Installation & Operating Guide

VIP Pro

Dual technology outdoor/indoor intruder detector

5 sensors in one product:
* 2 x PIR sensors.
* Microwave sensor.
* Anti-masking sensor.
* Shock and Vibration sensor

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FEATURES

- 2 PIR sensors.
  Selected sensor sensitivity adjustment.
- Microwave sensor.
- Anti-masking.
- Vibration sensor.
- All feature parameters can be adjusted with the Remote Control RM1 that can be purchased separately.
- Shutters behind the lens allow limiting the PIR sensors vertical field of view.
- 2 provided plates allow installing the detector with a vertical tilt of 5^0 by each plate (10^0 by using both plates).
- A/D signal analyzer by powerful Microprocessor.
- Auto temperature compensation.
- High level of RFI/EMI immunity.
- Flush or corner installation.
- Tamper switch.

INTRODUCTION

VIP Pro detector provides highly reliable movement detection and ensures excellent protection against any attempt to disable its operation by blocking (masking) its near field-of-view up to 5 cm or when the detector has been covered, whether the alarm system is Armed or Disarmed ("Anti-masking").

VIP Pro is designed to provide Anti-masking alarm only in the event its near field-of-view (up to 5 cm of its front) was completely blocked by white paper.

For other applications, you must perform a real test in the field (installation site) to verify the detector meets your requirements.

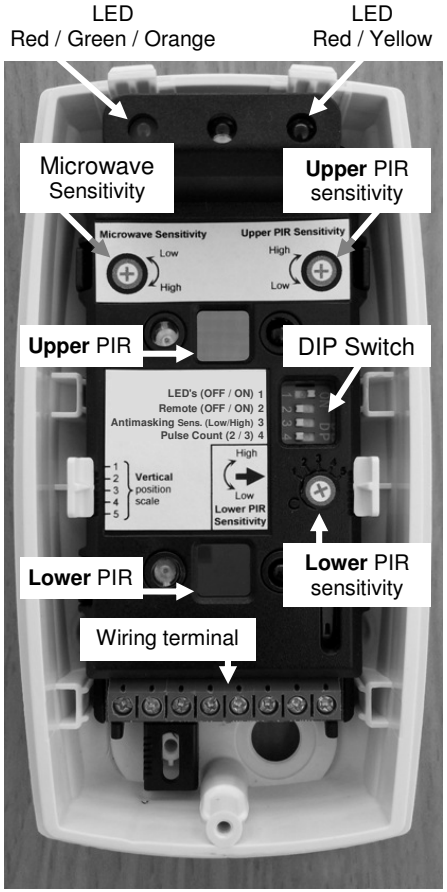
Highly reliable movement detection is achieved by combining a Microwave sensor and two PIR synchronized sensors, which allow three-dimensional thermal imaging of the protected area.

The analog signal received from each sensor is converted to digital signals and separately processed by a powerful Microprocessor.

Movement alarm will be generated only if each of the sensors received a true detection signal.

Each sensor's sensitivity can be adjusted separately by a trimmer.

