



VIPER-DT is a dual technology outdoor sensor with ANTI-MASKING, designed integrating the latest available technologies and improving detection performance. The detection is entrusted to the combination of a passive IR element and a pulsed micro-wave at 24 GHz, both mounted on fully independent articulated heads, individually adjustable both horizontally and vertically, each with its own sensitivity adjustment. Thanks to its latest generation technologies, VIPER-DT is an intelligent sensor that permanently eliminates unwanted alarms. Equipped with anti-opening and anti-tear tamper, it is supplied with a nice protective visor and can be mounted at a height between 1.40 m and 2.20 m. VIPER-DT supports the innovative Wireless Walk Test and Programming System, composed of the VIEW SENSOR software and the mod. BT-LINK-S (supplied separately). The sensor adapts to environmental conditions thanks to a sophisticated thermal compensation system. The sensor has wired outputs with electronic relays (OPTOMOS) N.C.

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.

TECHNICAL

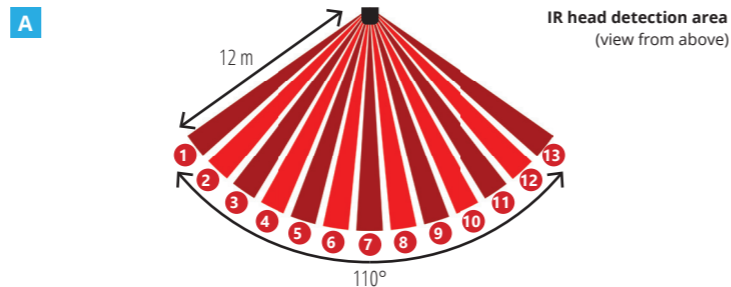
	VIPER-DTK
Power supply	N. 2 lithium batteries 3 V, mod. CR123A
Absorption *	Stand-by: about 17 uA Alarm: about 5 mA
Autonomy (estimated) **	About 2 years
Stabilization Time (at power-up)	About 2 minutes (with LED blink)
Quiet Time between detections	About 30 seconds
Detection technologies	n. 1 Infrared head n. 1 Pulsed microwave @ 24 GHz head
Thermal compensation	Automatic compensation
Installation height	140 ÷ 220 cm
Detection area (H x W x D) *	Max 12 linear meters (adjustable: 3 m ÷ 12 m) 110° radial opening (IR) 105° radial opening (MW)
IR head adjustment	Orientation completely independent (vertically and horizontally)
Sensitivity	Independent for each head (trimmers) from 30% (min) to 100% (max)
Radio frequency / range	-
Anti-masking	Active infrared
Radio signals	-
Wired outputs	OptoMOS N.C. type (open for 2 seconds when an alarm occurs) Alarm Tamper Masking LWB Max 40 V _{dc} / 100 mA
LEDs	1 red LED (upper, IR head detection) 1 red LED (lower, MW head detection) 1 blue alarm LED
Temperature / Humidity	-40 + +70 °C / 95 % (relative)
Case / IP degree / IK degree	ABS antiUV / IP54 / IK10
Dimension (H x W x D) / Weight	190 x 85 x 75 mm / 328 g
Internal space for transmitter (H x W x D)	-
Accessories included	n. 2 lens cover for curtain effect n. 2 pre-cut adhesive masks

* All the data are approximate, for sensor in NORMAL mode at operating temperature of 21 °C.
** Mean value for 10 detections-alarms/day + supervision.

DETECTION AREA

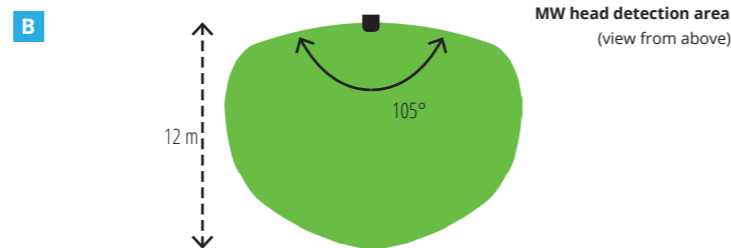
INFRARED (IR)

The infrared head detects over an area with a maximum length of 12 m and a width of 110°. The detection field is divided into 13 sectors arranged in a fan (Fig. A).



