

GUARD

Outdoor/Indoor Waterproof Anti-masking Detector

FEATURES

- * Two PIR sensors.
- * Microwave sensor.
- * Waterproof and all-weather resistant.
- * Frontal Anti-masking, by active infrared.
- * Anti-case-shifting, by inertial switch: Alerts when detector has been shifted.
- * Microprocessor controlled.
- * Selectable PIR detection sensitivity.
- * Adjustable Microwave detection sensitivity.
- * Selectable detection combination type (AND / OR).
- * Memory latched input.
- * Wide-angle (110°) field-of-view.
- * Auto temperature compensation.
- * High level of RF/EMI immunity.
- * Vertical adjustment.



APPLICATIONS

Courtyards, Garages, Hangars, Car parks, Farms, Agricultural fields, Army facilities, Banks, Plants, Museums, Hotels, Businesses, Homes.



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CONGRATULATIONS

We thank you for choosing a product of **MAXIMUM (1984) LTD.** Based on more than 20 years experience in R&D and in production of advanced security systems, we are proud to introduce to you the best Outdoor / Indoor motion detector ever presented, for industrial, commercial and residential security.

To ensure proper operation and maximum use of all its advantages, please read all parts of this installation and operating manual, and follow the step-by-step instructions.

INTRODUCTION

GUARD is virtually the best Outdoor / Indoor motion detector ever presented, for industrial, commercial and residential security.

GUARD has a massive aesthetic design and combines the technologies of Passive infrared, Active infrared and Microwave as well. It is waterproof and all-weather resistant.

GUARD also alerts in any attempt to damage or disable its operation.

GUARD combines a variety of detection techniques that enable it to work in the most difficult environmental conditions and where high security is required while maintaining unprecedented immunity to false alarms.

Excellent 4-dimensional detection

The two synchronized PIR sensors produce a three-dimensional thermal imaging of the protected area.

Combining the fourth dimension as microwave scanning contributes to an amazing detection capacity and at the same time it also increases the reliability and immunity to false alarms.

Using this technique allows high sensitivity level adjustment in both detection technologies without the need of pulse count.

Alerts in any attempt to damage or to disable its operation

In addition to an unprecedented amazing and reliable detection skill, **GUARD** is equipped with unique protection mechanisms against any attempt to damage or to disable its operation.

These following protection mechanisms always work- weather the alarm system is Armed or Disarmed:

1. **Frontal Anti-masking** by a continuous active infrared scan, against masking the near field-of-view of the detector (Detects even transparent objects such as clear glass, plastic bags or transparent spray of any kind).

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Imposes "OR" mode in distress. If, from any reason, the PIR detection channel is neutralized (for example, the detector's front was masked), the Microwave detection channel will guard the protected area.

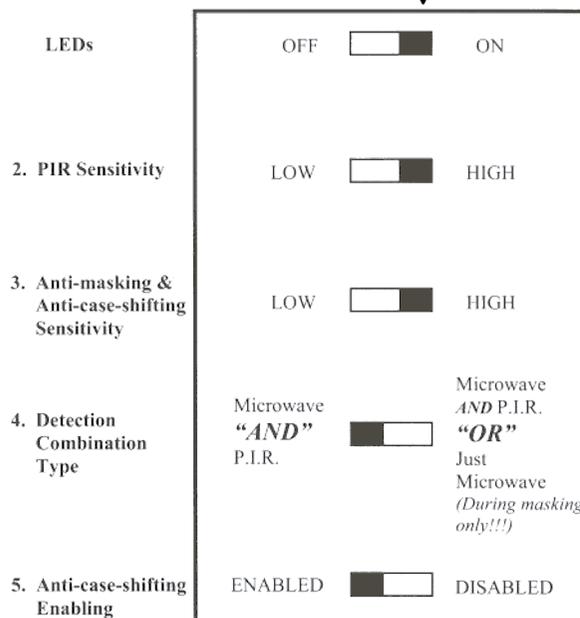
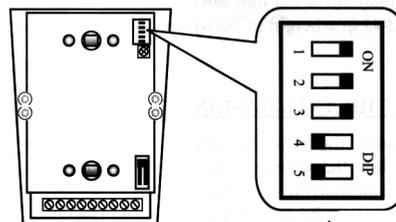
Anti-case-shifting, by inertial switch that alerts if someone shifts, moves or turns the detector.

Traditional Tamper switch.

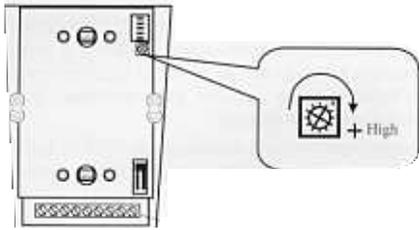
GUARD operates its relays and LED indicators according to the detection nature as following:

TYPE OF DETECTION		LED INDICATORS	RELAY STATUS
Alarm- True motion detection		Red + Yellow Blinking together	ALARM relay will activate for 2 seconds.
P.I.R. detection		Red	No relay will operate
Microwave detection	"AND" mode	Yellow	No relay will operate
	"OR" mode	Red + Yellow Blinking together <i>(During masking only!!!)</i>	ALARM relay will activate for 2 seconds <i>(During masking only!!!)</i>
Anti-masking detection	Green Blinking	If masking exists for more than 2 minutes, the green LED will glow constantly, and the "MASK" relay will operate for at least 2 seconds and all time the masking exists	
Anti-case-shifting detection		"MASK" relay will operate for at least 2 seconds	