INSIDE THE DETECTOR



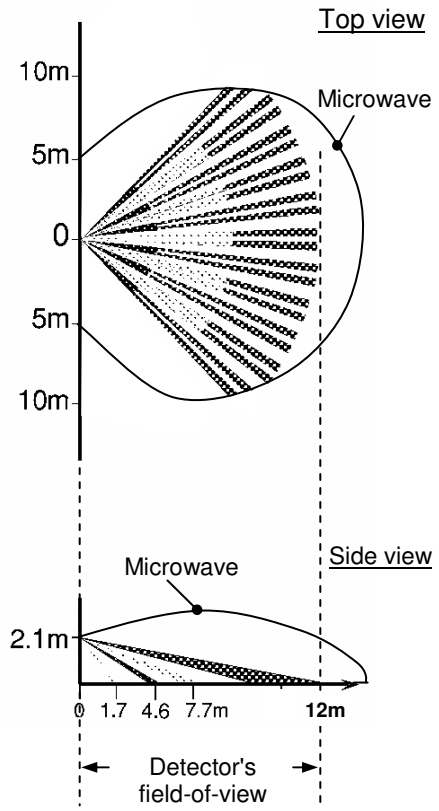
SPECIFICATIONS

- Power Supply…….. 12V DC
- Current drain……. 45 mA (Maximum)
- Relay contact withstand.. 24V DC / 0.1A
- TAMPER Switch withstand: 24V DC/0.1A
- Warm up time…….60 sec.
- Alarm Relay time……. 2 sec.
- Anti-masking response time…... 30 sec.
- Anti-masking Relay time…..........All time of masking (at least 2 Sec.)
- Operating Temperature: (-)10 ~ (+)60^{0}C

Important

Do not rely on any oral or written instruction, recommendation or a clues but this manual.
Manufacturer may change and update this manual without prior notice. Please check Manufacturer's internet site for the most updated manual.

DETECTION PATTERN



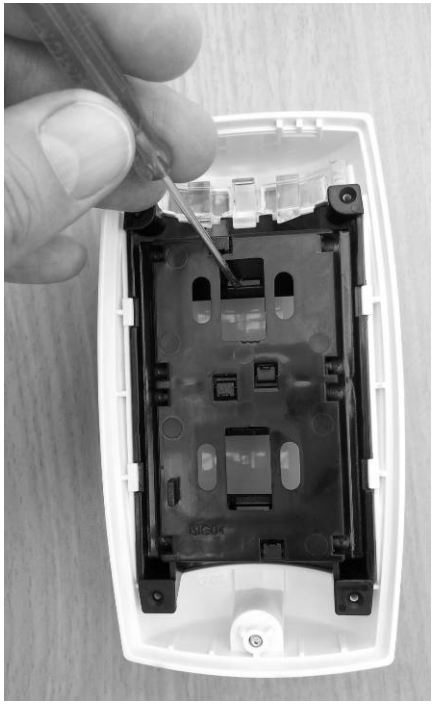
SHUTTERS behind the lens

Enable narrowing the vertical detector's PIR field-of-view

Behind the detector's lens there is a support that consists of shutters placed above both PIR sensors.
By opening or closing the shutters you can limit the vertical angle of the PIR field-of-view.

Adjust shutter opening

With a screwdriver as shown in the photo below, or release the lens support (as shown on previous page) and then manually adjust the opening.



How changing the shutter elements opening affects Anti-masking

1. Any change you make in the opening of even just one of shutter elements, affects the motion and anti-masking detection sensitivity.

2. If you change the opening of even just one of shutter elements, you must perform strictly the procedure "Preparing the Anti-masking feature for operation" (page 24).

Important

Do not rely on any oral or written instruction, recommendation or a clue but this manual.
Manufacturer may change and update this manual without prior notice. Please check Manufacturer's internet site for the most updated manual.

INSTALLATION

Choose a location most likely to intercept an intruder, in respect of the detector's field-of-view diagrams (on page 6) while avoiding installation in the following locations:

- Facing sunlight or any strong light source.
- Facing plants, bushes, moving objects or objects that have the potential to move due to external factors such as wind.
  (For example: clothes on wire, unstable or flexible wall and roof etc.).
- Facing sources that can change temperature rapidly.
- Facing a road.
- Facing a pool.
- Areas with air ducts or substantial air currents.
- A location which is over one meter close to any light source.

TILT PLATES
to mount the detector on an angle

To mount (install) the detector directly on a wall or any other flat surface and provide the detector with a slight vertical tilt (upwards or downwards) without using a mounting bracket, use a tilt plate, which will allow you to tilt the detector upwards or downwards and thus its field-of-view accordingly.
Use more than one tilt plate to achieve greater vertical incline of the detector and thus its field-of-view accordingly.

Each tilt plate tilts the detector's vertical field-of-view by 5^0. So if you mount the detector by two tilt plates, the detector's vertical field-of-view will be tilted by 10^0.