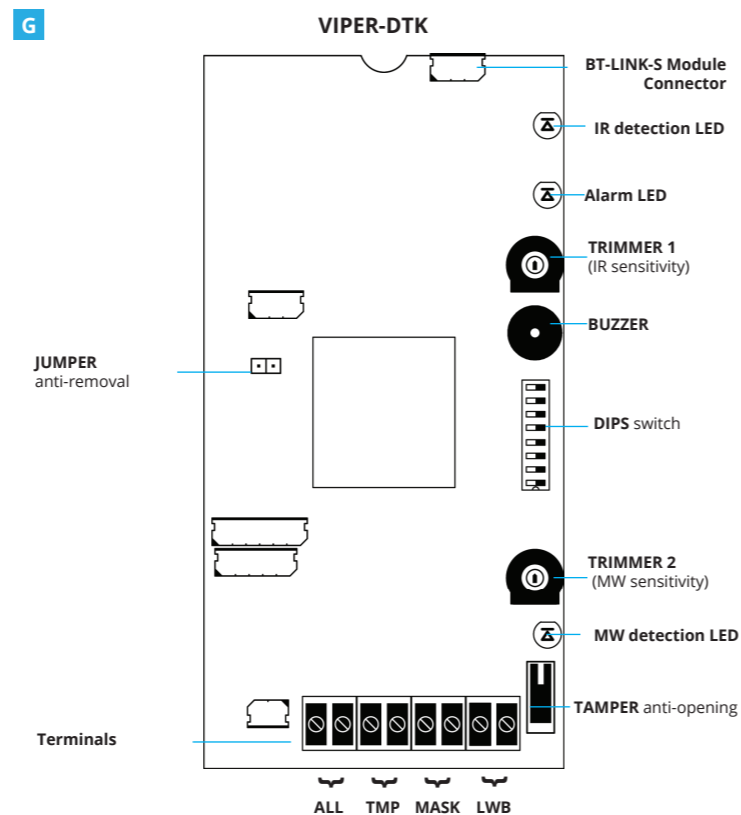
MICROWAVE (MW)

The microwave head detects an area with a maximum length of 12 m and a width of 105° (Fig. B).



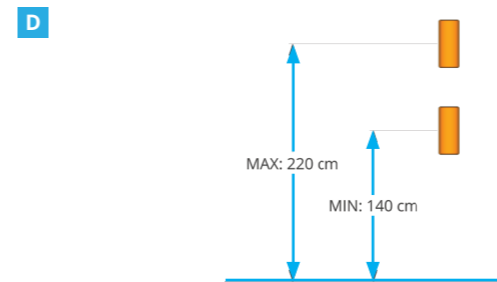
INFRARED AND MICROWAVE DETECTION AREAS MUST BE POSITIONED TOWARDS THE SAME PROTECTION AREA.

COMPONENT DIAGRAM



INSTALLATION POSITION

The installation height of the sensor must be between 140 cm and 220 cm (Fig. C).



Mount the sensor vertically, without frontal and lateral tilt: it will be the articulation of the IR heads to allow the pointing of the sensor.

Correct orientation of the infrared head (IR)

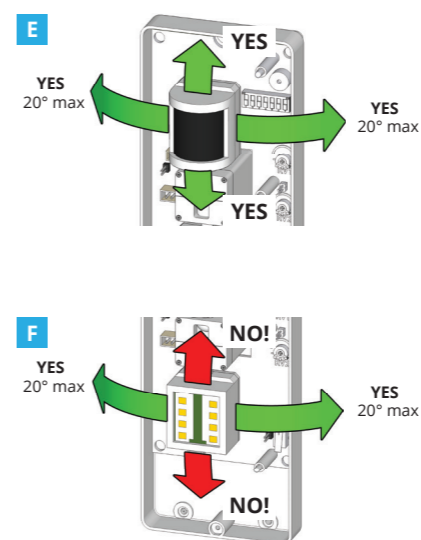
The IR head can be turned to the right and left (max 20°) and tilted vertically.

