MAX-5

Computerized Control Panel

Signature Visonic Ltd

Installation Instructions

1. DESCRIPTION

The MAX-5 is a highly reliable, cost effective control panel for residential and commercial applications. Besides being simple to install and operate, it is highly versatile due to a DIP switch selector which permits the user to program a wide variety of features. The MAX-5 provides 5 zones designed to operate with normally closed sensor contacts and divided as follows:

- 3 instant zones (Zones 1, 2 and 3), convertible to follower (conditional delayed) zones.
- 1 delayed zone (Zone 4) which allows authorized people to leave or enter without causing an alarm. Four preset entry delay times may be selected.
- One 24-hour zone (Zone 5) for anti-tamper, fire and panic signaling.

Five red LED's, one for each zone, provide zone status and alarm memory indications.

Two open-collector alarm outputs (AL1 and AL2) are provided on the MAX-5 terminal board, each capable of directly energizing an external relay, provided that its current consumption does not exceed 100 mA. The first output (AL1) is associated with zones 1 through 4 and the second (AL2) with zone 5 only. In addition, the MAX-5 includes a built-in power loudspeaker driver through which alarms from zones 1 through 4 produce a yelping sound, whereas alarms from zone 5 - the 24-hour zone - produce a two-tone sound.

The MAX-5 may be armed by a two-position ON/OFF keyswitch or a momentary spring-return keyswitch. To eliminate false alarms caused by careless users, the automatic zone-shunting function, if selected, bypasses any zone found unsecured at the instant of arming, and gives off audible and visual warnings.

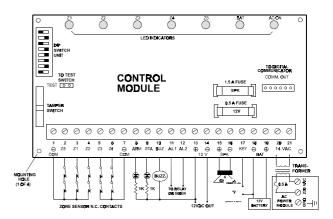


Figure 1. Parts Layout and Connection Diagram

An open-collector buzzer output is provided for activating a 12 V piezoelectric sounder during the exit delay, entry delay and zone bypass warnings. A pin-header is provided on the printed circuit board for interfacing with a digital communicator, to report alarm and other messages by telephone or by radio. A 12 VDC output is also provided through this connector.

Operating power for the MAX-5 is supplied from the AC mains through a built-in power supply/charger. A rechargeable, sealed lead-acid battery is connected to the system to provide operating power during mains supply failures. The power supply/charger has an auxiliary output of 12 VDC at 300 mA for powering motion detectors and various auxiliary accessories.

2. FEATURES

- Easy to use
- 5 zones with memory, including a 24-hour zone
- Selectable entry delay
- · Zone status/memory indicators
- Built-in loudspeaker driver circuitry
- · Built-in power supply/charger
- Auxiliary DC power output (12V/300 mA)
- Alarm duration timer
- System Armed indicator
- AC power LED indicator

- Auto-shunting of unsecured zones
- Instant zones may be converted into follower zones
- · Two-position or Momentary keyswitch selection
- Two alarm outputs (open-collector, 100 mA max.)
- Buzzer output for piezoelectric sounder
- · Zone status output for remote plates
- Automatic battery test
- Selectable silent alarm output for the 24-hour zone
- Zone test provision
- Communicator interface output

3. SPECIFICATIONS

Zone Types:

Instant: 3 (convertible to "follower" zones)

Delayed: 1 24-hours: 1

Entry Delays: 10, 20, 35 and 60 seconds (selectable)

Exit Delay: Fixed, 60 seconds

Alarm Timer: shuts alarm off after about 3 minutes

Indicator Assignments:
Zone status - 5 red LEDs
Battery condition - yellow LED
Mains status - green LED

Supply Voltage: 230 VAC (or 115 VAC optional) Power Transformer Output: 14 VAC, 20 VA Auxiliary DC Output: 12 VDC, 300 mA Fuse Ratings:

230 VAC input: 0.5 A

12 VDC auxiliary output: 0.5 A **Loudspeaker output:** 1.5 A

Rechargeable Standby Battery: lead-acid type, 12 V, up to 6 Ah Loudspeaker Output: can drive one 4-ohm / 8 watt speaker or

two 8 ohm / 5 Watt speakers in parallel

Current Sinking Capability of Alarm Outputs: 100 mA, each output protected by an 18-ohm series resistor.

Dimensions (H X W X D):

Cabinet (with rear humps and keyswitch): 216 \times 292 \times 79

mm (8-1/2 X 11-1/2 X 3-1/8 in.)

Main PC Board: 125 X 70 mm (4-15/16 X 2-3/4 in.)