If you mount the detector with three tilt plates, the detector's field-of-view will be tilted by 15^0.

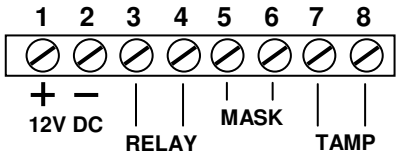
ATTACHING 1 TILT PLATE

ATTACHING 2 TILT PLATES

2 TILT PLATES BEFORE WALL MOUNT

WALL MOUNT BY 2 TILT PLATES

TERMINAL BLOCK WIRING



Terminal wiring specifications

Terminal No. 1+2
Indicated at the board as + −
Those are the 12V DC power supply inputs.

Terminal No. 3+4
Indicated on the board as **RELAY**
Represent the contacts of the “Alarm Relay” which normally are in closed state (N.C.).

Remark
By the Remote Control, which can be purchased separately, you will be able to set the alarm relay to work in Normally Open mode (N.O.).
If you set so, the Anti-masking relay will change its mode to Normally Open mode (N.O.) as well.

Upon any movement detection, the Alarm Relay’s contacts will change their state for about two seconds.
You may change that time by a Remote Control that you may purchase separately.

Terminal No. 5+6
Indicated on the board as **MASK**
Represents the Anti-masking relay contacts, which normally are in closed state (N.C.).

Remark
With the Remote Control, that can be purchased separately, you can set the alarm relay to work in Normally Open mode (N.O.).
If you set so, the Anti-masking relay will change its mode to Normally Open mode (N.O.) as well.

If from a distance of up to 5 cm, a white paper constantly blocks the detector's close field-of-view, the Green LED indicator will blink and after 30 seconds it will remain on and the Anti-masking relay contacts will change their state.
This state will be maintained as long as the white paper blocks the close field-of-view of the detector from a distance of up to 5 cm.
Even after the white paper is removed, the above state will remain in effect for up to 10 seconds. Then the Green LED indicator will go off and the Anti-masking relay contacts will return to their normal state.

Highest Anti-masking sensitivity level
The highest Anti-masking sensitivity level is obtained when the internal unit (the electronic card) is placed at the highest location on the case back panel.
To change the location of the internal unit, release its locking screw located at the bottom of case back panel. Drag the internal unit toward its new location and affix it there with the locking screw you just released.

Shock and Vibration Detection
In addition to the Anti-masking alarm provided at these terminals, these terminals also provide Shock and Vibration detection alarm.
Once Shock or Vibration is detected, these relay contacts will change their state for 2 seconds. The Orange LED indicator will light up during this period.

Remote Control
With the Remote Control RM-1, that can be purchased separately, you can determine that in the event of Shock or Vibration detection, the Alarm Relay **"RELAY"** will be activated instead of this relay (Terminals "MASK"), Page 16.

Terminal No. 7+8
Indicated on the board as **TAMP**
Represents the internal switch contacts, which are normally in closed mode (N.C.). The contacts will open once the detector case was opened.

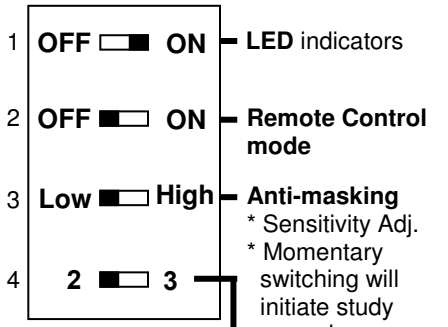
Remark concerning the Anti-masking feature

VIP Pro detector is designed to detect a masking attempt only when its entire near field-of-view is blocked completely by a white paper from a distance of up to 5 cm. For any other application, you must test VIP Pro detector in the field and verify if it meets your requirements.