The orientation of the head determines the detection area of the infrared field (follow the installation instructions).

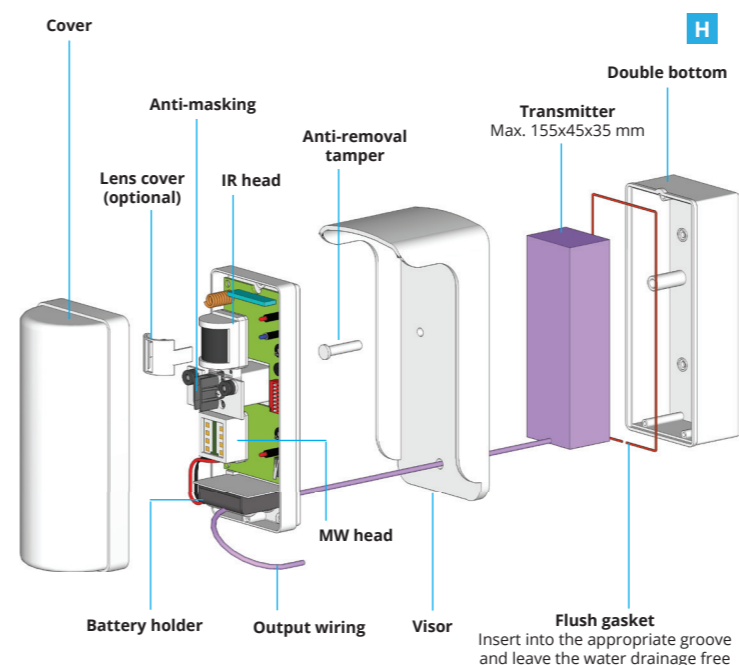
Correct orientation of the microwave head (MW)

The MW head can be turned to the right and left (max 20°) but must not be inclined downwards or upwards. Do not aim the microwave against artificial light sources.

The orientation of the head must be such as to cover the same detection area of the infrared head.



PARTS OF THE SENSOR

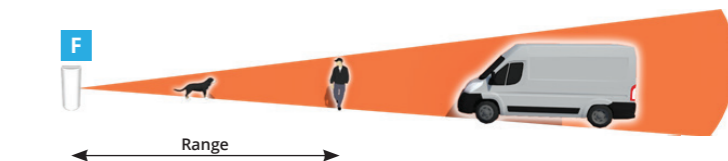


INSTALLATION (WHAT TO KNOW ABOUT)

! THE SENSOR WORKS ONLY WITH THE COVER ON ITS PLACE !

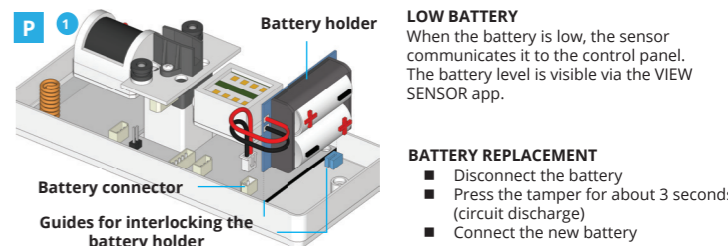
- AFTER EACH CHANGE TO DIP AND TRIMMER: (MANDATORY) PLACE THE COVER TO PERFORM TESTS
- WAIT AT LEAST 3 SECONDS (THE SENSOR READS NEW SETTINGS)

- 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).



