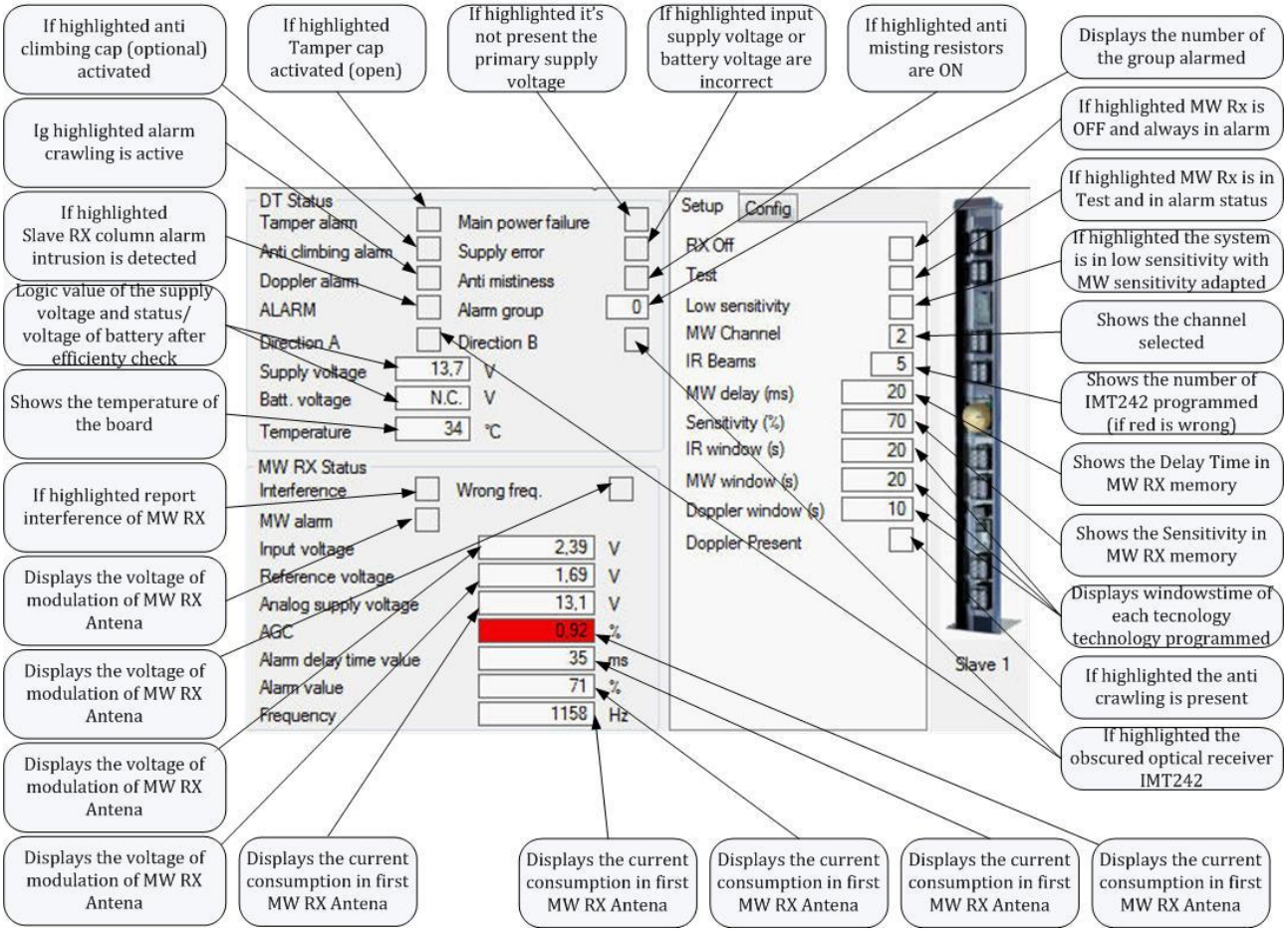
9.7. **STATE COLUMNS ANALYSIS**

- **Master**

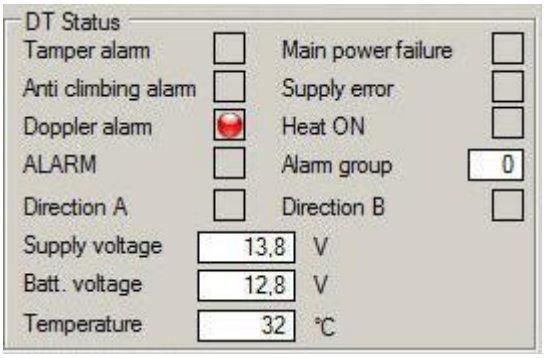


The supply voltage square box will indicate the battery voltage value (last test value) when the Main power error box will be signed.

- **Slave**



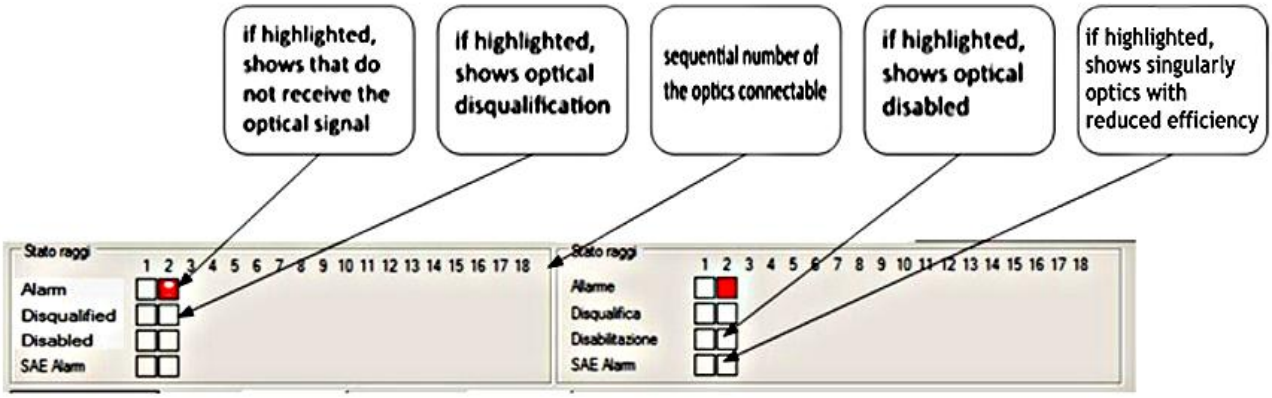
9.8. **ANALYSIS SUPPLIES**



When the primary supply voltage is not present, the box is highlighted with the color green power for correct voltages, yellow for voltages out of range and red for incorrect voltages. The value in volts of the battery box indicates the last value measured during the test day. The test battery efficiency is performed after 10 seconds from the power system and daily.

The alarm group identification shows only one of group in alarm in case of simultaneously alarm of two or more group.

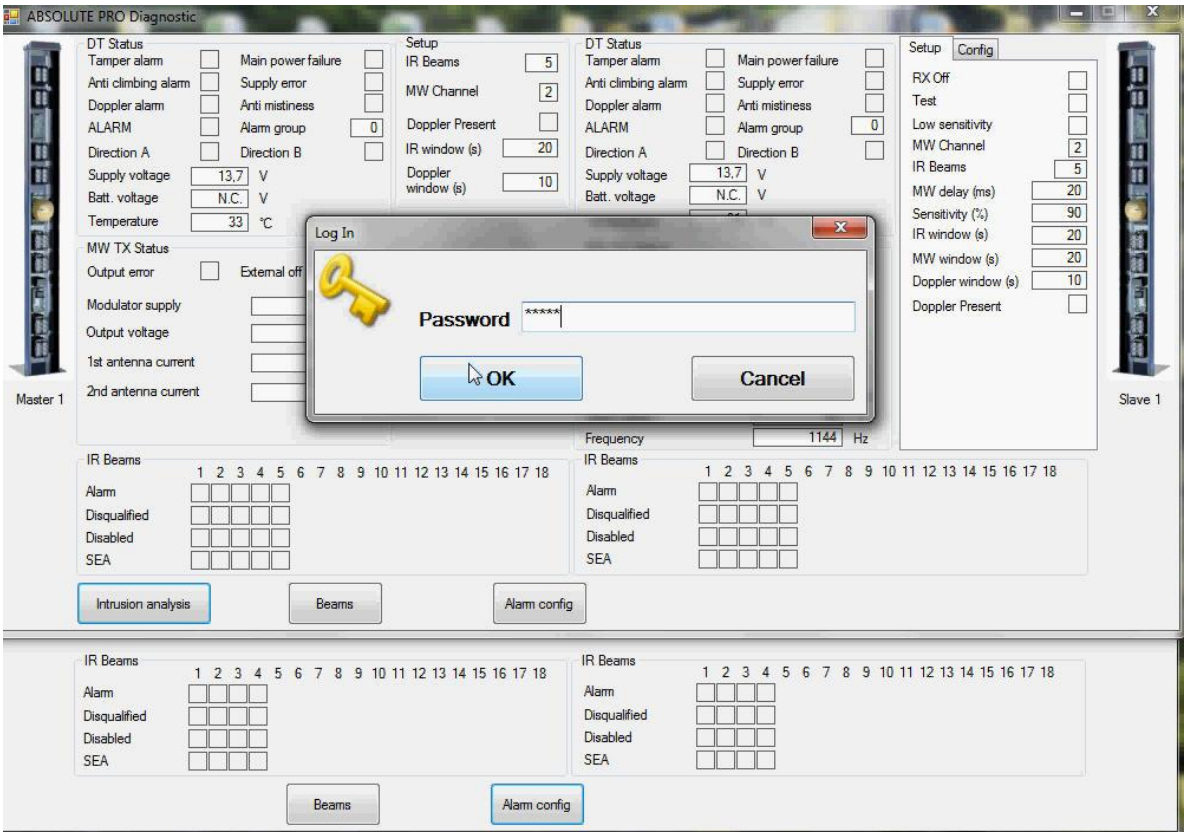
9.9. **STATE OF OPTICAL IMT242 ANALYSIS**



Selecting the window "Intrusion analysis" will open the page of MW analysis intrusion alarm, useful for setting the correct values of sensitivity and delay detected by simulations crossings.
Selecting the window "Beam will open the page settings and diagnostics of each optical element connected to the system.
Selecting the window "Alarm config" will open the settings page of the individual response times for each optical receiver and alarm scenarios in groups of optical.