DIP SWITCH ADJUSTMENT

Attention

If you work with the detector by Remote Control (that can be purchased separately) you must set DIP switch No. 2 to OFF position.
If you don't work with the detector by Remote Control, you must set DIP switch No. 2 to ON position.
In case you changed the Alarm Relay default time (2 Sec.) by Remote Control and you changed DIP switch No. 2 to OFF position, the valid Alarm Relay time will be the time you set with the Remote Control.



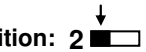
LED indicators

Remote Control mode

Anti-masking
* Sensitivity Adj.
* Momentary switching will initiate study procedure.

Pulse Count
The required number of pulses to trigger an alarm.

DIP switch No. 4
specifications (page 20)

When the switch is in position: 2 

Once two detection events are received, the Alarm Relay will be activated for the time it was set (default 2 seconds), but if additional detection events are received right afterwards (within 1 second), the Alarm Relay will be activated for an additional 2 seconds.

Example:
The Alarm Relay time wasn't changed (by the Remote Control RM-1 that can be purchased separately) so Alarm Relay time remains on the default time of 2 seconds.

If two detection events are received and within the next half a second the detector detected additional detection events, the Alarm Relay will be activated for 4 seconds consecutively (default time of 2 seconds plus additional 2 seconds since additional detection events were received during a half second right after the two detection events.

When the switch is in position: **3**

Once three detection events are received, the Alarm Relay will be activated for the time it was set (default 2 seconds) but if additional detection events are received right afterwards (within 1 second), the Alarm Relay will be activated for an additional 3 seconds.

Example:
The Alarm Relay time wasn't changed (by the Remote Control RM-1 that can be purchased separately) so Alarm Relay time remains on the default time of 2 seconds.

If two detection events are received and within the next half second the detector detected additional detection events, the Alarm Relay will be activated for 4 seconds consecutively (default time of 2 seconds plus additional 2 seconds since additional detection events were received during a half second right after the two detection events.

PIR MOVEMENT DETECTION SENSITIVITY ADJUSTMENT

On the right side of the detector's internal unit, at the upper and bottom part, there is a rotary trimmer where you can adjust the PIR movement sensitivity by using a screwdriver.

- The upper trimmer determines the upper PIR sensor sensitivity.
- The lower trimmer determines the lower PIR sensor sensitivity.

- Turning **right** (Clockwise) = **Increases** the sensitivity.
- Turning **Left** (Counterclockwise) = **Decreases** the sensitivity.

Microwave movement detection sensitivity adjustment

On the left side of the detector's internal unit, on the upper part, there is a rotary trimmer where you can adjust the microwave movement sensitivity by using a screwdriver.

- Turning **right** (Clockwise) = **Increases** the sensitivity.
- Turning **Left** (Counterclockwise) = **Decreases** the sensitivity.

ANTI-MASKING LEARNING PROCEDURE-PREPARING THE MASKING CHANNEL FOR OPERATION (Obligatory for proper Anti-masking operation!!!)

To enable proper operation of the masking detection (Anti-masking), it is first compulsory that the detector study and analyze the environmental conditions of its protected area.
Study Procedure to be performed in three cases:

1. Upon connecting the power supply to the detector.

2. Upon changing the position of DIP switch No. 3 (Anti-masking sensitivity).

3. Upon relocating the internal unit on the detector's back panel or upon changing the shutter opening on the lens support.

The study procedure in the first & second cases **(1, 2)**

- If the detector's case isn't closed, close it immediately (within 15 seconds maximum).
- Keep away from detector's front (at least 1 meter) until the study procedure is complete, about 90 seconds.
- During the study procedure, the Green and Yellow LED indicators will blink together rapidly for about 45 seconds, and right afterwards the Green LED

indicator will remain on for about 45 seconds.
To indicate the study procedure is complete, the Green and Yellow LED indicators will blink together rapidly for about 3 seconds until the end of procedure.