Weight: 2.4 kg (5-1/4 lb)

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4.1 Instant Zones

The MAX-5 includes 3 instant alarm zones (zones 1, 2 and 3). Each instant zone is represented by a red LED which indicates zone status (secured/unsecured) and provides alarm memory indication. Any violation of an instant zone when the control panel is in the **armed** state will activate the yelping alarm and the AL1 output instantly. Zones 1, 2 and 3 can be converted to follower zones by setting DIP switch SW4 to ON (see para. 7.1).

4.2 Delayed Zone

Zone 4 is a delayed zone. It allows users to arm the control panel and leave within 60 seconds, without causing an alarm. Users can also enter the protected area and disarm the control panel within a preset time limit. Entry delay is preset by DIP switches SW1 and SW2 (see para. 7.6). Zone status and memory indications are displayed by a red LED.

4.3 24-Hour Zone

Zone 5 is active in the armed and the disarmed states. Normally closed panic buttons, perimeter detectors and fire detectors can all be connected to zone 5 terminals. The on-board tamper switch is prewired in series with the zone 5 terminals. Any violation of this zone will activate a two-tone alarm and the AL2 output. This

zone is also represented by a red LED for zone status and memory indications.

4.4 Standby Battery

A rechargeable, lead-acid battery must be connected to the BAT terminals on the terminal board. The battery input circuitry is protected against wrong polarity connections. A built-in charger provides charging current for the battery.

4.5 AC Power Input

The MAX-5 control panel includes a step-down AC transformer mounted inside the cabinet and an AC protection 0.5 Ampere fuse mounted on a small, separate PCB. The 230 VAC power should be connected to the 220 VAC terminals on the small terminal board. The transformer's secondary winding (14 VAC) is connected to the 14 VAC terminals on the main terminal board.

4.6 Keyswitch Input

This input (terminals 17 and 18) is provided for arming/disarming the MAX-5 control panel by means of a keyswitch located on the control panel itself or on a remote plate. The keyswitch may be a normal on/off type or of the momentary spring-return type, depending on the setting of DIP switch SW6 (see para. 7.6).

5.OUTPUTS

5.1 Loudspeaker

The MAX-5 includes a built-in high power loudspeaker driver protected by a 1.5 A fuse located on the main PCB. The **SPK** terminals (terminals 15, 16) can drive a 4-ohm/8 W speaker or two 8-ohm/5 W speakers connected in parallel. It is easy to identify the alarm's origin since alarms from zones 1 - 4 produce a yelping sound, whereas an alarm from zone 5 produces a two-tone sound.

Note: if zone 5 triggers an alarm while any one of zones 1, 2, 3 or 4 are already in alarm, the zone 5 two-tone siren overrides the yelping alarm (provided that DIP switch SW5 is ON).

5.2 Alarms

Two open-collector alarm outputs, AL1 and AL2, each capable of sinking up to 100mA, are provided to operate external relays. Each alarm output is protected by an 18-ohm series resistor, and may be directly connected to a relay energizing coil or to the Visonic Ltd. optional relay modules RL-1A or RL-1B, designed to trigger various external devices.

- Alarm output AL1 is tripped by alarms from zone 1 through 4.
- Alarm output AL2 is tripped by alarms from zone 5 (the 24-hour zone).

5.3 Warning Sounder

Modulated signals for driving a sounder are available across terminals 10 **(BUZ)** and 13 **[+]**, to provide miscellaneous warnings. The pulsed output signal is sufficient to drive a piezoelectric resonator, located either inside the control panel cabinet or near the exit/entry door.

- **1. Exit delay warning:** when the exit delay starts, the sounder emits a short beep, once every 5 seconds, but beeps rapidly during the last 7 seconds.
- **2. Entry delay warning:** when the entry delay starts, the sounder emits a short beep once every 3 seconds. A continuous sound is heard during the last 7 seconds.

3. Auto shunting warning (see AUTO SHUNTING): when the system is armed and automatic zone shunting takes place, two alternating tones are emitted for 12 seconds. This warning is useful if the person arming the system had negligently disregarded the flashing LED of an unsecured zone (see Sec. 6).

5.4 "System Armed" Indication

This is an open-collector output which may be used to provide remote indication of system arming by lighting an LED installed on a remote plate, near the remote keyswitch. The remote LED, with 1 k-ohm resistor in series, should be connected between terminals 8 (ARM) and 13 [+] of the MAX-5.

