DUEVI
YOUR SECURITY. OUR TECHNOLOGY

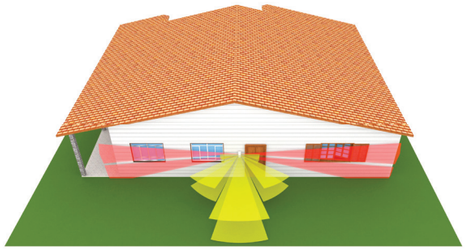
MOSKITO+ K

OMNIDIRECTIONAL EXTERNAL INFRARED SENSOR
WITH ANTIMASKING

INSTALLATION AND USE MANUAL

18.06-M:1.0-H:SE-05V6-14-F:1.1

MOSKITO is an outdoor sensor designed for the protection of the perimeter of the building with an effectiveness never seen before: it integrates 6 passive infrared heads



A double IR barrier on the sides of the sensor creates a protection for doors and windows placed on the front of a building for a length of 12 + 12 meters. The lateral detection on each side is entrusted to the combination of two IR heads with AND logic, which generate two curtain detection zones with 10 ° opening and range up to 12 meters each.
Furthermore, two additional IR detectors guarantee the detection of up to 5 meters of intruders approaching the front of the sensor, avoiding possible attempts to avoid side protection.
MOSKITO + supports the innovative Wireless Walk Test and Programming System, consisting of the VIEW SENSOR software and the BT-LINK-S module (supplied separately).
Equipped with anti-opening / anti-removal tamper and a nice protective visor, the sensor allows the setting of all the operating parameters through a series of practical dip-switches.
The independent WALK-TEST function for each side with LED and acoustic buzzer makes installation quick and easy.
It can be mounted at a height between 100 and 140 cm and has an impact resistance at the highest level (IK-10).
Moskito + has a sophisticated parametric adaptation system to the outdoor temperature

**READ CAREFULLY THIS MANUAL BEFORE INSTALL YOUR NEW ALARM SYSTEM.
KEEP THIS MANUAL FOR FUTURE REFERENCE.**

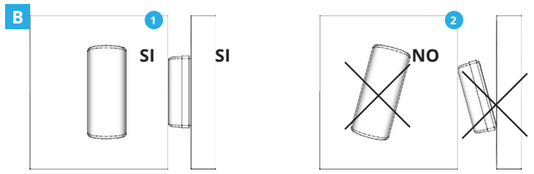
**ONLY QUALIFIED TECHNICIAN MUST INSTALL THIS DEVICE.
INSTALLER MUST FOLLOW CURRENT REGULATIONS.**

THE MANUFACTURER SHALL NOT BE LIABLE FOR ANY IMPROPER USE OF THE PRODUCT, INCORRECT INSTALLATION OR FAILURE TO COMPLY WITH INSTRUCTIONS OF THIS MANUAL AND THE LAW REGARDING ELECTRICAL SYSTEMS.

A

Installation height must be between 100 cm and 140 cm (fig. A-1).
It is recommended to install the detector at least 50 cm from the nearest gate (fig. A-2).

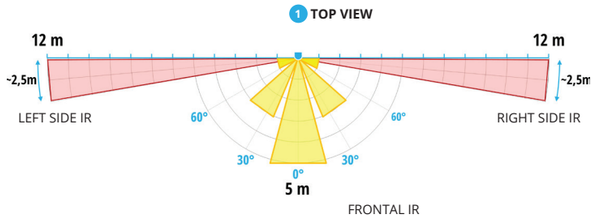
B



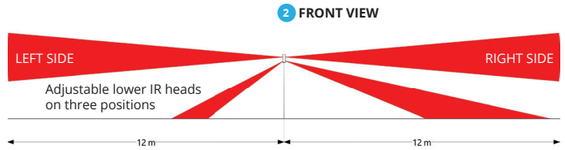
Mount the sensor vertically, without front and side tilt (fig. B-1). If the sensor is mounted at an angle relative to the ground, the detection is altered (fig. B-2).

- The sensor has a IP54 protection level against dust and liquids.
  To maintain the IP54 level it is mandatory to insert the o-rings provided.
  If possible, it is suggested to install the sensor protected against weathering; do not point high pressure water jets to the sensor.
- Infrared detector is sensitive to the "amount of heat" produced by a moving body.
  The maximum range of the sensor (measured in meters) is referred to a human body.
  However the same "amount of heat" may be produced by a smaller body at lower distances (dog), or by a larger one at greater distances (vehicle).
- Do not point the sensor towards unstable objects, such as: bushes, flags, tree branches, clothes hung, etc. This avoid unwanted detections.
- The sensor can detect the presence of animals over 10 kg.