The study procedure in the third case **(3)**

- Change the position of DIP switch number-3 and then switch it back to the required position.
- If the detector's case isn't closed, close it immediately (within 15 seconds maximum).
- Keep away from the detector's front (at least 1 meter) until the study procedure is complete, about 90 seconds.
- During the study procedure, the Green and Yellow LED indicators will blink together rapidly for about 45 seconds, and right afterwards the Green LED indicator will remain on for about 45 seconds.
  To indicate the study procedure is complete, the Green and Yellow LED indicators will blink together rapidly for about 3 seconds until the end of procedure.

INFORMATION DISPLAYED BY LED INDICATORS

Upon connecting power supply to the detector

- **Red** (left) + **Green** + **Yellow** are **blinking** for about 20 seconds.

Upon detection

- **Red** (Left) + **Yellow** are blinking alternating: Alarm
- **Red** (left) + **Yellow** are **blinking together**: Alarm in case the detector is set to work with the Remote Control RM-1 (hat can be purchased separately). DIP switch No. 2 in page 20.
- **Green** is **blinking**: The detector recognizes that its near field-of-view was blocked but doesn't yet activate the Anti-masking Relay.
- **Green constantly**: The Anti-masking Relay is activated.
- **Yellow Momentarily**: Motion detection by the Microwave sensor (indication only. No relay activation).
- **Red** (Right) **Momentarily**: Motion detection by the **lower** PIR sensor.
- **Orange Momentarily**: Vibration detection.

- **Red** (Left) is **blinking**
  Meaning: "Detection Delay" mode.
  (no relay activation).

- **Red** (Left) **lights constantly**
  Meaning: "Camera" mode.
  The Alarm Relay will be activated for 20 seconds minimum.

Any of the above "Detection Delay" and "Camera mode" modes should be preset with the Remote Control RM-1 that can be purchased separately

PERFORM A TEST

The test must be carried out when detector's case is closed and the LED indicators are enabled (DIP switch No.1 switched to ON, page 20).

Test procedure for human movement detection (Alarm):

The required action:

Walk in the protected area.

Compulsory reaction of the detector:

Upon each detection event, the Alarm Relay, left Red LED and Yellow LED indicators will operate for 2 seconds (default time).

- Left Red + Yellow LED indicators are blinking **alternately**, meaning:
The detector operates according to the mechanical settings, meaning according the DIP switch and trimmers that set the detection sensitivity (page 4).

- Left Red + Yellow LED indicators are blinking **together**, meaning:
Alarm when the detector is enabled to work with the Remote Control RM1, which can be purchased separately (page 20).

Test procedure for masking detection (Anti-masking):

The required action:

At a distance of about 50 cm from detector's front, hold a white paper while its surface is facing the detector's front. Move the paper slowly and horizontally toward detector's front.

Compulsory reaction of the detector:

At a distance of 5 cm from detector's front, the detector should detect that its near field-of-view was blocked.
When blocking is detected, the Green LED indicator will blink. If the blocking situation remains consistent for about 30 seconds, the Green LED indicator will remain on and the Anti-masking Relay will change its contact state.
That state will be maintained as long as the paper blocks the detector's near field-of-view at a distance of about 5 cm.
Even after removing the blocking paper, that state will be maintained for about 10 seconds. Then the Green LED indicator will turn OFF and the Anti-masking Relay contacts will return to their normal state.

Test procedure for vibration detection:

The vibration detection feature is activated only if the detector was set to work with the Remote Control RM-1, which can be purchased separately.
Meaning, when DIP switch No. 2 is in ON (See page 20).

The required action:

Shake the detector.
If the detector fixed to a wall, bang on the detector's case with a screwdriver.

Compulsory reaction of the detector:

Upon every vibration detection event, the Anti-masking Relay will be activated for 2 seconds and the Green LED indicator will light up during that time.

Reminder
With the Remote Control RM-1, that can be purchased separately, you can determine that in the event of Shock or Vibration detection, the Alarm Relay "RELAY" will be activated instead of this relay (Terminals "MASK"), Page 16.