9.10. **BUTTONS DIAGNOSTICS PAGE**

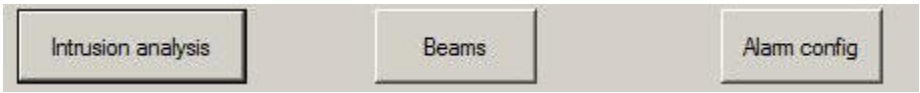
Pressing one of the following buttons a password will be request:



The password is the same stored in the web browser of each column.

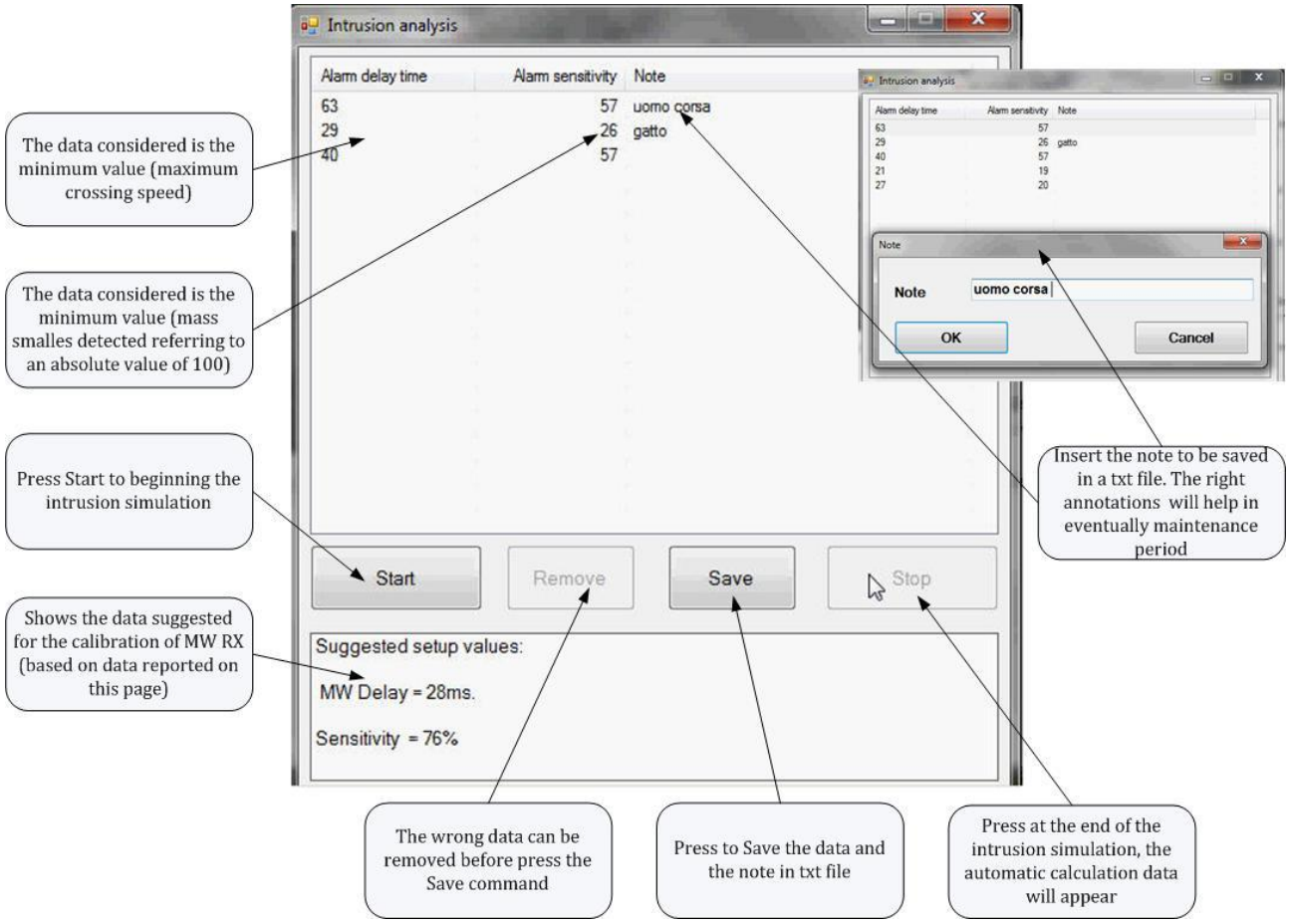
The default password is: **admin**

Take care that all the columns configured in one installation has the same password programmed in web browser page and stored in each IMT245.



- Intrusion analysis:
  - Select to activate intrusion analysis function, which allows the simulation of the crossings with saving of the characteristics of the type of intrusion made and the end result that shows the calibration data for the MW suggested by the system, always be verified by the trial test crossing with final settings.
- Beams:
  - Select to activate the diagnostics page and alignment of the optical IR connected to the system.
- Alarm config:
  - Select to display the programming page of alarm scenarios and response times of individual optical.

9.11. INTRUSION ANALYSIS



Press the Start button to begin storing data on simulations of intruder alarm.

The Delete button allows you to remove the crossings incorrectly simulated and the stop button ends the test and in the white box below the suggestion calibration values are displayed.

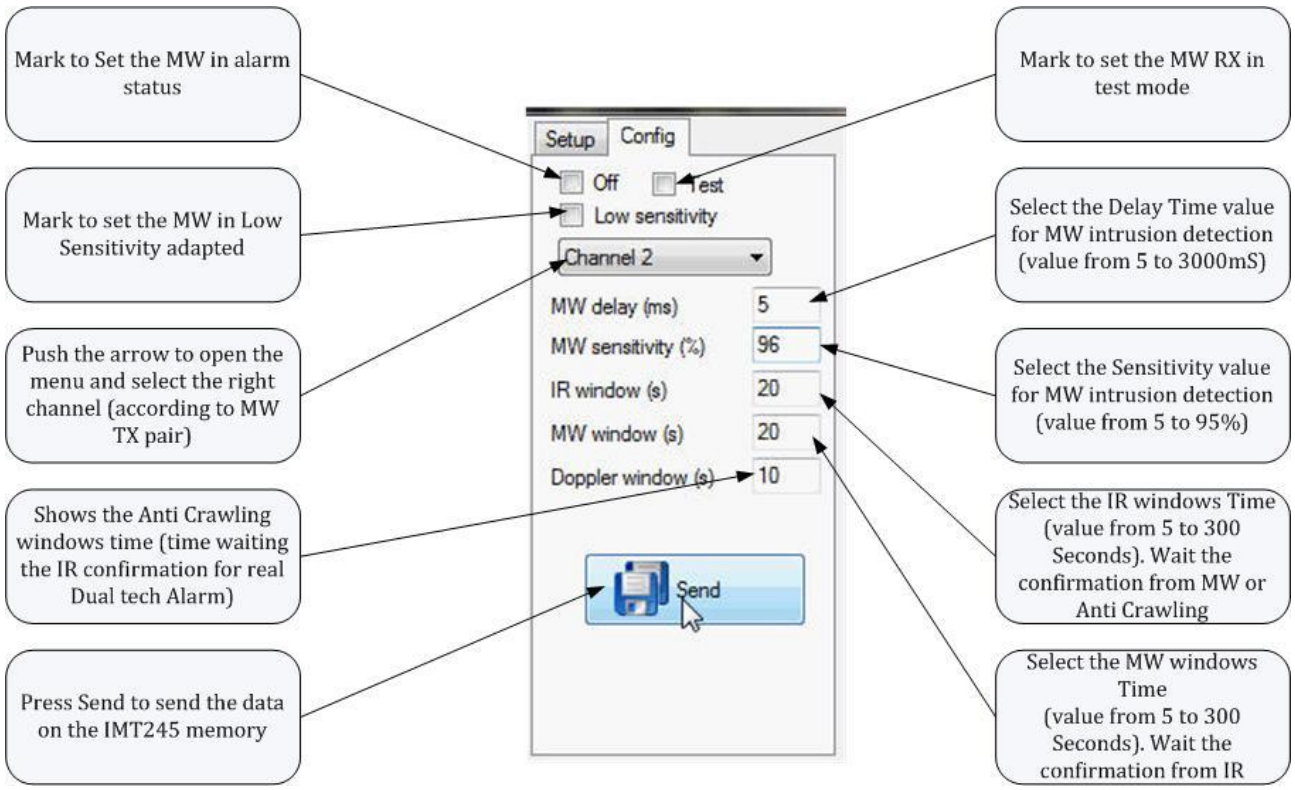
The data are stored at the end of each alarm, so the simulations must be performed one by one and with only one type of intrusion (only running, only walk, only crawl, ect).

For each type of intrusion can be associate a note to identify the way of intrusion for an eventually future analysis.

The data and notes can be store in a text file by pressing button Save.