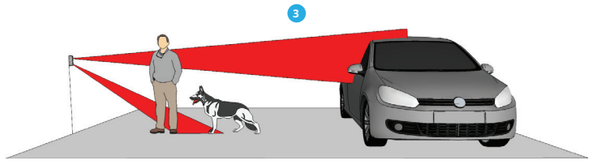
C **DETECTION AREA (defined for: temperature 21 °C, mounting height 120 cm)**



Left and right detecting sides are 12 meters length range each, reaching 24 meters of linear protection, with 10° opening angle on horizontal plane.



Each side of Moskito has a couple of IR detection heads (fig. C-2): upper head (horizontal or far detection) and lower head (landward or near detection). When in NORMAL, the sensor sends alarm only if both heads of one side are violated (AND).



Left and right lower heads can be oriented on three positions: this allows to avoid false alarms due to far crossings (i.e.: vehicles) or animals (fig. C-3).
For the adjustment of the detection areas, refer to the dedicated paragraphs.

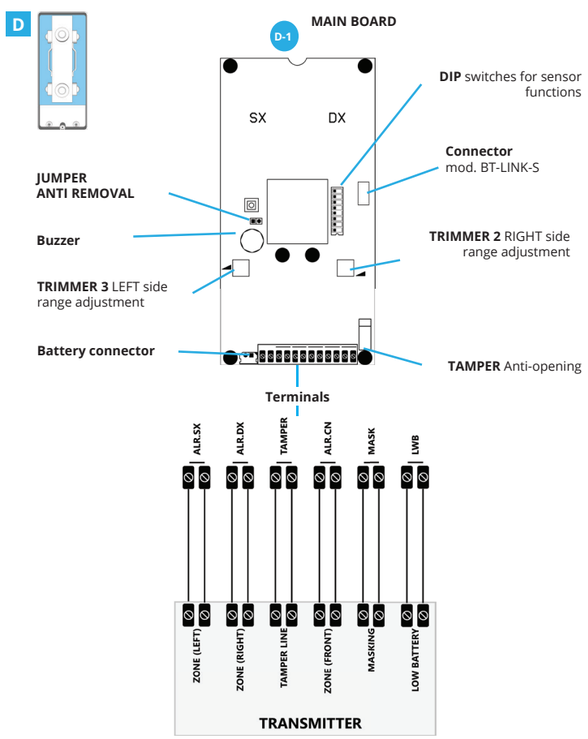
TECHNICAL DATA

Power supply	n. 2 lithium battery 3 V CR123A battery type	
Absorption *	Stand-by: about 26 µA	Alarm: about 6 mA
Battery life *	About 2 years	
Low battery threshold	< 4,1 V	
Boot time	About 90 secondi	
Quiet time between detections *	About 120 seconds	
WALK-TEST time	20 minutes (at the end the detector back to NORMAL mode even if DIP7 = ON)	
Detection technology	Three sided passive infrared (6 infrared heads)	
Mounting height	100 ÷ 140 cm	
Side range (right / left) *	Max: about 12 m	Min: about 3 m
Front range *	Max: about 5 m	Min: about 2 m
Detection speed	0,3 ÷ 2,0 m/s	
Outputs	OptoMOS N.C. type *(open for 2 seconds when an alarm occours)* Max 40 V_{DC} / 100 mA	**ALR.DX** > Right side alar. **ALR.SX** > Left side alarm **ALR.CN** > Front side alar. **MASK** > Masking alarm **LWB** > Low battery **TAMPER** > Tamper
LED signalling: Detection *	6 red LEDs (one LED each IR head)	
Alarm *	1 blue LED for alarm	
Acoustic signalling *	Integrated buzzer, emits different sounds for: heads detection, tamper, masking	
Operative Temperature / Humidity	-40 ÷ +70 °C / 95 % (relative)	
Temperature Compensation	-20 ÷ +50 °C	
Case: Material / IP Grade / Impact	ABS antiUV / IP54 / IK10 (impact 5 kg from 40 cm)	
Dimensions (H x W x D)	190 x 85 x 113 mm	