MAINTAINANCE

1. Once a week, you must perform an overall test of the features and full functionality of the detector and the system(s) to which connected.
   You should perform that test in the most difficult environmental conditions.
   You must perform the test while the system is armed.

2. So that the detector's detection capability will not damage or totally absent, you must strictly keep the detector's front and its lens free of dust, liquids, paint, dirt, oil or paint vapor etc.
   You must clean the detector's front on a weekly basis.

WORKING WITH REMOTE CONTROL

Here is a partial list of the options and actions you may perform with the Remote Control RM-1 **that can be purchased separately.**

With the Remote Control you can change and set new values for each one of the detector's features including the features whereby the values can be changed and determined by Remote Control only.

List of the options and actions you may perform with the Remote Control RM-1

- Infrared detection sensitivity, for each sensor separately.
- Pulse count.
- Microwave detection sensitivity.
- Anti-masking detection sensitivity.
- Anti-masking activation time.
- Enable / Disable of each LED indicator.
- Vibration sensor sensitivity.
- Setting which relay will be activated during Anti-masking Alarm (the dedicated relay or Alarm Relay).
- Alarm Relay logic (N.C. / N.O.).
- Alarm Relay activation time.
- Motion detection logic (AND / OR).

- Alarm delay:
  Delay from the moment the detector detected a true alarm till Alarm Relay activation.
- Auto Day / Night detection mode:
  You can program the detector to operate during the day unlike it does at night (during darkness).
  For example, during the night (darkness) you may wish to set a higher sensitivity (longer range) and disable the LED indicators.
- Camera mode:
  You can determine that during an alarm a camera will be activated if hooked up to a detector.
- Reports of detector's status:
  Power supply level, temperature, when was the last time the detector was connected to power supply, total number of times the detector was connected to power supply, how many times and when (date and time) the power supply level was too low, how many times and when (date and time) Anti-masking detection events occurred.
- You may impose detection operation even if the infrared or microwave channel is neutralized.

CERTIFICATE OF WARRANTY

MAXIMUM Electronics (1984) Security Ltd. thanks you for buying its products, which have proven their reliability and effectiveness over many years.
To ensure proper operation and functioning of the product and benefit from its features to the utmost, read the Installation & Operating instructions carefully and follow them step by step.

MAXIMUM Electronics Security (1984) Ltd. (hereinafter – the "Manufacturer") hereby warrantees/guarantees the products manufactured by it (hereinafter – "Product" or "Products") against defects in production or in materials discovered during their reasonable use and servicing, in accordance with the Manufacturer's instructions, recommendations and limitations and subject to the provisions of this Certificate of Warranty.
This Warranty is for a limited period of 12 months from the last day of the week and the year whose number is printed on the electronic card (PCB) and/or electronically encoded in one of the Product's components.

This Warranty is limited to the repair of a defective Product, or its replacement at the Manufacturer's option, during the Warranty period, subject to reasonable use and servicing in accordance with the

Manufacturer's instructions, recommendations and limitations.

To realize the Warranty rights, the Product must be sent to the Manufacturer securely packaged and accompanied by a document describing the problem, with insurance and freight prepaid by the sender.

The Manufacturer's products boast a high standard of reliability, proven in tens of thousands of products over many years. The percentage of problems encountered in them is virtually nil, therefore a Product must be carefully checked (according to the operating instructions) before sending it to the Manufacturer for examination and/or servicing in the Warranty framework.

In the event that the installer and/or user and/or customer and/or operator of a Product (hereinafter – the "Customer") returned the Product to the Manufacturer on the grounds that it is defective and received in exchange from the Manufacturer a functional product, and upon examination the Manufacturer found that the returned Product was not defective – the Customer will be charged the Product's full value as consideration for the resources invested by the Manufacturer in its examination.

The Manufacturer shall in no case be liable for damage or loss (including monetary loss), whether direct, indirect, accidental, circumstantial or otherwise, entailed in the dismantling or reinstallation of the Product.