9.12. MW SETTING AND DIAGNOSTICS

- **Setting and programming parameters.**



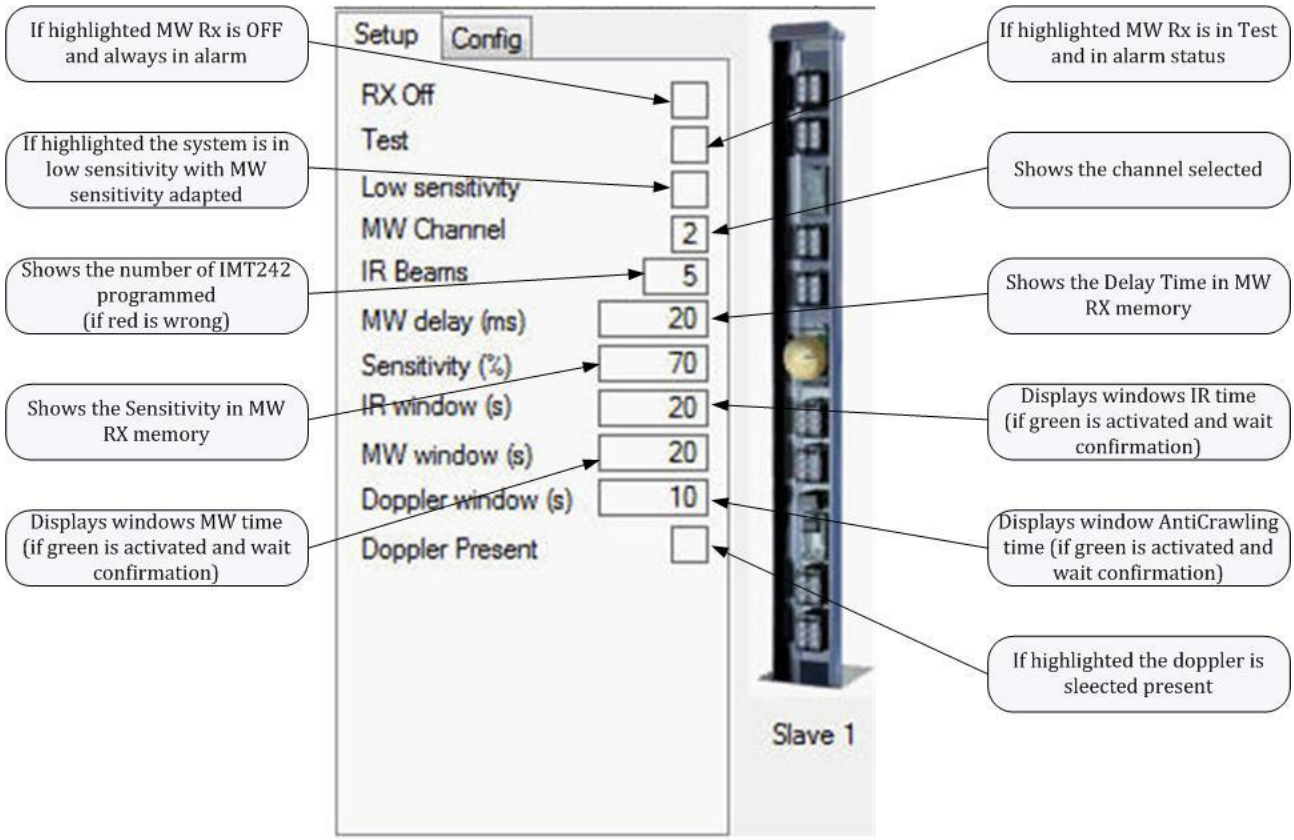
- Program:
  - The receiving channel according to the channel programmed on the transmitter corresponding.
  - The delay of the MW (crossing speed). A rapid intrusion (sprinting) will be recognized with delay values lower (for example 50 mS). Can be inferred automatically by the "Analysis Intrusion" function.
  - Sensitivity indicates the mass of the object to be detected. The higher the sensibility, smaller the mass detected (birds for example). Can be inferred from the "Analysis Intrusion" function.
  - Take care to Send the low sensitivity status only when needed, normally has to be deactivate in service mode.
  - The MW setting will be active 5 minutes after the configuration will be send
  - IR windows, MW and Doppler (Under-crawl) determine the timeout seconds for each type of pre-alarm confirmation by the other technology in order to generate a true dual technology alarm.
    A MW pre-alarm waits for confirmation from the IR alarm.

An IR pre-alarm waits the confirmation, within its time window programmed, the MW or Doppler alarm.

A Doppler pre-alarm waits the confirmation, within its time window programmed, the IR pre-alarm.

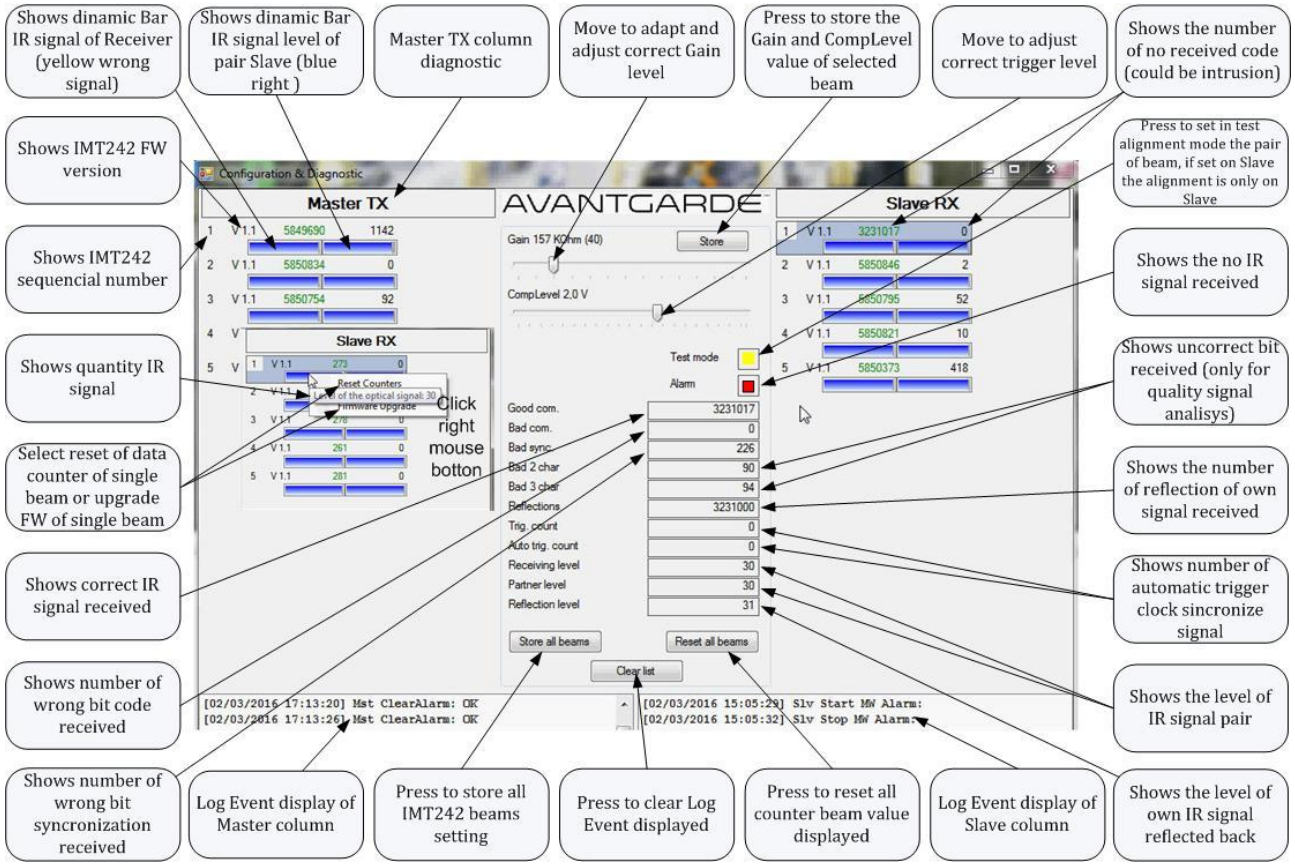
Press SEND for sending data to the card IMT 245

- Check status and settings: (setup)



9.13. OPTICAL SETTING AND DIAGNOSTICS

The next page allows you to analyze individually all the optics in the system ABSOLUTE PRO™.



The page is divided into two columns, the right hand side regards the Master (Tx) optics and the left hand side shows the Slave (Rx)optics

In the case shown, the indications are the following:

- The bar type VuMeter indicates the value of the received signal, especially important during the alignment phase
  - o Blue indicates the correct decoding of the received code
  - o Yellow indicates that the received signal is not correctly decoded
- The number that appears on the top right (distinct for Master and Slave) indicates the amount of optical transmissions received
  - o Green Balance count indicates the proper reception and decoding of infrared optical signal and should normally be this color
  - o Black indicates a lack of signal decoding
- The number that appears on the upper left of each single column (distinct for Master and Slave) indicates the incorrect decoding of the optical infrared signal received

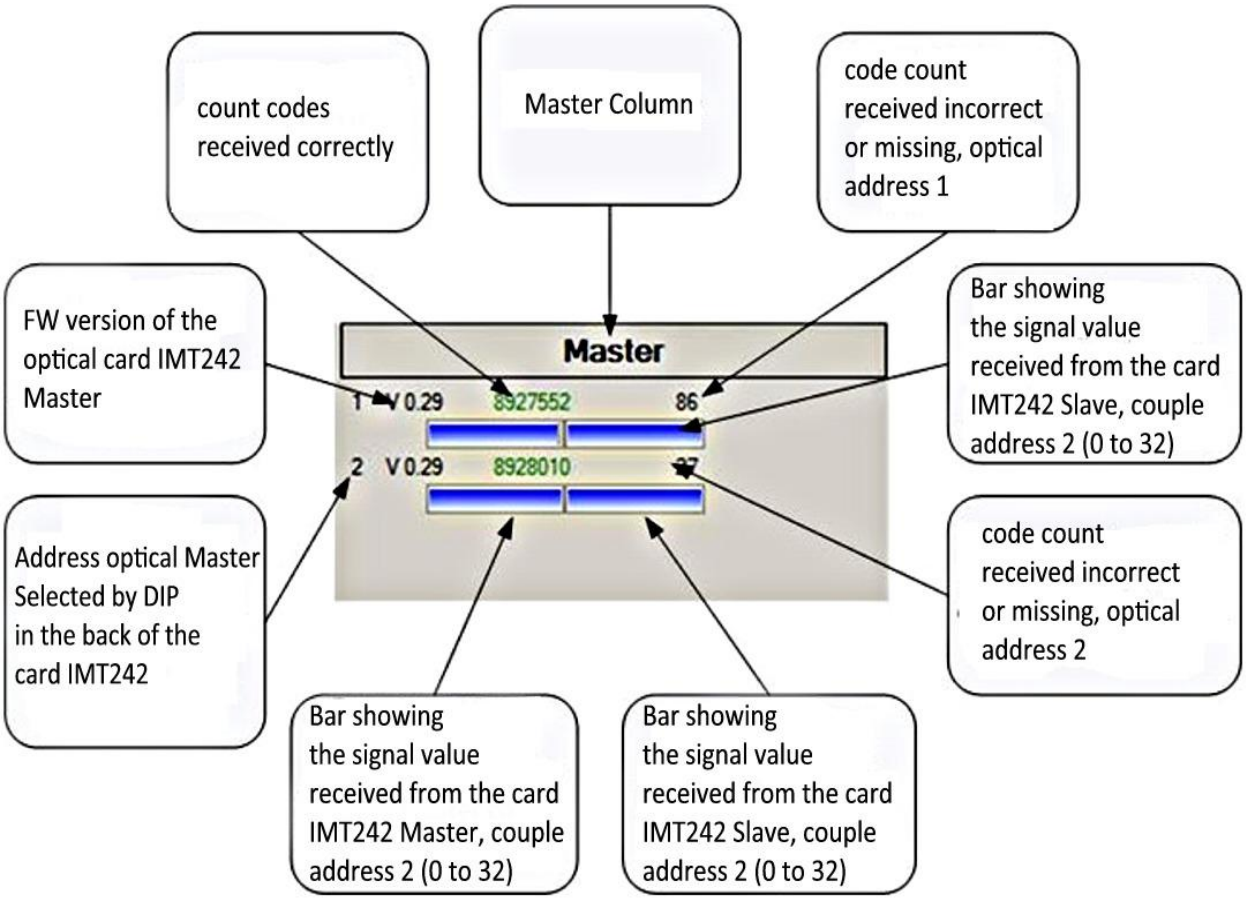
- o Black displays signal decode errors
- o Red indicates the incorrect signal of optical infrared reception
- Optical displayed in transparence way means it is excluded.