- Once fixed the sensor, slightly loose the screws of the head joints for a more easy head pointing.
- Do not point the sensor towards unstable objects, such as: bushes, flags, tree branches, clothes hung, etc. This avoid unwanted detections.
- During adjustment, perform several detection tests to verify the correct working of the sensor. For best IR "sensitivity" adjustment, start setting the sensitivity to minimum (turn completely counter-clockwise the trimmers) and point the heads downwards. Gradually increase the sensitivity and change the heads orientation until obtain detection only inside the wanted area. Tight the joint screws once finished the adjustment.
- The sensor may detect pets over 10Kg.
- In order to generate a useful signal for the IR head, at least two sectors must be crossed (FIG.A). Therefore it is advisable to orientate the head rotating it in an appropriate way so that conditions of crossing of a single sector are avoided.

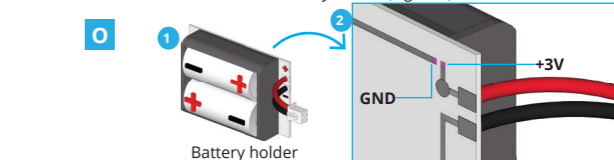
BATTERY



LOW BATTERY
When the battery is low, the sensor communicates it to the control panel. The battery level is visible via the VIEW SENSOR app.

- BATTERY REPLACEMENT**
- Disconnect the battery
 - Press the tamper for about 3 seconds (circuit discharge)
 - Connect the new battery

3V POWER SUPPLY FOR TRANSMITTER
It is possible to take the 3 V power supply for the transmitter by connecting the power supply terminals to the points indicated on the back of the battery holder (Fig. O-2):



CAUTION
DANGER OF EXPLOSION IF THE BATTERY IS REPLACED WITH ANOTHER WRONG TYPE. DISPOSE OF USED BATTERIES FOLLOWING THE INSTRUCTIONS.

THE ESTIMATED DURATION OF THE BATTERY OF THE SENSOR IS PROPORTIONAL TO:

- THERMAL HEATING AND COOLING CYCLES WHICH ALTER THE CAPACITY AND AUTONOMY OF THE CHARGE
- WORKING TEMPERATURE TO WHICH THE BATTERY OPERATES (EX.: AT TEMPERATURES LOWER THAN 0 ° C THE DURATION OF THE BATTERY CAN REDUCE UP TO 50%)
- SENSOR DETECTION NUMBERS: IF THE SENSOR IS INSTALLED IN HIGH FREQUENCY PASSAGE ZONES THE BATTERY AUTONOMY IS DRASTICALLY REDUCED

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.

ACTIVE ALARM LED IN NORMAL MODE

To activate the ALARM LED in normal operation:

- put DIP1 = ON and DIP2 = ON and close the cover
- wait until the sensor exit automatically from walk-test (about 15 min): the sensor returns to NORMAL mode
- now the ALARM LED is active, signaling the alarm events that occur during the measurements

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

SENSITIVITY

To adjust the sensitivity of the infrared head, act on trimmer R1.

To adjust the sensitivity of the lower microwave head, act on the R2 trimmer. The adjustment range is: 30% (minimum, counterclockwise) ÷ 100% (maximum, clockwise).

DIPS-SWITCH FUNCTIONS

To program the sensor, use the DIPS switches (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, then some DIPS are not working (see DIP7).

	ON ←	OFF
ANTIMASKING ON TAMPER	ENABLED	DISABLED
REMOTE PROGRAMMING	ENABLED	DISABLED
QUIET TIME	ENABLED	DISABLED
CROSSING FILTER	ENABLED	DISABLED
ANTIDISTURBANCE	ENABLED	DISABLED
ANTIMASKING	ENABLED	DISABLED
WALK-TEST MW	ENABLED	DISABLED
WALK-TEST IR	ENABLED	DISABLED