In case the Manufacturer decides to replace a returned Product that was found to be defective, the Customer hereby gives its consent to receiving – at no added cost – also a higher version of the Product.

This Warranty is not valid in the following cases: incorrect installation, installation and/or operation not in accordance with the Manufacturer's instructions, alteration, misuse, accident, sabotage, repair or servicing by someone other than the Manufacturer.

The Customer must take all necessary precautions to prevent and eliminate any discharge of static electricity or other interference that could affect the Product's functioning.

This Warranty is exclusive and explicit and replaces any other warranty, commitment or guarantee – whether written, oral or implied.
The Manufacturer will in no case be liable toward anyone for a breach of this

Certificate of Warranty or of any of its foregoing provisions.
This Certificate of Warranty may not be altered, exchanged or expanded, and the Manufacturer does not authorize anyone to do so on its behalf – including any distributor, dealer, agent, representative or employee of the Manufacturer operating by its authority or on assignment from it.

This Warranty applies to the Product only! Any other product, accessory or adjunct used together with the Product (including batteries) will be covered solely by its exclusive warranty, if such exists.

The Manufacturer shall in no case be liable for damage or loss, whether direct, indirect, accidental, circumstantial or otherwise, caused by the proper and/or improper functioning of the Product due to use of other products, accessories or adjuncts (including batteries) together with the Product.

The Manufacturer does not claim that the Product is immune to malicious neutralization, bypass, sabotage or deception, or that it will prevent in every case death or physical and/or mental injury due to burglary, robbery, fire or the like, or that the Product will provide in all cases adequate and/or suitable warning or protection.

The Customer understands that correct installation and maintenance, in accordance with the Manufacturer's instructions, recommendations and limitations, merely reduces the risk of failure to give warning in cases such as burglary, robbery and fire, but in no way ensures or guarantees that such cases will not occur or will not result in death or physical and/or mental injury and/or damage to property.

The Manufacturer shall in no case be liable for death or physical and/or mental injury and/or damage to property and/or loss of any kind, whether direct, indirect, accidental, circumstantial or otherwise, on the grounds that the Product did not operate/function properly and/or as expected and/or according to the description in its specification or in any other documentation.

The Manufacturer shall in no case be liable for damage or loss (including death or physical and/or mental injury and/or damage to property), whether direct, indirect, accidental, circumstantial or otherwise, caused through use of and/or reliance upon the Product.

In the event that the Manufacturer is held liable, directly, indirectly, circumstantially or otherwise, for any loss or damage according to the terms of this limited Warranty or otherwise (irrespective of its

cause or origin), the maximum amount of the Manufacturer's warranty and/or guarantee shall not exceed in any case the Product's price, and it shall be payable as full and final consideration, and not as a penalty, and shall constitute the entire and sole compensation by the Manufacturer.

It is hereby clarified that the Warranty under this Certificate of Warranty does not cover anything not explicitly and specifically referred to herein.

It is hereby agreed that the Customer waives in advance any claim or contention against the Manufacturer.
Should the Customer and/or a person on his/her behalf nevertheless file suit against the Manufacturer, the Customer and/or that person in such case shall bear all their costs and the Manufacturer's costs arising therefrom, including lawyer's fees, and shall indemnify the Manufacturer for the full amount adjudicated against it in a decision, if any, rendered by any court or arbitrator.

Warning!
The Customer must make sure that the Product meets all his/her requirements, and he/she must comply fully with the installation and operating instructions and *inter alia* check the Product and the entire

system at least once a week including under field conditions.
For various reasons (but not only those set out below), changes in environmental conditions and/or electric or electronic interference and/or malicious damage to the Product could cause the Product to function in an unforeseen manner.

The Customer must take all precautions to ensure his/her own safety and security and that of his/her property.

The Customer confirms that he/she read all the conditions of this Certificate of Warranty and he/she agrees thereto.
Installation and/or operation of the Product shall be deemed as the Customer's agreement to all the conditions of this Certificate of Warranty.

NOTES- 1

NOTES- 2