By positioning the mouse cursor over the signal bar, the numeric value of the amount of signal received will be indicated, regardless of whether it is decoded or not recognized.

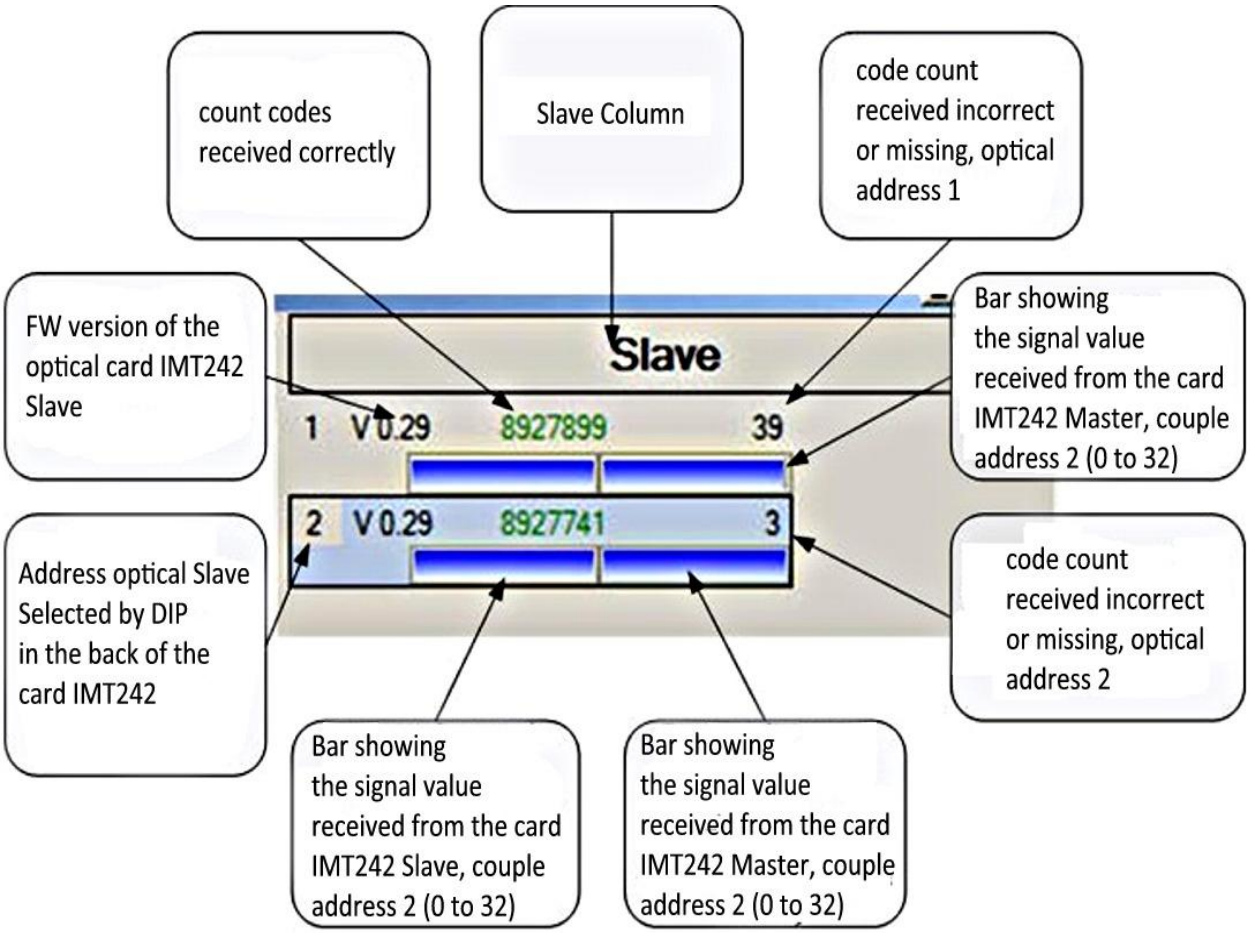
By positioning the mouse cursor over the count numbers, the functional description of the data will be shown.

By clicking on each optical on the same page, a central column with the particulars of each optical connected will open:

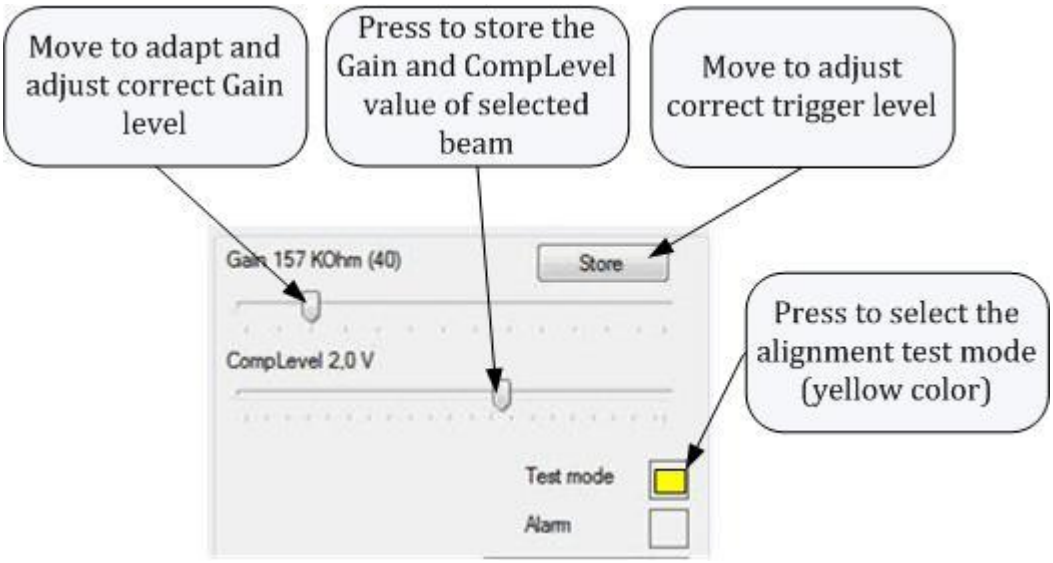
- **PARAMETERS OF OPTICAL MASTER ANALYSIS**



- **PARAMETERS OF OPTICAL SLAVE ANALYSIS**

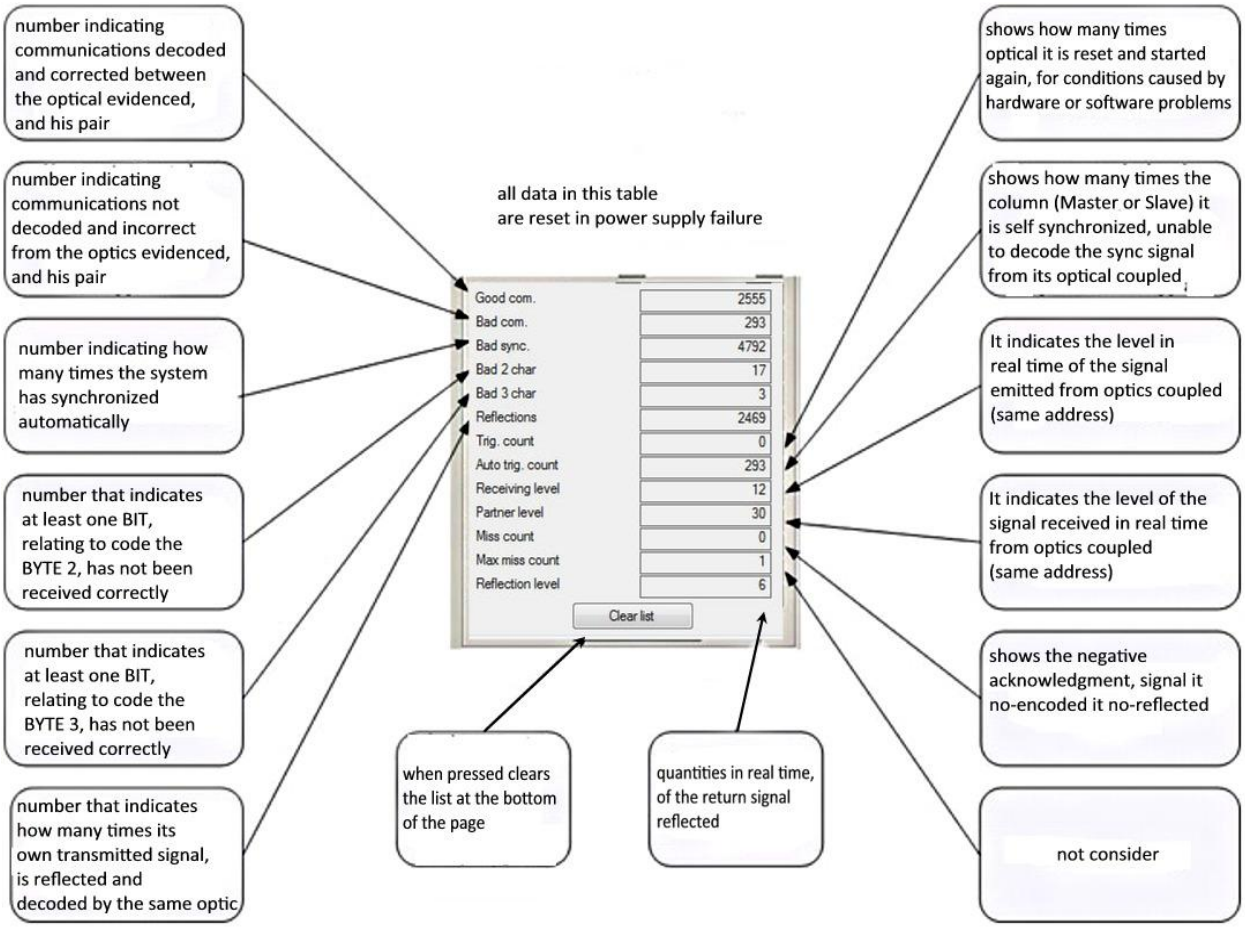


- **OPTICAL ALIGNMENT ANALYSIS**



- **DETAILED OPTICAL PARAMETERS ANALYSIS**

In the middle column all the data is displayed to provide a thorough analysis of the system starting from last system power.