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DIP7 - REMOTE PROGRAMMING

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

- DIP7 = ON REMOTE PROGRAMMING ENABLED**
enables remote sensor programming via the VIEW SENSOR application available for mobile devices. This option provides greater flexibility in setting sensor parameters and allows real-time verification of changes to settings. For remote programming, the BT-LINK-S accessory, supplied separately, is required. With DIP7 in the ON position the DIPS 3-4-5-6 and the trimmers are deactivated because their functions are set via VIEW SENSOR. DIPS 1 - 2 - 8 remain active. After memorizing a configuration using VIEW SENSOR, DIP7 must remain ON, even after the WALK-TEST has ended.
If you place DIP7 in ON but you have not loaded a configuration via VIEW SENSOR, the sensor will use the hardware configuration

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

ONCE USED SOFTWARE CONFIGURATION, LEAVE THE DIP7 = ON, OTHERWISE THE SENSOR RETURNS TO THE MANUAL SETTINGS

IF YOU DO NOT USE THE SOFTWARE CONFIGURATION SYSTEM, ALWAYS LEAVE THE DIP7 IN THE OFF POSITION

DIP8 - ANTIMASKING ON TAMPER

In the OFF position the sensor uses the MASK output to signal a masking alarm. If you can not or do not want to use this terminal, for example in the case where the antimasking is not managed by the control panel used, DIP8 can be set to ON and in case of masking alarm the sensor will use the TAMPER terminal. In this way a single pair of wires is used for the two alarms.

- DIP8 = ON** The sensor uses the TAMPER terminal in case of anti-masking.
- DIP8 = OFF** The sensor uses the MASK clamp in case of anti-masking

PROTECTION FROM TAMPERTIES

The sensor is protected against tampering attempts by means of three controls: anti-opening of the cover, anti-removal and anti-masking.

ANTI-OPENING

Protection against opening of the sensor cover.

ANTI-REMOVAL

Protection against removal from the installation position.

Protection activated by opening the rear switch to the body (normally closed because the sensor is placed against a wall).

To include / exclude this protection act on the JUMPER ANTI REMOVAL:

- closed = Rear tamper not included
- open = Active back tamper

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DIPS 1 - 2 WALK-TEST

Through the DIPS 1 - 2 the WALK-TEST is enabled on one or both heads to perform the orientation and the adjustments of the sensor. The sensor automatically exits from any WALK-TEST mode after approximately 15 minutes.

During the WALK-TEST there are luminous and acoustic signals to facilitate the operation; in NORMAL mode no signal is emitted, unless the alarm LED is activated (see "ACTIVE ALARM IN NORMAL MODE")

Four combinations are possible:

DIP1 = ON - DIP2 = OFF

In this way, only the WALK-TEST of the upper head (IR) is enabled. After closing the cover the upper RED LED lights up to indicate the status of WALK-TEST IR. Walking in front of the sensor each time the head detects, the BLUE alarm LED lights up.

DIP1 = OFF - DIP2 = ON

In this way, only the WALK-TEST of the lower head (MW) is enabled. After closing the cover the lower RED LED lights up to indicate the status of WALK-TEST MW. Walking in front of the sensor each time the head detects, the BLUE alarm LED lights up.

DIP1 = ON - DIP2 = ON

With this setting the WALK-TEST of both heads is enabled, simulating the operation in NORMAL but bound to the selected detection logic (DIP5). When a head detects the relative red LED lights up; when both detect the BLUE alarm LED lights up.

DIP1 = OFF DIP2 = OFF

It is the normal functioning mode of the sensor (NORMAL MODE). After a detection with relative alarm transmission it is necessary to wait for the end of the quiet time (if set by DIP6) in order to have a new alarm. The buzzer is always off.

With VIEW SENSOR you can easily perform a much more precise WALK-TEST, which allows you to configure the sensor optimally.

DIP3 - ANTI-MASKING

The anti-masking device protects the sensor 24/24 in case an attacker wants to blind the sensor by covering it so as to prevent detection. Anti-masking does not work without the cover on the sensor.