5.5 Zone Status Summing Indication

This is an open-collector output which may be used to provide zone status information by lighting an LED installed on a remote plate. If one or several zones are disturbed, the LED connected to the summing output will flash to indicate zone violation trouble. If one zone's LED on the control panel lights continuously (alarm memory) and another LED flashes, the LED connected to the summing output will light continuously. If all zones are secured and no alarms had been triggered during the last armed period, the zone status summing LED will be extinguished. The remote LED, with 1k ohm resistor in series, should be connected between terminal 9 (STA) and 13 [+] of the MAX-5.

5.6 12 VDC Auxiliary Supply

This output provides 300 mA maximum at terminals 13 [+] and 14 [-], for powering various detectors and auxiliary devices. Overload protection is obtained by a 0.5 A fuse on the main PCB.

5.7 Communicator Interface

The COMM. OUT connector located on the main PC board is a 6-pin header which serves as an interface between the MAX-5 and a digital communicator. Each pin is connected in parallel with its corresponding output terminal, except for pin No.4 (see para. 9.3 for pin assignments).

6. LED INDICATORS

6.1 Zone Status/Memory Indicators

Five red LED's are mounted on the MAX-5 printed circuit board, one associated with each zone. Each LED functions both as zone

status and memory indicator as described below.

Daytime Operation (system disarmed)

The red LED's indicate the status of their associated zones:

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LED Indication	Zone Status	
Extinguished	The zone is secured	
Flashes rapidly	The zone is violated or shunted. When the disturbance is cleared the LED will light steadily.	
Lights steadily	Memory indication - this zone alarmed previously, but the disturbance is no longer there (the zone is secured now).	

Night Time Operation (system armed)

The red LEDs indicate the status of their associated zones:

LED Indication	Zone Status		
Extinguished	The zone is secured		
Flashes rapidly	The zone is violated. As soon as the disturbance is cleared ,the LED extinguishes.		
Lights steadily	Memory indication - this zone alarmed		

during the last armed period; the indication
is cleared by rearming the control panel.

6.2 System ON Indicator

A green LED mounted on the MAX-5 printed circuit board lights when the control panel is turned ON (armed by the keyswitch). This LED also indicates that AC power is supplied to the system and will go out if the AC power fails.

6.3 Battery Condition Indicator

The battery is automatically tested under load during the exit and entry delays. The result of this test is expressed by the yellow LED, which lights steadily during the test if the battery is in good condition but glows dimly or does not light at all if the battery is weak

7. SPECIAL FUNCTION

7.1 Follower Zones

Zones 1, 2 and 3 can be converted to follower zones by setting DIP switch **SW4** to ON. A follower zone is a conditional, delayed zone which has the usual exit delay but whose entry delay is applied only if the original delayed zone (zone 4) is entered first. This function is useful in cases where detectors wired to the instant zones are activated along the exit/entry route. The entry delay starts when zone 4 is entered into and expires at the preset time (see para. 7.6). Entry through a zone other than zone 4 will cause an immediate alarm. To cancel the follower zone function, set SW4 to OFF.

7.2 Auto Shunting

Auto shunting is a feature selected by setting DIP switch SW7 to ON. When this is done, a zone (or zones) unsecured at the time the control panel is armed will be automatically bypassed. Other zones will be enabled. The LED(s) associated with the shunted zone(s) will flash, indicating which zone (or zones) have been bypassed, and the buzzer will issue an audible warning (see WARNING SOUNDER). Other LEDs associated with enabled zones will remain OFF. A shunted zone that is later secured will be automatically enabled.

7.3 Shunting by Remote Switches

Since disturbed zones can be automatically shunted out when the control panel is armed, remote shunting switches may be wired into the system. A remote shunting switch is wired in series with the circuit of its associated zone, same as any sensor.

A particular zone can be shunted out only during the **disarmed** state by deliberately breaking its circuit loop, using the remote switch wired into that loop. When the control panel is later armed, The disturbed zone is identified by the control panel as faulty and is therefore automatically bypassed. However, any attempt to shunt out a secured zone when the control panel is armed will immediately trigger the alarm. Shunting switches can be mounted anywhere along the zone wiring and also on the control panel.

7.4 Alarm Duration Limit

When the alarm is triggered, the siren will sound for about 3 minutes and then shut off - provided that the violated zone is restored to normal within this period and all other zones are secured. However, if the AUTO SHUNT feature has been selected before arming the system, the siren will shut off by itself after about 3 minutes and the system will bypass the violated zone. An alarm triggered by zone 5 does not stop by itself. If the alarm sounds while the system is disarmed, arm⇒disarm the control panel. If the alarm sounds while the system is armed, disarm⇒arm⇒disarm the control panel.