NOTES:

IF YOU TAKE OFF POWER TO THE SYSTEM, THE PARAMETERS ABOVE, WILL BE RESET.

ANALYSIS OF FAULTS MUST BE MADE BEFORE REMOVING POWER TO THE SYSTEM.

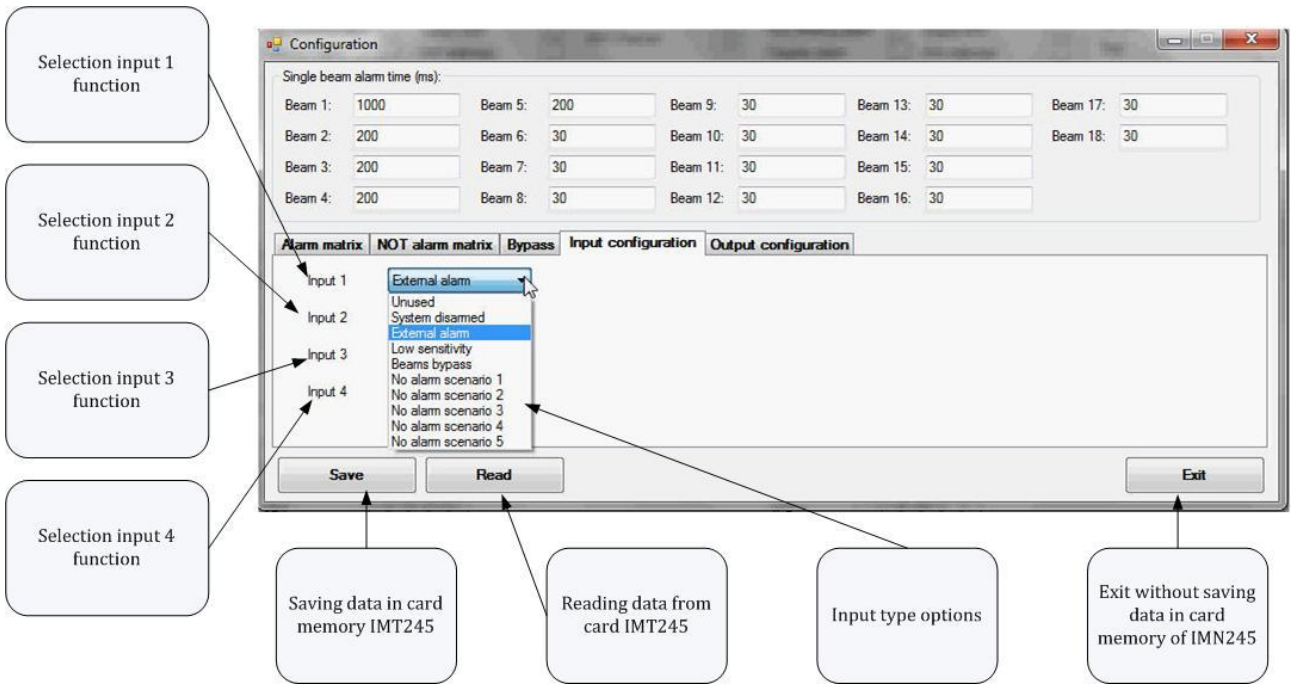
10. SELECTION OF THE TIMES OF INTERVENTION/ACTIVATION OF THE ALARM - "Alarm Config"

10.1. ALARM TIME SINGLE AND SCENARIO SETTING

The system provides two types of activation of the alarm: alarm activation time is the period of time that the signal of the optical pair is obscured.

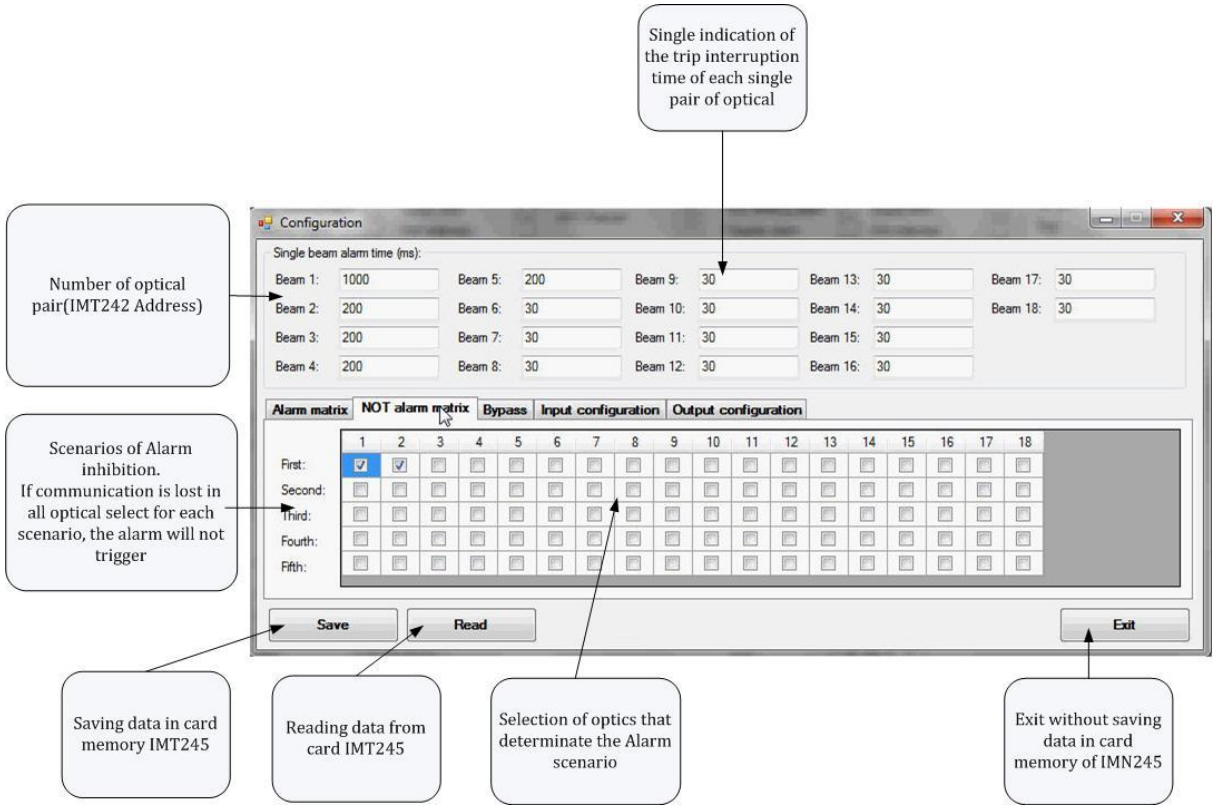
The system ABSOLUTE PRO ™ consists of two different types of alarm. The introduction of algorithms and analysis of diversified intervention times allow to make the system even more secure against the generation of possible improper alarms or undesired alarms. ABSOLUTE PRO ™ can select a long time intervention for each individual optic (hundreds of milliseconds) and at the same time select the time tripping very short (tens of milliseconds) for a group of optical (scenario) allowing the installer to choose the alarm scenario (matrix alarm) best suited to the type of installation required. For example, supposing that the optical higher has address 1 (as normally assembled at the factory) and you want to discriminate as possible detection of a small animal, you can select a very slow response time of interruption of the optical single number 1 and instead prepare a scenario (matrix alarms) with a group of lenses that react to short breaks and contemporary of the IR signal (30mS), so the man who runs across (crossing fast) upright will be detected as a group alarm (scenario) while the animal that crosses involving only the first optic with a time less than programmed (crossing with slow interruption of the IR beam in seconds) will not be detected.

Refer to the table below for the preparation of the response time of the alarm.