- DIP3 = OFF** Anti-masking disabled: no anti-masking protection
- DIP3 = ON** Anti-masking enabled: you have an alarm mask when you cover the sensor in order to avoid detections.

The MASK alarm is activated if masking persists for more than one minute. Following the MASK alarm, the sensor returns to rest even if it remains masked. The anti-masking protection is always active (when enabled with DIP3 = ON) even when the central panel is switched off. Respect an area of approximately 30 cm in front of the sensor in which people must not stand more than a minute. Also, do not leave open doors, loose clothing or furniture items near the sensor.

The anti-masking function is active with ambient temperature above 0 ° C.

Through VIEW-SENSOR it is possible to extend the operating temperature of the anti-masking to values lower than 0 ° C.

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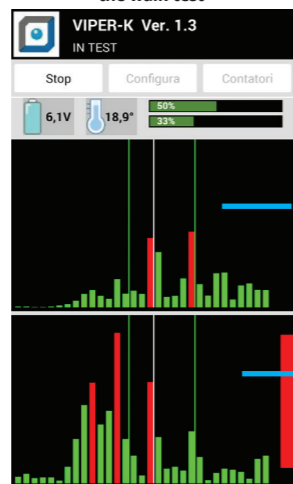
VIEW SENSOR

VIEW SENSOR is the innovative application developed on Windows and Android platform that facilitates the installation of outdoor sensors.

VIEW SENSOR allows you to adjust the sensor optimally to better 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 intervening manually.

To use VIEW SENSOR you need the optional BT-LINK-S module that connects to the sensor only for the duration of the walk-test and then is removed to be reused on other sensors.

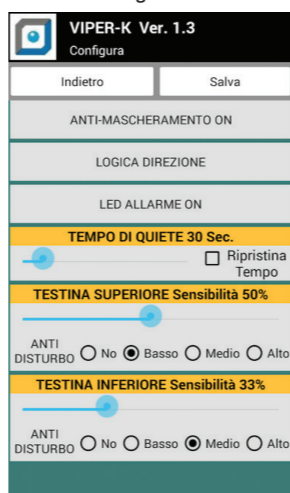
Example of a mobile screen during the walk-test



Signal level at the upper head

Signal level at the lower head

Example of a mobile screen during configuration

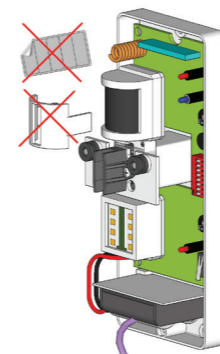


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DIP4 - ANTIDISTURBANCE

This function increases the immunity to false alarms in particularly difficult outdoor environments, disturbed by sudden light reflections, variations in exposure to the sun, unstable objects (eg tree fronds, flat linen, etc ...).

- DIP4 = OFF** Antidisturbance disabled
- DIP4 = ON** Antidisturbance enabled



This function can be set with different values using VIEW SENSOR (DIP7 = ON).

When using this function DO NOT apply the lens cap or the adhesive mask on the heads!

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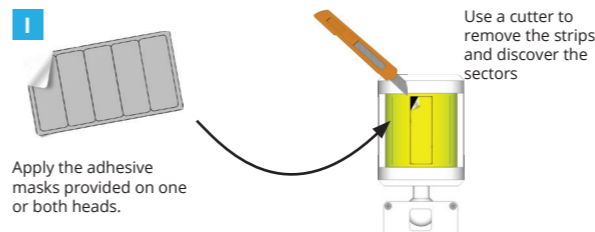
ACCESSORIES

In some situations the detection area may be too large, becoming a potential source of problems if there are tree branches, curtains, windows, etc. in the area to be protected. It is possible to reduce the detection area of the IR head by masking the beams with the supplied accessories, leaving free to detect only those oriented in stable areas of the area to be protected.

! When using the lens cap or adhesive mask pay attention to the use of the "CROSSING FILTER" function!