7.5 Zone Testing

All system detectors must be periodically tested. While the system is disarmed, set DIP switch SW8 to ON and enter the

alarm zones one by one. When a detector is triggered, the siren will sound for 1 second and the respective zone LED will latch into memory. Restore SW8 to OFF at the end of the test.

7.6 DIP Switch Unit

An 8-DIP switch unit enables the user to select the following functions:

SW1 - Entry Delay

SW2 - Entry Delay

SW3 - Arming /disarming tone warnings (siren test)

SW4 - Follower Zones SW5 - Zone 5 Siren Muting

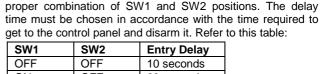
SW6 - Keyswitch Type

SW7 - Auto Shunting

SW8 - Zone Testing

Figure 2. DIP Switch

2



1. SW1 and SW2: The entry delay is preset by selecting the

SW1	SW2	Entry Delay
OFF	OFF	10 seconds
ON	OFF	20 seconds
OFF	ON	35 seconds
ON	ON	60 seconds

- 2. SW3: Setting this switch to ON enables automatic testing of the siren. When SW3 is ON, the loudspeakers connected to the SPK terminals will issue a tone whose pitch increases in steps for 1 second each time the control panel is armed, and a tone whose pitch decreases in steps for 1 second each time the system is disarmed. Besides testing the siren, the recognizable tones are especially important when arming and disarming by means of a wireless transmitter or a remote keypad.
- **3. SW4:** This DIP switch, when set to ON, converts zones 1, 2, and 3 into follower zones, meaning that the entry delay follows entrance through zone 4 into other zone (for detailed explanation, see FOLLOWER ZONES).
- 4. SW5: Setting SW5 to OFF mutes the alarm produced by zone 5 and converts zone 5 into a silent alarm zone. The AL2 alarm output, also associated with zone 5, is not affected by this setting and is triggered normally.
- 5. SW6: Setting SW6 to ON adapts the control panel for arming/disarming by a momentary spring-return keyswitch. With SW6 at OFF, the control panel is adapted for use with a two-position keyswitch.
- 6. SW7: If SW7 is set to ON, zones which are not secured at the instant of arming will be automatically shunted (bypassed). At the OFF position, automatic shunting will not take place (see AUTO SHUNTING for more information).
- 7. SW8: When SW8 is set to ON, all zones can be tested with the control panel in the disarmed state. For zone test

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information, see ZONE TESTING. The two test terminals on the printed circuit board are connected in parallel with SW8. It is possible to set SW8 to OFF, connect a pair of leads to these terminals and route the leads to an external zone-test switch at a convenient location.

8. INSTALLATION

Install the control panel in a protected, easily accessible location, preferably not visible from outside and close to an uninterrupted AC power source .Remove the wiring knockouts from the top or bottom of the cabinet, to suit your particular installation. Mount the cabinet on the wall using the 4 mounting holes in the rear humps.

Caution! Do not connect AC power or a battery to the MAX-5 until all other wiring is completed

8.1 Wiring the Control Module

Terminals

- 1,7 Negative [-] common terminals. Each zone's sensors are connected between one of these terminals and the appropriate zone terminal.
- **1-3 Z1** (zone 1 -instant). Connect NC contacts between terminals 1 and 3.
- **1-4 Z2** (zone 2 instant). Connect NC contacts between terminals 1 and 4.
- 5-7 Z3 (zone 3 instant). Connect NC contacts between terminals 5 and 7
- **6-7 Z4** (zone 4 delayed). Connect NC contacts between terminals 6 and 7.
- 1-2 Z5 (zone 5 24 hours). Connect anti-tamper switch or PANIC pushbutton NC contacts between terminals 1 and 2.
- **8-13** ARM (system armed) indication. Provides remote indication for system arming. Connect LED with 1 K ohm resistor in series between terminals 13 [+] and 8 (switched [-]).
- **9-13** STA (zone status) output. Provides zone status summing indication. Connect LED with 1 K ohm resistor in series between terminals 13 [+] and 9 (switched [-]).
- **10-13** BUZ (buzzer output). Connect a piezo-electric sounder between terminal 10 (buzzer signal) and 13 [+].
- **11-13** AL-1 (alarm from zones 1- 4). Connect the relay coil across these terminals. Relay modules RL-1A and RL-1B may also be connected here (Fig. 3 7).
- **12-13** AL-2 (alarm from zone 5). Connect the relay coil across these terminals. Relay modules RL-1A and RL-1B may also be connected here (Fig. 3-7).
- **13-14** 12 VDC (auxiliary supply). Provides 300 mA maximum for external devices between terminal 13 [+] and 14 [-].
- **15-16** SPK (speaker output).Connect 4 or 8-ohm horn speakers between terminals 15 [+] and 16 (pulsed [-]).
- **17-18** KEY (keyswitch connections). Connect a keyswitch between these terminals for arming/disarming the control panel locally or from a remote plate.
- 18-19 BAT (rechargeable battery). Use a 12 VDC lead-acid