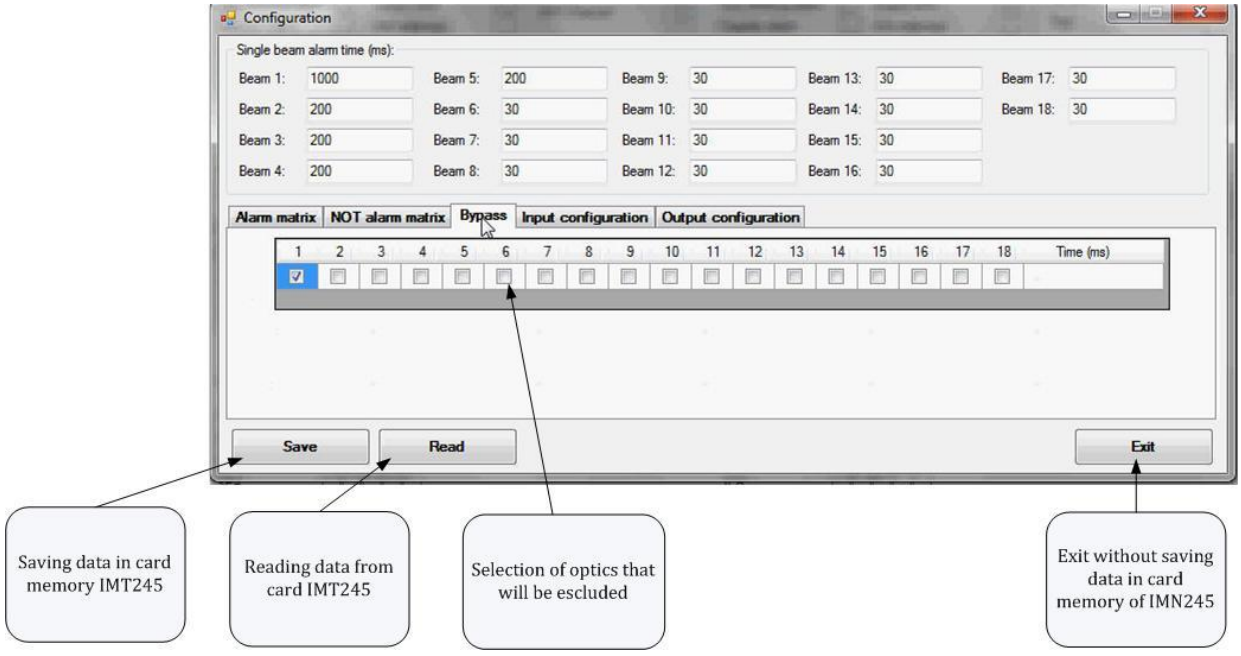
10.1. NO ALARM MATRIX SCENARIO SETTING

It is possible to select the scenario (group of optical beam) that if interrupt doesn't trigger an alarm.



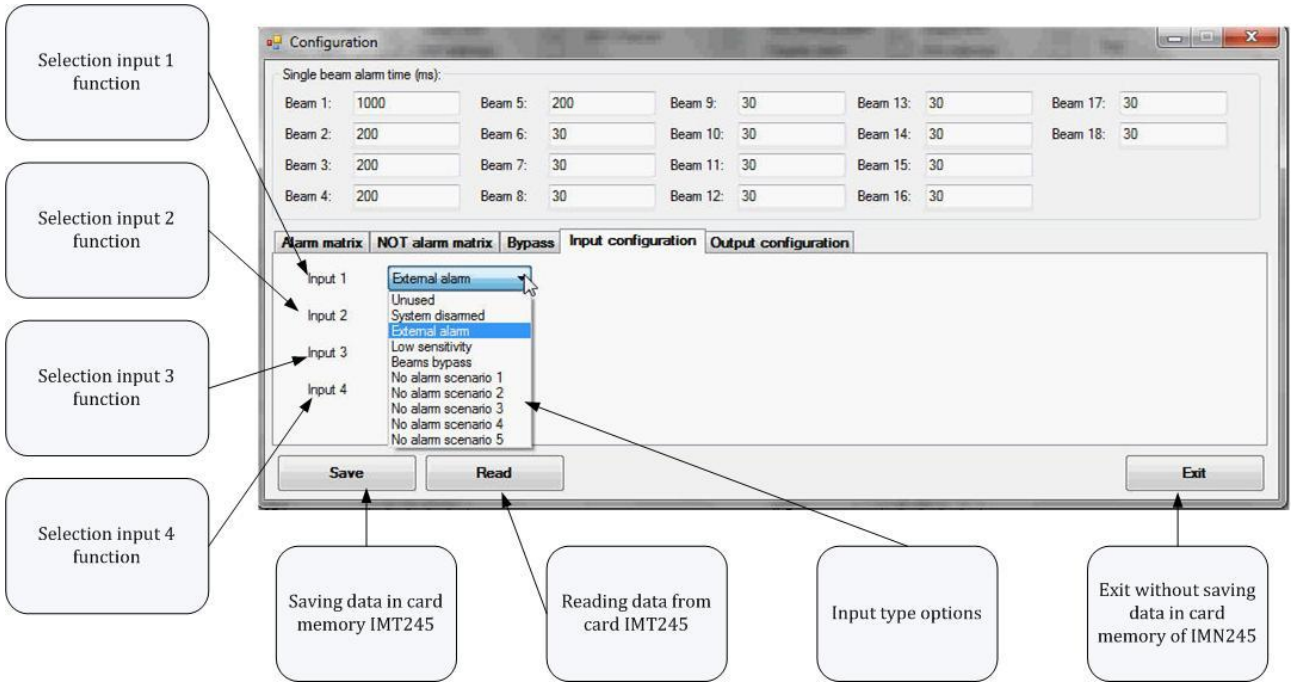
10.2. BYPASS OPTICAL

It is possible to select the optical that will be excluded when the input is balance and associated with the exclusion function.

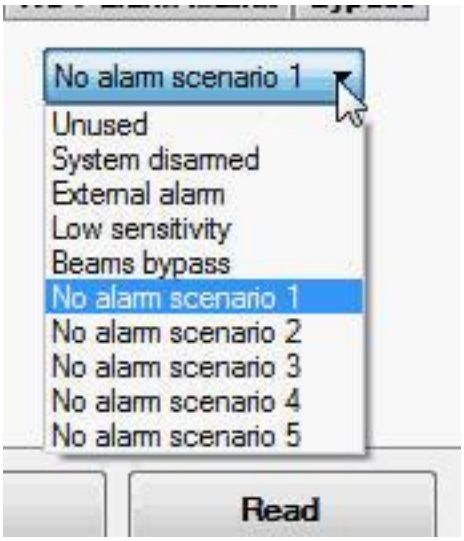


10.3. SCENARIO, BYPASS, EXTERNAL INPUT ACTIVATION

All the function associated with the "NO ALARM SCENARIO" and the "BYPASS" are activable by HW connection of supplementary inputs 1, 2, 3 and 4.



Each input can be associated to the BYPASS or to NO ALARM scenario number (from 1 to 5 scenario).

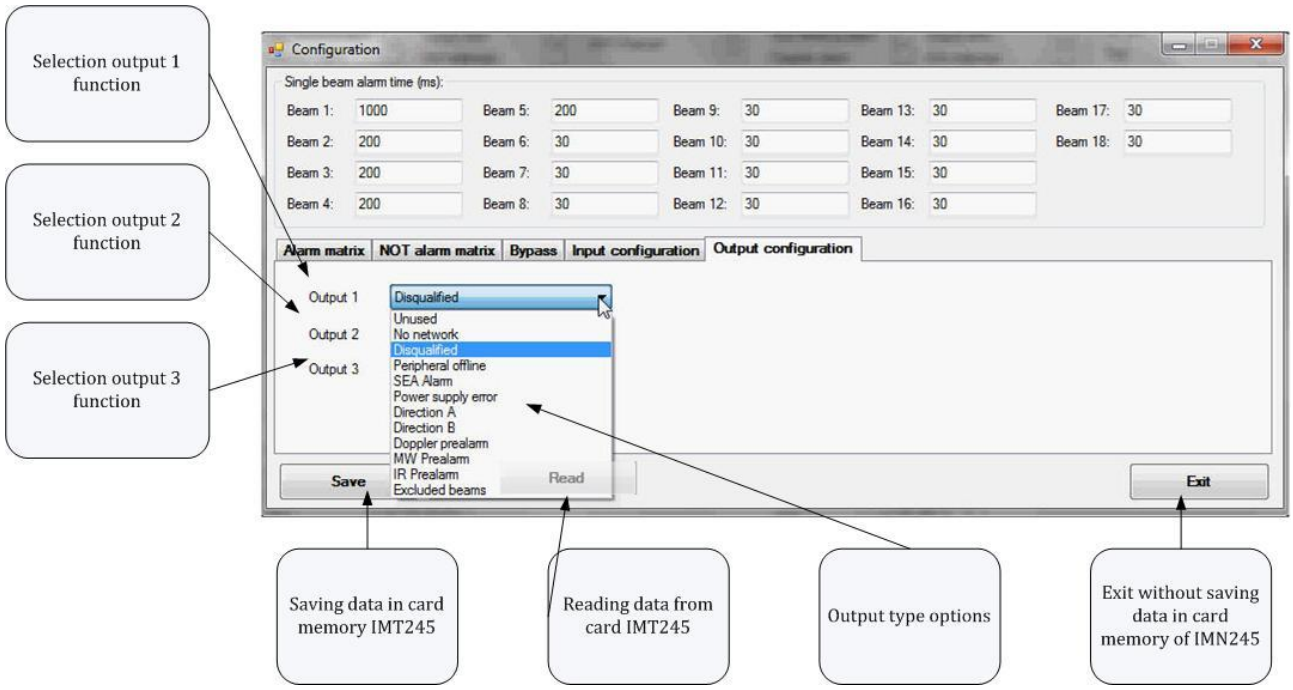


The status of the external alarm is displayed as column alarm.

The balanced resistors must be set on both IMT245 input to have the function complete in service (work).

10.1. OUTPUT FUNCTION

The 3 open collector outputs can be activated by several function associated.



Each output can be associated to the list of function show in the previous picture.

11. RELAY

Described functions of the relay board 245 IMT, should be considered if you plan to use the connection to traditional central alarm, while all the other DT alert, pre MW -IR- Doppler, tamper alarms, failure to receive optical, disqualification, controls power, etc, they are present, in their totality, in digital communication via LAN.

11.1. ALARM

The alarm relay on each column, Master and Slave, is triggered when programmed alarm conditions in the configuration page of the scenarios (configuration matrix alarms) are met.

In the example, the relay will activate every time the optical address 1 is interrupted for 1.000mS, and every time the optical address 2 is interrupted for 100mS.

The relay of each column will be activated also when both optical lenses 1 and 2 will be obscured at the same time for a time greater than 30mS.

The following table shows the possible settings as an example of the crossing speed associated with the operating time which can be selected for an object with a diameter of 30cm through the detection area.

DT alarm of the system (Master AND Slave) is activated when both infrared beams of each single optic are obscured for a time greater than that programmed. The switching of the relay of each single column in an alarm condition is not the real alarm but only the interruption of the signal in one direction. The real alarm must be configured in the control panel as "AND" of the two relays (master and slave) in a time window when the LAN connection is not activated.

After an alarm may occur the signaling of a second alarm within about 30 seconds due to the adjustment of the automatic gain in order to seek the possible new value of AGC to report it to the new value of the received signal.