* All the data are approximate, for sensor in NORMAL mode, installation height of 120 cm and operating temperature of 21 °C

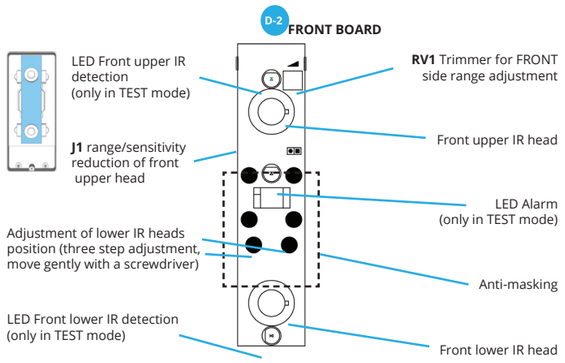
THE MAX RANGE DEPENDS SIGNIFICANTLY ON ENVIRONMENT TEMPERATURE.

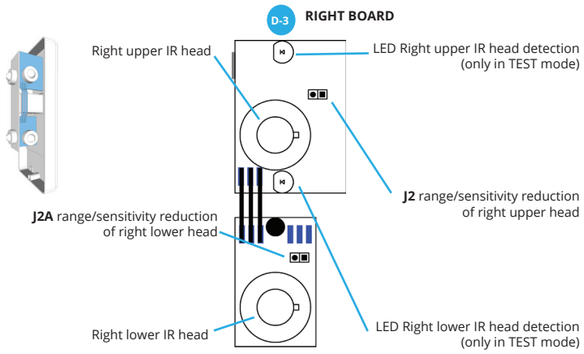
D

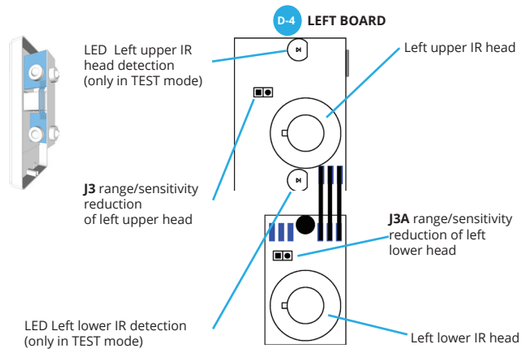


To automatically merge the various alarm outputs, see DIP10

NOTE ABOUT ANTI-ELUSION: when the anti-elusion function is active (DIP2 = ON) a detection from only the frontal side does not activate any alarm output.
In case - after a detection from frontal side - there is a lateral detection, will be activated the lateral alarm output and the front alarm output **ALR.CN** (this one inform about the elusion attempt).





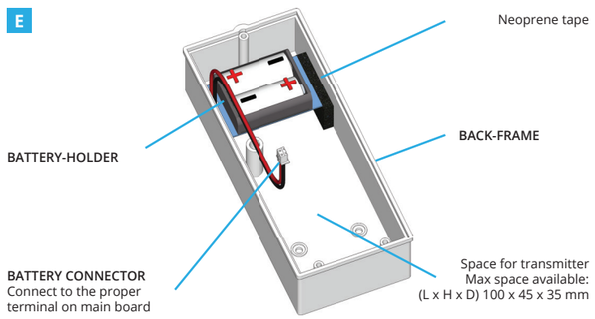


BATTERY

Before proceeding it is necessary to disconnect the battery (if present), open the JUMPER ANTI REMOVAL and keep the tamper key pressed for about 3 seconds: in this way the circuit is completely discharged and the sensor can be started correctly.

Insert two 3V lithium CR123A batteries inside the battery holder, respecting the indicated polarity (fig E). Place the battery holder inside the back-frame as shown in the figure.
Then connect the battery holder connector to the proper terminal on main board (Fig. D-1).

E



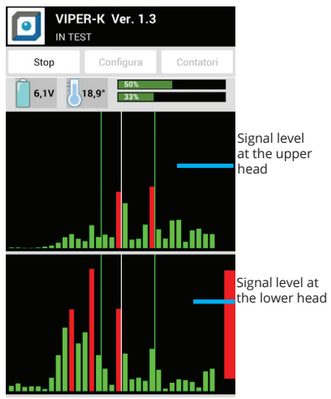
POWER ON

If the sensor is already powered, before proceeding it is necessary to switch off the power supply and keep the anti-removal tamper pressed for about 3 seconds: in this way the circuit is completely discharged and the sensor can be started correctly.
Supply the sensor: the sensor enters the "initialization" phase. The detection LEDs flash alternately for 30 seconds. It is important to leave the sensor "at rest" (no detection), for example by placing it in the package.
At the end of the stabilization the LEDs turn off and the sensor can be used.
To reset the sensor, disconnect the power supply and repeat the procedure described above.