rechargeable battery only. Connect its leads between terminals 18 [–] and 19 [+].

20-21 14 VAC (AC power input). The MAX-5 control module receives 14 VAC from the power transformer via these terminals

8.2 Wiring AC Power Module

Terminals

220 VAC Mains power imput terminals

GND Grounding terminal, connect to nearest

electrical ground

8.3 Wiring COMM. OUT Connector

<u>Pins</u>

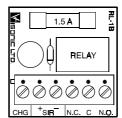
- 1 ARM: "system armed" output
- 2 AL2: alarm output 2
- 3 AL-1: alarm output 1
- 4 AC power failure output
- 5 + 12VDC auxiliary supply
- 6 0 Volts (ground) connection.

8.4 Relay Modules (optional)

Two relay modules are available: RL-1A and RL-1B.

Both relay modules provide 1A, form 1C contacts which are activated during an alarm and can be used to operate an auxiliary device such as a dialer or a self-activating siren.

The relay modules also provide a 12 VDC output marked CHG. In relay module` RL-1A, the 12 Volt output is supplied through a 22-ohm resistor to allow charging the storage battery in a self-activated siren (see Figures 4, 5 and 6). In relay module type RL-1B, the 12 Volt output is supplied through a 1.5 A fuse, providing an additional 12 VDC fused output for sirens or detectors (see Figure 7).



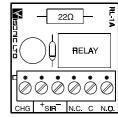
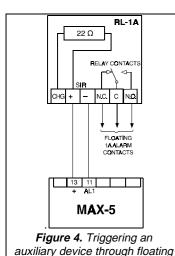


Figure 3. Relay module types

9. TESTING AND CHECKOUT

- Verify that all wiring and DIP switch settings have been completed per user's requirements.
- 2. Set the keyswitch to its OFF position.
- Connect a 12 Volt, lead-acid rechargeable battery to the red [+] and black [-] wires. Observe polarity.
- Connect the ground lead to the GND terminal of the mains power input module.
- Connect the AC line to the 220 VAC terminals of the mains power input module.
 - **Note:** It is recommended that AC power be obtained from an uninterrupted power source.
- Bridge any unused zone terminal pair with a short length of jumper wire.
- Turn the keyswitch to ON. If AC mains power is applied, the green LED will light and the 5 status LED's will not light (provided that all zones are secured).

- 8. Check operation of each of the contacts and sensors according to the zone to which they are wired. Do this both in the arm and disarm positions. Verify proper operation of the 5 red status/memory LED indicators and the alarm outputs.
 - **Note:** for detailed functional description, refer to previous sections.
- **9.** Set the entry delay time according to the time required to get to the control panel and disarm it.
- 10. Disconnect the AC mains power. Repeat testing and checkout on backup battery power. The green LED will not light, thus indicating a power failure. However, the control panel should function properly on battery power.
- 11. Reconnect the AC mains power.
- **12.** Disconnect the battery [+] terminal and check for approximately 13.8 Volts DC on terminals 19 [+] and 18 (-).
- 13. Reconnect the battery [+] terminal.



RL-1A

22 \(\text{22 \text{13 | 11 | 14 |}} \)

RELAY CONTACTS

RELAY CONTACTS

TRIGGER
SIGNAL

CHARGE
VOLTAGE

WAX-5

Figure 7. Triggering an external device and supplying fused 12

Volt for siren or detectors

FUSE

1.5 A

CHG +

BL-1B

► FLOATING

FUSED 12 VDC

DELAY CONTACTS

NC C NO

Figure 5. Delivering combined trigger signal and charge voltage to a self-activating siren

Figure 6 Delivering separate trigger signal and charge voltage to a self activating siren

10. TROUBLESHOOTING

No green light when control panel is ON

1A relay contacts

- power OFF check the 220 VAC mains power source and the circuit breaker.
- AC power fuse blown inspect the 0.5A fuse on the mains power input module.
- · Defective keyswitch check keyswitch operation.
- Defective transformer verify 14 VAC at terminals 13 and 14.