11.2. TIMES OF INTERVENTION TABLE IR BEAMS

CROSSING TIMES	SPEED INTRUSION	
30mS	Fast Run	10 m/Sec.
80mS	Fast Walk	1,2 m/Sec.
140mS	Normal Walk	0,7 m/Sec.
250mS	Climb over	0,4 m/Sec.

FAST RUN

FAST WALK

NORMAL WALK

CLIMB OVER

NOTES: a calibration of the single optic with high sensitivity (30mS) determines a decrease of the rejection and immunity to environmental disturbances and a frequency of highest unwanted alarms. In any case with the system ABSOLUTE PRO ™ each optic can have a low sensitivity and can be increased in the scenarios (matrix alarms) available (optical groups).

11.3. TAMPER

The Tamper relay on every column master and slave is activated every time occurs an opening of the top cover of the column, or if it has assembled a hat anti-climb, if it takes a pressure or removal of the latter and for the tamper of extra dual balance input.

The relay tamper is active also when the RS485 for internal communication of beams or MW doesn't work.

11.4. ANTIMISTING

The two relays on the circuit board that activate the power supply to antimisting elements present in every optical IR, are activated when the measured temperature falls below the limit set in the relative configuration web page.
The feeds were divided into two groups to obtain a subdivision of the current loads over the two relays.

12. DISQUALIFICATION

The disqualification signal data is activated when the signal is reduced by over 75% of the value of Gain allowed. The disqualification can be programmed with delay times of intervention that vary from 5 seconds to 180 seconds before its activation or signaling to the management SW happens. The delay time must be selected according to the environmental conditions, adjusting it a consequence of ease with which the fog, snow, windblown sand, you could propagate.
Too short a time could generate, in slow crossings, a non-detection of the condition of IR pre-alarm.
Warning: signaling the intervention of disqualification must always be brought to the attention of user so that appropriate action is taken..

13. LED INDICATIONS

IMT245 board contains the following system messages:
L1: RED: POWER - if blinking, voltage supply present and correct, turned ON voltage low or missing.
L2: RED: DT ALARM – if turned ON, dual alarm technology is active, if slow blinking IR alarm, if fast blinking MW alarm.
L3: RED: TAMPER - if turned ON, anti- climb cap or cover not properly closed, if slow blinking internal communication between serial cards on systems incorrect or missing
L4: RED: DIRECTION REPORT A - if turned ON, optically interrupted in direction A
L5: RED: DIRECTION REPORT B - if turned ON, optically interrupted in direction B.

14. INFRARED ALLIGNMENT

To make the optical alignment of each single pair, open the page Beams on the SW SicuritPPS. Connect a PC to the card IMT245 via LAN cable (straight or crossover type) with network address properly programmed, relating only to columns connected.

You can connect to both the Master and the Slave column. Normally the alignment is performed by connecting to the Slaves column and placing the filters supplied for the alignment always just Slave column.

A personal computer is used for the alignment procedure. It can be connected to both the Master and to the Slave column. Prepare the configuration page IP only IP address of the column connected, namely only the IP address of Master or Slave by filling the page with all other parameters. SW page displays all the couples planned optical and data specific to each individual optical. If the number of optics has been properly programmed, but not all are displayed, check, connecting with the web browser, the number of optics configured is correct, that the network addresses are associated to the card master and slave, the flat cable connections are correctly and firmly inserted. In the display window of optical Master appears the value of the received signal from optics Slave and vice versa.

For a correct alignment, only one optical pair at a time must be set up in test mode (address optic highlighted in yellow).

Click on optical Master and select test (optical address turns yellow), in this mode the transmission is bidirectional and the signal is transmitted from the master to the slave that sends him back, if only to recognize the correct signal (the signal bar colored blue and counting communications in green). If the slave does not receive a signal decoded, it will not send the optical signal back to the master and consequently no signal value will be displayed on the bar showing the amount of signal received by the Master.

Initially program a level of value CompLevel to 0.5 and select a value of Gain approximately to 100 to try to find the infrared optical alignment of the relative couple.

If you want to have only the signal sent from the Master to the Slave (non-bidirectional), select also optical Slave in testing. In this way, the alignment will occur only on the Slave (RX) optics, as occurs for all traditional infrared mono-directional systems.

Proceed by searching the maximum value (32) of the received signal (blue bar). The bar indicates the amount of signal received from the optical pair in tests. The yellow bar indicates that the infrared signal is received, but that it is not decipherable or comes from another source, then proceed to a better alignment or a reduction of the Gain .

The blue bar indicates the correct signal decoded. If you reach close to (30) of the signal (to view the numerical value point the mouse cursor onto the bar), also reduce the Gain to the value (1), the lower the value, the greater the amount of infrared signal received.

Insert the dimming filters - lowest F1- to the highest (90%) - F3 only on the optical Slave and analyze the quality of the signal (blue bar and green count) on the optical beam.

If possible insert two **filters** (filter 3 + another filter) **only on Slave** (RX) optics, adjusting the Gain (increase) to obtain a value which allows to the system signal decoding. To act simultaneously on the value of comparison threshold of the signal (CompLevel) until the signal is recognized.

Higher the value of CompLevel found with filters applied more noise immunity will have the system. If you cannot get down with values below 0.5 and still calibrate the CompLevel with a stable signal when the filters are inserted. Completed alignment with the filters, remove them and set the value of Gain to the minimum obtainable, considering the value of the signal (blue bar), which in any case must always be around the value (20) and memorizing for each optical value of Gain (normally 1) and the value of ComparatorLevel (normally not less than 0.5).

The numerical value of the signal displayed on the signal bar is displayed by bringing the mouse cursor on the bar of the optical signal. Historicize the data, clicking on the Store window, so the value of Gain and CompLevel are stored in HW of the lens at object and the system works by automatically adjusting the Gain (DAGC, Digital Automatic Gain Control) based on parameters stored optics properly aligned. Verify that in the absence of the signal by the columns Master (completely obscure the optical part Master in test) the signal level falls to minimum values even bringing the Gain above (200).

Warning: the DAGC (automatic compensation of the Gain) is automatically activated after 10 minutes of not touching the SW, or 10 seconds after saving parameters. Each time you move the cursor to Gain, the DAJC will stop working for about 10 minutes remaining in manually fixed position.

Exit test alignment (click test and verify the disappearance of the yellow indication on the previous number in the optical test). Leave the system in service for about ten seconds and then proceed to make other alignments of configured optical pairs.

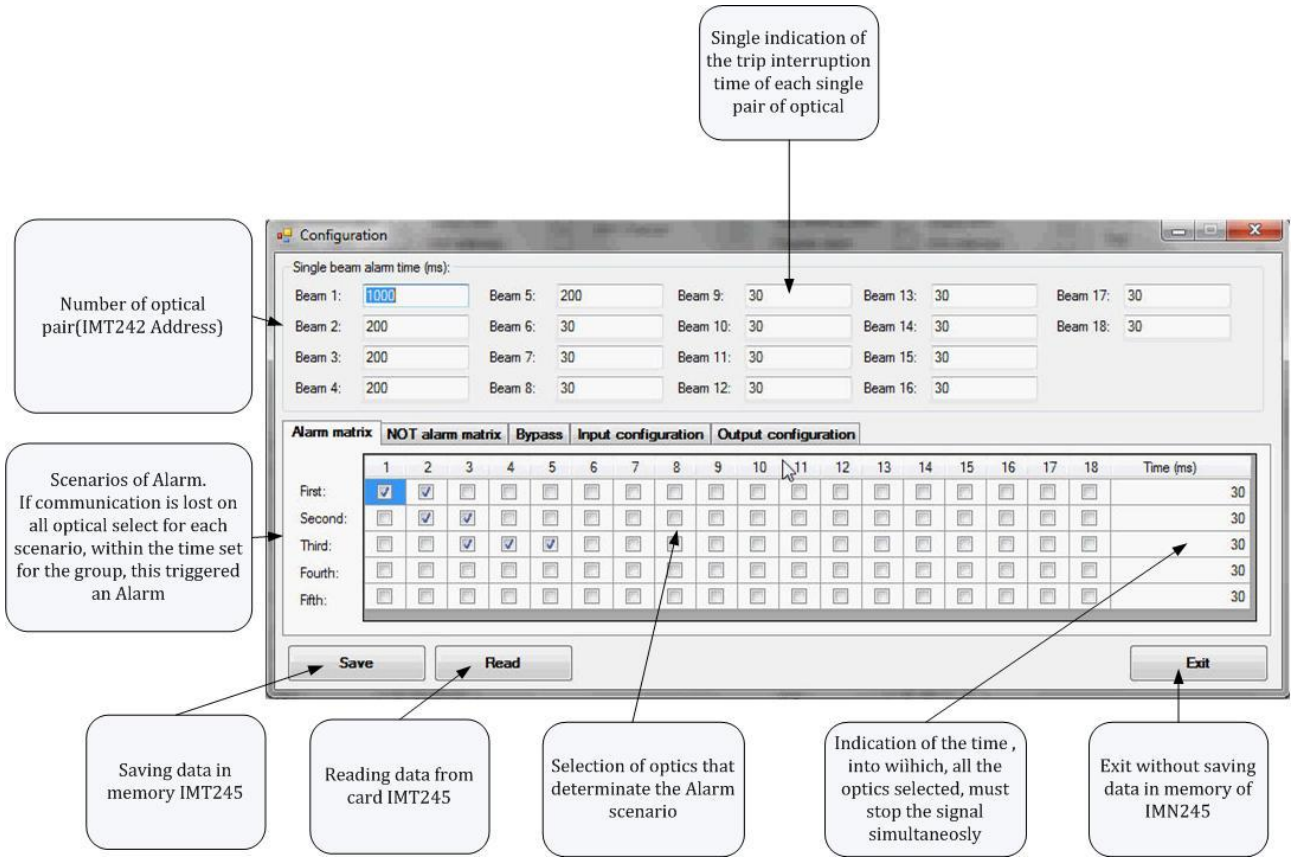
Once all the alignment testing procedures are finished, prepare all optic pairs in service, no optical address is highlighted in yellow.