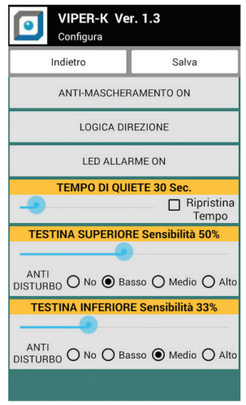
VIEW SENSOR

VIEW SENSOR is the innovative application developed on Windows and Android platform that make easier the installation of outdoor sensors.
VIEW SENSOR allows you to adjust the sensor optimally in order to define the area you want to protect, minimizing improper alarms. The application allows you to perform a walk-test completely innovative: through wireless connection you can view in real time on your device (PC, tablet or smartphone) the level of signal perceived by the individual heads, as well as configure the sensor without any manual intervention .
To use VIEWS SENSOR the optional BT-LINK-S module is needed.

Example of a mobile screen during the walk-test



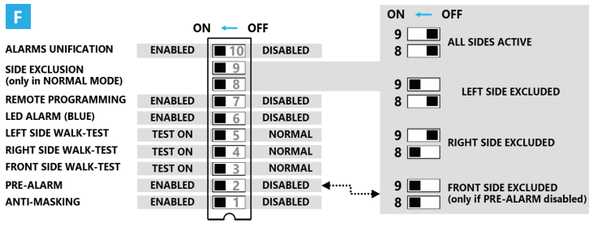
Example of a mobile screen during configuration



DIP-SWITCH FUNCTIONS

To program the sensor, use the DIP switch on the motherboard (Fig. D-1). The functions of the DIPs are described in the following paragraphs.
WARNING ! When DIP7 = ON the sensor configuration is done via VIEW SENSOR, therefore some DIPS are not working (see DIP7).
All DIPS above 10 are not used, their position is indifferent.

F



ATTENTION: THE SENSOR IS OPERATIVE ONLY WITH THE INSERTED COVER! After each modification of dips and trimmers it is necessary to close the cover and wait at least 3 seconds during which the sensor reads the settings.

DIP1 - ANTI MASKING

The anti-masking device (anti-masking) protects the sensor 24h / 24 in case of an intentional blinding of the sensor by covering it in order to prevent detection.
Anti-masking does not work without the cover on the sensor.

- **DIP1** = **OFF** — Anti-masking Anti-masking disabled: no anti-masking protection
- **DIP1** = **ON** — Anti-masking enabled: there is a mask alarm when the sensor is covered to prevent a normal detection.

The MASK alarm is activated if masking persists for more than one minute.
Following the MASK alarm, the sensor returns to rest status even if it remains masked.
The anti-mask protection is always active (when enabled with DIP1 = ON) even with control panel disarmed. Consider an area of about 30 cm in front of the sensor in which people or objects (hanging laundry, decorative items etc.) must not last longer than a minute.
The ant masking function is designed to operate at environment temperature higher than 0 ° C. The temperature can be extended via remote programming of anti masking at values below 0 ° C.

DIP2 - PRE-ALARM

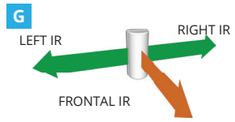
In NORMAL mode the sensor operates with three distinct and independent zones (right, left and frontal). In pre-alarm mode the frontal zone is no longer independent, when it detects it doesn't trigger an alarm until a further detection is made by any of the four side heads.

- **DIP2** = **OFF** — Pre-alarm disabled
- **DIP2** = **ON** — Pre-alarm enabled

DIPS 3 - 4 - 5 WALK-TEST / NORMAL MODE

WALK-TEST MODE
Through the **DIPS 3 - 4 - 5** the WALK-TEST is enabled on one or more sides simultaneously for range adjustments.