No yellow light or very weak light during entry or exit delay

- · Battery is discharged check battery voltage
- · Battery connected incorrectly check polarity
- Charger is defective disarm the control panel, disconnect the battery leads and measure DC voltage between the red and black leads. There should be approximately 14 VDC if the AC supply is correct.

No siren through speakers

- Siren fuse is blown. Inspect 1.5A fuse on the PC board and replace if necessary. If it blows again, check for shorted speakers.
- · Defective speaker disconnect the speaker from the terminals

and measure speaker resistance. Normally it should be greater than 3 ohms.

Exit/Entry sounder does not function

- Check buzzer connections, terminals 10 and 13.
- Check buzzer polarity

Status/Memory LEDs do not turn off

- · Faulty wiring or sensors
 - Remove both leads of the faulty loop and replace with a jumper. Turn the keyswitch momentarily to ON and back to OFF. If the LED now turns OFF it is a indication that a particular contact or sensor is violated, or that wiring is faulty. Check all sensor contacts wired to the faulty zone.
 - Verify the presence of 12 Volts supply at the input to each sensor wired to the faulty zone

No 12 VDC supply

 0.5A fuse blown on PC board. If the fuse blows after replacement - check for a short circuit in the 12 VDC wiring to the auxiliary devices.

WARRANTY

Visonic Ltd. and/or its subsidiaries and its affiliates ("the Manufacturer") warrants its products hereinafter referred to as "the Product" or "Products" to be in conformance with its own plans and specifications and to be free of defects in materials and workmanship under normal use and service for a period of twelve months from the date of shipment by the Manufacturer. The Manufacturer's obligations shall be limited within the warranty period, at its option, to repair or replace the product or any part thereof. The Manufacturer shall not be responsible for dismantling and/or reinstallation charges. To exercise the warranty the product must be returned to the Manufacturer freight prepaid and insured.

This warranty does not apply in the following cases: improper installation, misuse, failure to follow installation and operating instructions, alteration, abuse, accident or tampering, and repair by anyone other than the Manufacturer.

This warranty is exclusive and expressly in lieu of all other warranties, obligations or liabilities, whether written, oral, express or implied, including any warranty of merchantability or fitness for a particular purpose, or otherwise. In no case shall the Manufacturer be liable to anyone for any consequential or incidental damages for breach of this warranty or any other warranties whatsoever, as aforesaid. This warranty shall not be modified, varied or extended, and the Manufacturer does not

This warranty shall not be modified, varied or extended, and the Manufacturer does not authorize any person to act on its behalf in the modification, variation or extension of this warranty. This warranty shall apply to the Product only. All products, accessories or attachments of others used in conjunction with the Product, including batteries, shall be covered solely by their own warranty, if any. The Manufacturer shall not be liable for any damage or loss whatsoever, whether directly, indirectly, incidentally, consequentially or otherwise, caused by the malfunction of the Product due to products, accessories, or attachments of others, including batteries, used in conjunction with the Products.

The Manufacturer does not represent that its Product may not be compromised and/or circumvented, or that the Product will prevent any death, personal and/or bodily injury and/or damage to property resulting from burglary, robbery, fire or otherwise, or that the Product will in all cases provide adequate warning or protection. User understands that a properly installed and maintained alarm may only reduce the risk of events such as burglary, robbery, and fire without warning, but it is not insurance or a guarantee that such will not occur or that there will be no death, personal damage and/or damage to property as a result

The Manufacturer shall have no liability for any death, personal and/or bodily injury and/or damage to property or other loss whether direct, indirect, incidental, consequential or otherwise, based on a claim that the Product failed to function. However, if the Manufacturer is held liable, whether directly or indirectly, for any loss or damage arising under this limited warranty or otherwise, regardless of cause or origin, the Manufacturer's maximum liability shall not in any case exceed the purchase price of the Product, which shall be fixed as liquidated damages and not as a penalty, and shall be the complete and exclusive remedy against the Manufacturer.

Warning: The user should follow the installation and operation instructions and among other things test the Product and the whole system at least once a week. For various reasons, including, but not limited to, changes in environmental conditions, electric or electronic disruptions and tampering, the Product may not perform as expected. The user is advised to take all necessary precautions for his /her safety and the protection of his/her property.

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