When, in operation with their data properly stored, all optics must have the blue bars (decoded signal) and green counts (stable signal) on the Master column and the Slave column.

Reset the counter (reset counter) error, check the stability of the decoded optical signals by clicking the right mouse button and click on the window Reset.

NOTE: the alignment of the optics must always be performed with perfect weather and visibility, without any obstacle that obscure, even partially, the detection area.

Exit the page analysis of the rays and open the page "Alarm Config" by entering the data as shown in the relevant paragraph of selecting response time of alarm.



The single alarm time of each beam has to be select with a hundred of mS and the fast detection of intrusion (30mS) has to be select in a alarm matrix scenario combine two or more adjacent optical beams.

15. MW ALLIGNMENT

The alignment of MW is done by moving vertically and horizontally the receiver parable, then the transmitter, and then the receiver still improve.

Before touching parable discharge your body from any static charge by touching the aluminum column that by regulations must be grounded.

The parameter indicating the quality of the alignment is given analog AGC MW present on page global diagnostic system. Plus the value of AGC is low (tending to zero) plus the received signal is correct, better alignment.

The trimmer (multi-turn) placed inside the metal cover on the card receiver must be adjusted when the data relative the AGC falls below the value 10%.

Turn the trimmer in clockwise sense to increase the value of AGC until at least 50%. Take action mechanically on the alignment of the parable to try to further reduce the value of AGC. Each time you get the value 10% must use the trimmer in order to attenuate the signal received.

The alignment is complete and correct when the value of the AGC will reach the minimum obtainable by adjusting mechanically parables MW both transmitter and receiver.

Complete the alignment process, wait about 2 minutes without signal noise and select the AGC value to about 20% by turning the appropriate trimmer (20 laps).

Select a sensitivity of 80% and a delay of 20 ms on the MW configuration page data, and send them to the IMT board.

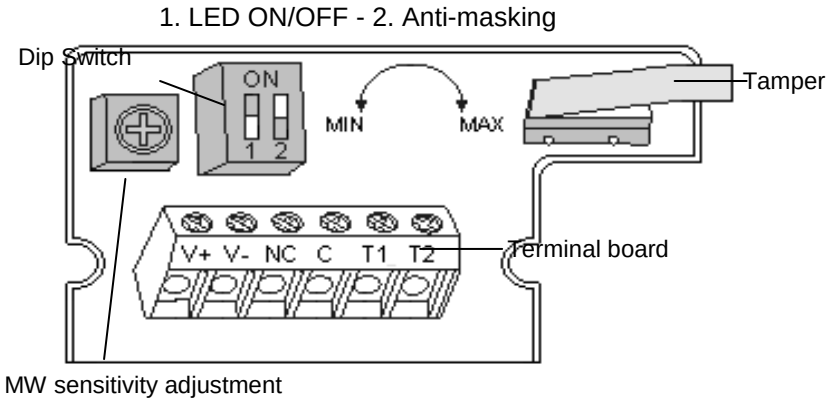
Select "Analysis Intrusion" press Start and simulate the crossings to be detected (least ten in different parts of the sector). At each end of alarm, data is displayed related to the type of intrusion. At the end of the test, delete any crossings incorrect, press Stop, and write down the values suggested by the tests performed.

Enter data in the MW boxes, delay and sensitivity, and send them to the IMT board.

16. IME251 DOPPLER ALLIGNMENT

16.1. Switch

The figure below shows the settings of the sensor, on the back.



● **Dip 1**: Led lighting up

ON: The LED lights up when the sensor detects motion and / or masking.

OFF: the Led is disabled.

● **Dip 2**: anti-masking function.

ON: activates detection of masking on alarm output.

OFF: anti-masking disabled.

16.2. Set:

Insert a screwdriver in the appropriate seat and adjust the sensitivity of the microwave according to the area to cover, as shown in the figure:

Turn it clockwise to achieve the maximum capacity.

Turn anti clockwise to the minimum, to cover about 2 meters, setting an intermediate position the microwave cover around 5-6 meters.

16.3. LED INDICATION:

LED FLASHING: 3 sec as fast given power supply.
LED ON: following a detection of movement or masking.

17. INTRUSION TEST

Performed the selection of the intervention times alarm of each single technology present in the system, proceed to the simulation of possible intrusions according to the specifications given in the document implant, in order to verify the efficacy of detection system.
Calibrations intervention time must be done properly, not providing the system sensitivity to high unnecessarily.
A system properly calibrated has stability such as to ensure a high immunity to environmental disturbances regarding improper alarms.
Try all kinds of intrusion and always verify the response of the system either locally or in the control room in charge of receiving the alarm signals and status.
The test is mandatory to check the correct data programmed and stored in card memory IMT245.

18. SYSTEM FEATURES

18.1. 5-DS (5 Detection Scenario)

The system allows programming of the 5 alarm scenarios in groups with high sensitivity that allow the selection of tripping times for each single optical sensitivity with less force than conventional systems.

18.2. ODC (Optical Data Check)

The optical signal is composed of several bytes of communication that allow the system to self synchronizes and to learn about the operating parameters of the optics in front.
Final checksum bits allow the optics to detect whether the decoding of the signal has been processed correctly.

18.3. IP Native

The system ABSOLUTE PRO™ obtains the IP connection directly on the system without the need for interfacing with external equipment.

18.4. SUN Friendly

The two-way system guarantees having at least one of the two optical receivers always active even if the correspondent is blinded by sunlight. This feature makes the system ABSOLUTE PRO™ superior to the performance of traditional unidirectional beams.

18.5. SEA (Signal Efficiency Analysis)

The function SEA (Signal Efficiently Analysis) analyzes the received optical signal, over a sufficiently long period of time, and calculates to verify any decrease of the signal and signal its reduced efficiency.

This signaling must not necessarily be interpreted as a decrease of efficiency of the electronic circuit, but in most cases the decrease reported is due to dirt accumulated on plexiglass or to the growth of the grass, or other parameters or environmental conditions that reduce the amount of infrared exchanged between transmitter and receiver.

Clean the Plexiglas front; remove any accumulated dust or small animals/insects inside the column.

18.6. DAGC (Digital Automatic Gain Control)

The optical system has a circuit which allows filtering and reduces the amplification based on the amount of the decoded signal IR. This feature allows each optical receiver to increase to a value of amplification sufficient to guarantee the correct reception of the signal, and to reduce and cancel all those signs of quantity inferior to that of its own transmitter.

18.7. TDA (Direction Intrusion Analysis)

The system ABSOLUTE PRO™ permits detection of the crossing direction indicated via the LED and sends the digital data which communicates whether the intrusion has occurred from right to left or left to right.

The function allows you to leave an open gap/gateway and therefore allow free entry of vehicles etc. and the relative monitored exits (with video recording for example).

In case of using for vehicles predispose decelerators speed to allow the system recognition, TDA function may not be reliable in critical or in any climatic conditions and it must be associated with the dual technology alarm.

19. CONNECTIONS

Pay attention to the correct sizing of the conductors used for connections of the voltage supply (preferably install our power supply BEA1224ALIEX for external columns for up to 6 pairs of optics) and control the dimension of the conductors according to the length and absorption of the connected equipment. Always use shielded cables and cables for external use when making the connections.

20. FAULT TABLE

DESCRIPTION	TROUBLE	Possible solution
No LAN network communication	1. Wires connection 2. Cable feature 3. IP address	1. Check RJ45 2. IP address uncorrect 3. Same IP address in different columns
The IMT242 are not in line	1. Flat cable connection 2. Dip switch selection 3. Master / Slave selection 4. Web browser setting	1. Check the flat cable are insert totally and correct on each IMT242 and from IMT245 to first IMT242 (bottom) 2. Check the binary selection of dip switches on each IMT242 3. Select in right way in IMT242 the dip 6 (ON=Master – Off=Slave) 4. Check the conformità of the data setting on the web browser page of each column
The column is not shows in the diagnostic page	1. Web browser setting 2. Internal RS485 connection	1. Check the data setting on the IMT245 2. Check the conformity on web browser 3. Check the RS485 connection fromIMT245 and MW
MW doesn't communicate	1. Speed COM port uncorrect 2. RS485 wires 3. MW address	1. Check the parameter setting on COM 1 on web browser 2. Check wires conenction 3. Check the dip switch setting
MW always in alarm	1. Channel not conforme	1. Check onweb browser the TX channel 2. Select the RX channel same as TX channel

Led 1 OFF	1. No power applied on main board	1. Fault on power supply or wires not cabled in right way 2. Voltage value of power supply out of the acceptable limits
Led 2 ON	1. Infrared beam and MW trouble 2. IMT242 not programmed 3. MW interferences 4. IME251 anticrawling	1. Check the alignment of beam and MW and relative code and setting a. Take out eventually obstacle along the sectors b. Clean and correct fix the front plexiglass 2. Check same FW apply to the pair of column 3. Check the congruity of the optical number programmed a. Check the channel selected b. Check the polarization of MW in case of two adiacent and linear sectors 4. Check stability and setting of AntiCrawling subproduct
Led 3 ON	1. Tamper in allarm	1. Fix in right way the cover 2. Check the correct installazione of AntiJump cover 3. Check internal comunication of IMT242 stability 4. Check the RS485 IMN2390 MW RX connection and congruity of setting on dip
Led 4/5 ON	1. One way IR interrupt	1. Optical broken 2. Check through SicuritPPS SW the status of IR beams 3. Check the alignment

21. VERSION AND DATE

21.1. Board FW

IMT245: Version 1.16 date 18/04/2016

IMT242: Version 101 date 01/12/2015

21.2. SW

SicuritPPS: Version 1.7 date 08/03/2016

This appliance is marked according to the European Directive 2002/96 / EC on Waste Electrical and Electronic Equipment (WEEE). By ensuring this product is disposed of correctly, it will help prevent potential negative consequences for the environment and health.

The symbol  on the product, or accompanying documents, indicates that this product should not be treated as domestic waste but must be taken to a suitable collection point for the recycling of electrical and electronic equipment.

Discard following the local regulations for waste disposal.

For more information about treatment, recovery and recycling of this product, please contact your local authority, the collection service for household waste or the store where the product was purchased.

CE

NOTE

SICURIT ALARMITALIA S.p.A. reserves the right to make changes to this manual / product without notice.