G



- **DIP2** = **OFF** — Anti Pre-alarm disabled
- **DIP3** = **ON** — Activate front side for the WALK-TEST
- **DIP4** = **ON** — Activate right side for the WALK-TEST
- **DIP5** = **ON** — Activate left side for the WALK-TEST

Walking in front and / or at the side of the sensor, whenever a head of a enabled side detects, the LED of the affected head lights up; if both the heads of the same side detect, the alarm BLUE LED lights up.
During the WALK-TEST the following acoustic signals are always active:
- 1 "beep" = left-hand alarm
- 2 "beep" = front side alarm
- 3 "beep" = right side alarm

To avoid interference between the sides when adjusting the range, set the **DIP3**, **DIP4** and **DIP5** to select on which side to operate. It is possible to enable one or more sides. During the adjustment the disabled sides do not detect.
The maximum time for the WALK-TEST is 20 minutes, after which the sensor returns to operate in NORMAL mode. The return to the NORMAL mode is signalled by a series of "Beep". To restart the procedure open the cover, wait a few seconds and close again. During the WALK-TEST the position of **DIP8** and **DIP9** is not effective. Remember that the sensor is active only when the cover is closed. The WALK-TEST also allows the pre-alarm test (if enabled with **DIP2 = ON**).

NORMAL MODE
If the three DIPS are all OFF, the sensor is in NORMAL mode.
It is the normal operating mode of the sensor.
The buzzer is always off. The BLUE LED can be activated by setting **DIP6 = ON**.
Attention to any sides excluded through the **DIP8** and **DIP9**.

DIP6 - LED ALARM (BLUE)

DIP6 - LED ALARM (BLUE)

- **DIP6** = **OFF** — OFF LED DISABLED: In normal operation (not in TEST) the sensor does not emit any light alarm signalling.
- **DIP6** = **ON** — ON LED ACTIVATED: the LED lights up to signal the alarms.

DIP7 - REMOTE PROGRAMMING

Select whether the sensor uses the HW settings (trimmers and DIPS) when in OFF, or those sent by VIEW SENSOR when in ON.

- **DIP7 = ON** — **REMOTE PROGRAMMING ENABLED**
  It enables remote sensor programming using the VIEW SENSOR application available for mobile devices. This option provides greater flexibility in setting the sensor parameters and allowing you to verify in real time the changes of the settings. For remote programming it is necessary the BT-LINK-S accessory, supplied separately. With **DIP7** in position ON the **DIPS 1-2-6-8-9** and trimmers are disabled because their features are set via VIEW SENSOR. **DIPS 3-4-5-10** remain active. After storing one configuration by VIEW SENSOR the **DIP7** must remain **ON**, even after the end of the WALK-TEST.
  If the **DIP7** is set to **ON** but no configuration has been loaded via VIEW SENSOR, the sensor will use the hardware configuration.

- **DIP7 = OFF** — **REMOTE PROGRAMMING DISABLED**
  the sensor is configured via DIPS and trimmers.
  This manual mainly explains the HARDWARE settings (via DIPS, trimmers and jumpers), for information on remote programming refer to the manual of the BT-LINK-S module and the VIEW SENSOR app.

DIPS 8 - 9 SIDE EXCLUSION

It allows excluding one of the three sides of the sensor (two heads of the same side), to exclude detection where not necessary, or to avoid sources of false alarms.

DIP8	DIP9		
OFF	OFF	The three sensor sides are active (in NORMAL and PRE-ALARM)	
OFF	ON	Left side excluded (in NORMAL and PRE-ALARM)	
ON	OFF	Right side excluded (in NORMAL and PRE-ALARM)	
ON	ON	**DIP2** = **OFF** (pre-alarm OFF)	Front side excluded
		DIP2 = **ON** (pre-alarm ON)	Front side active

DIP10 - ALARMS UNIFICATION

In NORMAL mode (OFF position) each side of the sensor generating an alarm uses a specific output terminal. If you cannot or do not want to use all the outputs individually, it is possible to address the alarm outputs: right side, left side, frontal side, left pre-alarm and right pre-alarm on the central alarm terminal; the antimasking alarm is addressed on the tamper terminal.
With the unification it is possible to avoid the series connection of the terminals.

- **DIP10** = **ON** — The sensor combines the alarms
- **DIP10** = **OFF** — The sensor uses all outputs.