ADHESIVE MASK

This type of mask allows to select exactly which beams can detect: it is possible to leave covered the zones with unwanted movement or limit the detection only for some sectors.



Apply the adhesive masks provided on one or both heads.

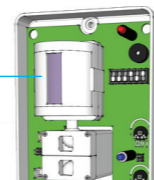
LENS COVER

The lens cover - when mounted on head - creates a CURTAIN detection. With this lens cover, the detection opening beam of the lens is reduced to 20° (keeping the same detection range). The lens cover mount on heads thanks to an interlocking system.

L

Head with lens cap.

Check that the straps are well stuck in their seats!



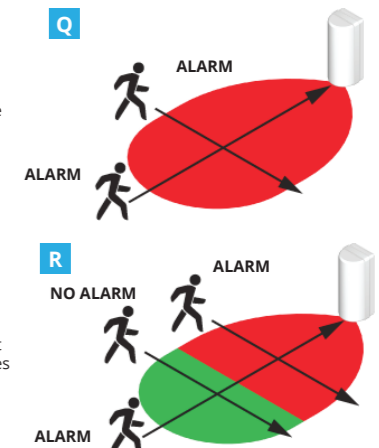
Only sections 6, 7 and 8 remain uncovered and active with the cover lens (see Fig. A).

After inserting the accessories for partitioning the IR head lens, it must always be verified by the WALK TEST that there is no conflict with the "ANTI-NOISE" function which could compromise the functionality of the sensor.

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DIP5 - CROSSING FILTER

This function allows you to activate a filter that optimizes detection by distinguishing the movements of "approach" to the sensor (which indicate an intrusion) from those of "crossing" to the edges of the detection area (which may be false alarms, caused for example by movements in marginal areas).



DIP5 = OFF - FILTER OFF

The sensor detects both the crossing and the approach in all the field of action.

DIP5 = ON - FILTER ON

In this condition, the most external part of the detection area becomes insensitive to the movements that "cross" it, while it remains sensitive to those of "approach". The part insensitive to the crossing is about 5 m when the flow is 12 m; this area reduces proportionally if the sensitivity of the microwave head is decreased.

When the sensor is programmed via VIEW-SENSOR (DIP7 = ON) the area insensitive to the crossing can be programmed with different depth values!

DIP6 - QUIET TIME

Through DIP6 it is possible to activate the QUIET TIME between two measurements:

- DIP6 = OFF** The sensor transmits / signals alarm at each detection.
- DIP6 = ON** After an alarm the sensor suspends the sending of the subsequent alarms for the "quiet time", about 30 seconds

WARNING: during the quiet time, no detection must take place, otherwise the count will restart; if the quiet time ends without detections the sensor reactivates, otherwise the sensor will reactivate, however, always after 5 minutes. We recommend setting the quiet time because it allows longer battery life.

When the sensor is programmed via software (DIP7 = ON), the quiet time can be set at different times and with greater elasticity.

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Made in Italy

This manual may be subject to change without notice

EU Declaration of Conformity

Hereby, DUEVI declares that:

- the equipments type outdoor detector mod. VIPER-F is compliance with Directive EMC 2014/30/EU.

The full text of the Declaration is available at the internet address www.duevi.eu

Ai sensi del D.LGS N° 49 del 14 marzo 2014 "Attuazione della Direttiva 2012/19/UE sui rifiuti di apparecchiature elettriche ed elettroniche (RAEE)". Il simbolo del cassetto barrato riportato sull'apparecchiatura indica che il prodotto alla fine della propria vita utile deve essere raccolto separatamente dagli altri rifiuti e conferito presso idonei centri di raccolta differenziata dei rifiuti elettronici ed elettrotecnici. Lo smaltimento abusivo del prodotto da parte dell'utente comporta l'applicazione delle sanzioni amministrative di cui al D.LGS n. 49 del 14/03/2014.

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