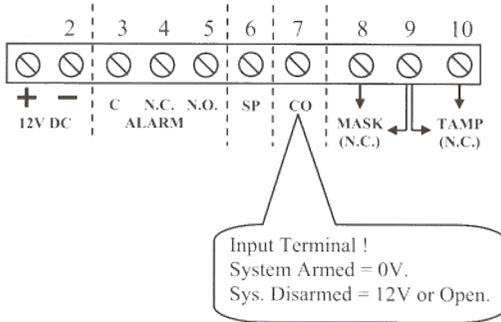
DIP SWITCH ADJUSTMENT



MICROWAVE SENSITIVITY ADJUSTMENT



TERMINAL BLOCK WIRING



SETTING TO THE MAXIMUM DETECTION RANGE

- In order to set GUARD to its maximum detection range:
1. Move the internal unit (electronic card) to the maximum height on its back panel, than move it 3 mm lower and fix it there.
 2. Install GUARD in a height of between 1.80 and 2.00 meter above the floor.

PREPARING THE ANTI-MASKING CHANNEL FOR WORK

In order to enable the masking detection to operate properly, it is necessary to allow the detector study and analyze automatically the environmental conditions of its protected area.
The study procedure to be performed in **three cases**:

1. Upon connecting the power supply to the detector.
2. Upon the position of DIP switch number-3 (Masking detection sensitivity) is changed.
3. Upon relocation of the internal unit of the detector.

The study procedure in the first & second case:

- Close immediately the detector's case (within 15 seconds maximum).
- Keep away (at least 0.5 meter) from its front, until the study procedure finished, about 30 seconds.
- As an indication for the study procedure, the Green+Yellow LEDs will blink rapidly once the procedure begins and ends.

The study procedure in the third case:

- Change the position of DIP switch number-3 for about one second, and switch it back to the original place.
- Close immediately the detector's case (within 15 seconds maximum).
- Keep away (at least 0.5 meter) from its front, until the study procedure finished, about 30 seconds.
- As an indication for the study procedure, the Green+Yellow LEDs will blink rapidly once the procedure begins and ends.

WIRING TERMINAL SPECIFICATIONS

*** Terminals 1 + 2**

Indicated on the circuit as: **+ -** .
These are the 12V DC power supply inputs.

*** Terminals 3+4+5**

Indicated on the circuit as: **ALARM (C / N.C. / N.O.)**.
Represent the contacts of the "Alarm Relay":
C + N.C. = Normally Closed. **C + N.O.** = Normally Opened.
Upon any human movement detection, the relay's contacts are opened for two seconds.

*** Terminals 8+9**

Indicated on the circuit as: **"MASK"**.
Represent the contacts of the "Masking Relay" which normally are in closed state (**N.C.**).
If an object blocks (masks) the near field-of-view of the detector for more than 2 minutes, the green LED will glow constantly, and the **"MASK"** relay will operate for at least 2 seconds and all time the masking exists

*** Terminals 9+10**

Indicated on the circuit as **"TAMP"**.
Represent the contacts of the built-in TAMPER switch, which are normally in closed state (**N.C.**).
The contacts will open, upon the detector's case is opened.

*** Terminal number 7.**

Indicated on the circuit as **"CO"**.
This terminal to be used if you wish to get a report from the **detector's memory**, whether it has detected human movement during the armed period.
This terminal should get indication from the alarm system's control panel, whether it is in Armed or Disarmed state.
- If 0V received, the detector "understands" that the alarm system is Armed.
- If 12V or no voltage at all received, the detector "understands" that the alarm system is Disarmed.

How to draw and display the detector's memory ?

If: the detector has alerted during the "armed" period,
Than: upon switching the alarm system from "Armed" to "Disarmed" mode, the Red LED will be activated for 30 minutes.

PERFORM A TEST

➤ **To be done when the case is closed and the LEDs are enabled**

The test procedure for human movement detection (Alarm):

- o Walk in the protected area.
- o The necessary reaction of the detector:
Upon each detection, the "Alarm Relay" and the Red + Yellow indication LED will blink together for 2 seconds.

The test procedure for masking detection (Anti-masking):

- o In a distance of about 10 cm from the detector's front, place a white paper (or any other object).
- o The necessary reaction of the detector:
The Green LED will blink immediately.
After 2 minutes the "Masking Relay" will activate.
All time when an object blocks (masks) the near field-of-view of the detector, the masking relay and the Green LED will activate.

The test procedure for Case-shifting detection:

- o Shake the detector.
If it fixed to a wall, knock on the detector's case by a screwdriver.
- o The necessary reaction of the detector:
The "Masking Relay" will activate for 2 second.
The Green LED will activate, shortly, upon every knocking.

SPECIFICATIONS

* Power supply.....	12V DC
* Current drain.....	40mA (Max.)
* Alarm relay contacts withstand.....	50V DC / 0.25A
* Anti-masking relay contacts withstand.....	24V DC / 0.1A
* TAMPER Switch withstand.....	24V DC / 0.1A
* Warm-up time.....	2 Minutes
* Alarm period.....	2 Seconds
* Anti-masking relay respond time.....	2 Minutes (Max.)
* Anti-masking relay activation period...	All time of masking (at least 2 seconds).
* Motion detection coverage.....	14 meter, 110°
* Operating Temperature.....	(-37 ~ +)70°C