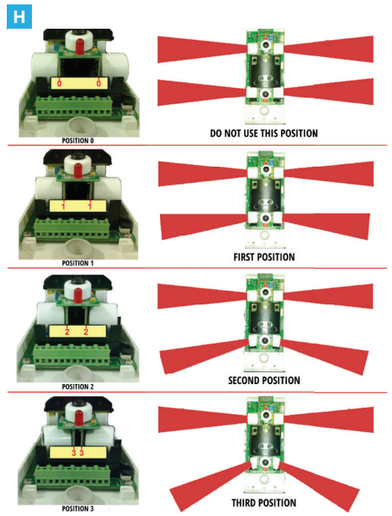
ADJUSTMENTS

The side detection zones are independently adjustable, both for geometry (lower head vertically adjustable), and for sensitivity (jumpers).
On the front side the detection area has an opening of 180 ° and a maximum range of 5m, with sensitivity adjustment via trimmer and jumper.
The three detection sides can each create their own independent zone alarm towards the control panel (NORMAL operating mode).
The PRE-ALARM function combines the alarm generated by the frontal heads with those on the side: if the two frontal heads detect, the detection of only one side head is sufficient to generate alarm.

ADJUSTMENT OF THE LOWER SIDE HEADS
The inclination of the lateral heads allows an accurate regulation of the range.
The gear adjustment (3 positions) is according to the following diagram.

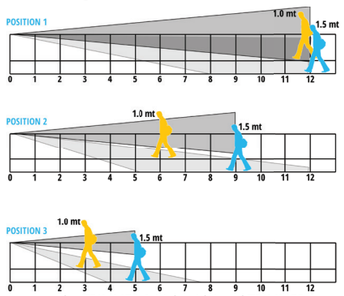
PERFORM TESTS AT ANY ADJUSTMENT!

H



The range depends on the mounting height of the sensor. The following diagram shows the variation of the range according to the installation height.

H



INSTALLATION HEIGHT	1.0 mt	1.5 mt
RANGE POSITION 1	12 mt	12 mt
RANGE POSITION 2	6 mt	9 mt
RANGE POSITION 3	3 mt	5 mt

To adjust the range of the side heads, operate on the TRIMMER 2 (right side) and TRIMMER 3 (left side) [fig. D-1].

Side trimmer position (**TRIMMER 2** e **3**)		Range with head in position 1 *	Range with head in position 3 *
MAX Range	MIN MAX	about12 m	about 3 m
MIN Range	MIN MAX	about 6 m	about 1,5 m

* data refers to sensor installed at 100 cm height and at operating temperature of 21°C

THE REGULATION IS ALWAYS EXECUTED CONTEMPORARY ON BOTH UPPER AND LOWER HEADS.

RANGE ADJUSTMENT OF FRONT IR HEADS (TRIMMER 1)

Front trimmer position (**TRIMMER 1**)		Range *
MAX Range	MIN MAX	about 5 m
MIN Range	MIN MAX	about 2 m

* data refers to sensor installed at 100 cm height and at operating temperature of 21°C

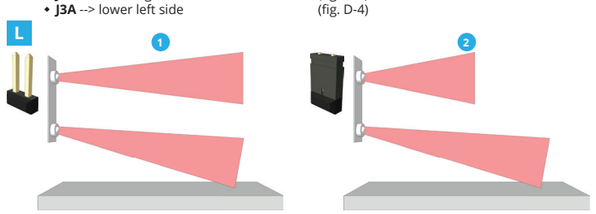
THE REGULATION IS ALWAYS EXECUTED CONTEMPORARY ON BOTH UPPER AND LOWER HEADS.

REDUCTION OF THE CAPACITY OF THE HEADS ON ANY SIDE

Each head (except the lower central unit) has a jumper to reduce the range and the sensitivity

- **J1** --> upper front (fig. D-2)
- **J2** --> upper right side (fig. D-3)
- **J3** --> upper left side (fig. D-4)
- **J2A** --> lower right side (fig. D-3)
- **J3A** --> lower left side (fig. D-4)

L



When the jumper is inserted, the range and sensitivity of the head is reduced by about 50% respect to the maximum value (the maximum value depends on the trimmer adjustment).
The trimmers always adjust the range of both heads (upper and lower) of the corresponding side.
The frontal side has the range reduction jumper which operates only on the upper head.

FRONT SIDE ADJUSTMENT

DIP2 = OFF	Pre-alarm disabled
DIP3 = ON DIP4 = OFF DIP5 = OFF	WALK-TEST only on the front side

The range is adjusted with the **TRIMMER 1** (this trimmer adjusts the sensitivity of the front upper and lower heads simultaneously).
Start with the **TRIMMER 1** turned fully counter clockwise (low sensitivity).
Increase the sensitivity progressively by adjusting the **TRIMMER 1** to obtain the detection only in the area to be protected.
Make sure the sensor does not detect an alarm outside the area to be protected.
If it is necessary to lower the sensitivity below the minimum allowed by **TRIMMER 1** to reduce further the range of the upper head is sufficient to put the jumper **J1** and adjust the **TRIMMER1** again.
Perform all tests with the cover inserted!
At the end put **DIP3** on **OFF.**

LEFT SIDE SENSORS ADJUSTMENT

DIP3 = OFF DIP4 = OFF DIP5 = ON	WALK-TEST only on the left side sensors

Adjust the range with the **TRIMMER 3** (this trimmer adjusts simultaneously the sensitivity of the upper and lower head of the left side).
Adjust the position of the lower head (angle downwards: position 1, ..., position 3): the corresponding side range is reduced and immunity is further increased against false alarms (due to the passage of small animals or reflections or turbulences unwanted in the infrared field).
Start with low sensitivity, ie with the **TRIMMER 3** turned fully in the direction counter clockwise.
Increase the sensitivity gradually by adjusting **TRIMMER 3**, adjust if necessary the orientation of the lower head.
Put the cover on and check that the detection takes place only in the area you want to protect, ensuring that the sensor does not detect an alarm outside the protected area.
If the sensor detects beyond the required range, reduce the sensitivity and / or adjust the angle of the lower head. If it is necessary to further reduce the range of the upper or lower head, it is sufficient to put the jumper **J3** and / or **J3A** and adjust the **TRIMMER 3**, until the same range of the two heads is achieved.
Perform all tests with the cover inserted!
At the end, put **DIP5** on **OFF**.

RIGHT SIDE SENSOR CALIBRATION

DIP3 = OFF DIP4 = ON DIP5 = OFF	WALK-TEST only on the right side sensors

Adjust the range with the **TRIMMER 2** (this trimmer adjusts simultaneously the sensitivity of the upper and lower head of the right side).
Adjust the position of the lower head (angle downwards: position 1, ..., position 3): the corresponding side range is reduced and immunity is further increased against false alarms (due to the passage of small animals or reflections or turbulences unwanted in the infrared field).
Start with low sensitivity, ie with the **TRIMMER 2** turned completely in the direction counter clockwise.
Increase the sensitivity progressively, by adjusting the **TRIMMER 2**, adjust if necessary the orientation of the lower head.
Put the cover on and check that the detection takes place only in the area you want to protect, ensuring that the sensor does not detect an alarm outside the protected area.
If the sensor detects beyond the required range, reduce the sensitivity and / or adjust the angle of the lower head. If it is necessary to further reduce the range of the upper head or the lower one, it is sufficient to put the jumper **J2** and / or **J2A** and adjust the **TRIMMER 2**, until the same range between the two heads is achieved.
Perform all tests with the cover inserted!
At the end put **DIP4** on **OFF**.

TAMPER

The sensor is protected against tampering attempts by two controls: anti-opening of the cover and anti-removal.
When the sensor is in TEST mode, the intervention of a tamper is signalled by a series of 5 "beeps" in slow sequence and the BLUE alarm LED lights up.

ANTI-OPENING
Protection against opening of the sensor cover.

ANTI-REMOVAL
Protection against removal from the installation position.
Protection activated by opening the back switch on the housing (normally closed because the sensor is placed against a wall).
To include / exclude this protection operate on the JUMPER ANTI REMOVAL:
- closed = back tamper disabled
- aperto = open = back tamper enabled

DUEVI s.r.l. - Via Bard 12/A, 10142 TORINO - ITALY
Made in Italy
This manual may be subject to change without notice

EU Declaration of Conformity
The manufacturer, DUEVI, declares that the type of sensor equipment for outdoor MOSKITO+ F complies with the EMC Directive 2014/30 / EU.
The full text of the EU Declaration of Conformity is available at the internet address www.duevi.eu

Pursuant to Legislative Decree No. 49 of March 14, 2014 "Implementation of Directive 2012/19 / EU on waste electrical and electronic equipment (WEEE) ".
The crossed bin symbol on the equipment indicates that the product at the end of its useful life must be collected separately from other refusals and conferred at suitable waste collection centers for electronic and electrotechnical.
The illegal disposal of the product by the user involves application of administrative sanctions referred to in Legislative Decree n. 49 of 14/03/2014.