# WizMart

## INSTALLATION MANUAL

## NB701 Combustible gas detector

**Approved to UL 1484 / UL 2075**

## Cautions

⚡ **ELECTRICAL HAZARD:** Disconnect power from equipment prior to making any internal adjustments. Service should only be performed by qualified personnel.

⚠ **INSTALLATION LIMITATIONS:** It is important to read, understand and follow the instructions in this manual.

This manual is intended for licensed electricians or alarm installers. Wizmart cannot provide technical support to unqualified persons.

Failure to properly install, test and maintain the detector system may cause it to fail, resulting in loss of life.

⚠ **PRODUCT LIMITATIONS**: Caution! The combustible gas detector will only indicate the presence of combustible gas (Methane or Propane Gas) that reaches the sensor. It is not designed to sense smoke, heat, flames or any other gas (such as carbon monoxide), and should not be covered with a guard or similar obstructing item.

Do not paint over the unit. Paint may clog the openings to the sensing chambers and prevent the unit from operating properly.

This unit must be powered by a 24-hour circuit. Be sure the circuit cannot be turned off by a switch, dimmer, or ground fault circuit interrupter. Failure to connect this unit to a 24-hour circuit may prevent it from providing constant protection.

This gas detector must have DC power or AC adapter connected to operate. If power lost, the detector cannot operate.

Use only with a UL Listed control panel capable of differentiating between alarm signals (fire, burglary, CO, etc.) and providing distinct identification for each.

This Gas detector is not suitable for use in hazardous locations as defined in the National Electrical Code.

⚠ This gas detector may not alert people who are hearing impaired. It is strongly recommended that the special-purpose gas detectors using visual or vibrating alerting devices, should be installed for these occupants.

🔊 Do not stand too close to the unit when the alarm is sounding. It is loud to wake you in an emergency. Exposure to the horn at close range may harm your hearing.

## Features

NB701 is a catalytic type combustible gas detectors monitors the levels of methane or propane gas, and provide accurate warning when hazardous level of gas exists.

It includes two main variants: one for system solution, the other for residential use.

NB701 residential combustible gas detectors is AC adapter enclosed, provides home owners with an easy plug-in solution.

NB701 conventional combustible gas detectors are designed for connection to UL listed Fire/Burglary Alarm Control Panels.

Note: If the detectors are powered by control panel, make sure the panel has enough capacity of the output power (see the specification of the detector.) Do not connect the detectors to Fire Alarm Circuits, or Burglar Alarm Circuits. The Control Panel circuit must be dedicated to gas detection or provides a distinctive alarm signal for gas alarm.

The following Table provides a summary of conditions and indications.

| Condition \ Indicator Status | Sounder | Green LED | Red LED | Pre-condition |
|---|---|---|---|---|
| **Warm up** | Off | Flash <300s | Off | |
| **Normal operating condition** | Off | Steady on | Off | |
| **Alarm** | 1 beep per sec | Off | Steady on | |
| **Test** | 1 beep per sec | Off | Steady on | No alarm |
| **Hush** | Off | Off | Steady on | Alarm |
| **End-of-Life** | 2 beeps /30-60s | Off | 2 Flashes /30-60s | |
| **Trouble** | 1 beep /30-60s | Off | 1 Flash /30-60s | |

### Alarm Signal

When hazardous level of methane or propane gas is detected or the Test/Silence button is pressed, the following indicators will be activated.

- Alarm relay contacts (if there);
- Continuous red indicator; and
- 1 audible beep per second.

**NOTE:** For conventional detectors, the internal sounder provides supplementary alarm signaling. Primary signaling is provided by the control panel to which the detector is connected.

The Alarm condition will automatically reset when methane or propane gas levels fall below the alarm detection threshold.

### Test/Silence Button

A single Test/Silence button, located on the front of the gas alarm, provides both test and silence functions.

**Test:** Pressing the Test/Silence button when the detector is in normal operating condition will initiate the Alarm Signal (see above).

**Silence:** Pressing the Test/Silence button in alarm condition will silence the alarm signal for approximately 2 min. The Test/Silence button should only be used after the source of the gas is known. The Test/Silence feature allows time for the gas to clear. During the Silence time, the red LED will be on. After the Silence time has expired, the detector will return to normal sensitivity. If gas is still present in the unit, the alarm will re-activate. The Silence feature can be used repeatedly.

### End-of-Life Indicator

5 years after the detector is manufactured, the end-of-life signal will be activated indicating that the detector has reached the end of its service life and needs to be replaced. A red light will flash twice and two audible beeps will sound every 30-60 s. At the same time, Trouble Relay will operate to send a trouble signal to the connected system (**only for the conventional detectors**).

Pressing the Test/Silence button will silence the sounder for 48 h. The indicators can be silenced for up to 28 days. The silencing of the sounder also resets the Trouble Relay to the normal condition, and the detector to standby condition. After this 28 d period the detector can no longer be silenced and must be replaced.

### Trouble Signal (when applicable)

The detector undertakes self-diagnostic checks periodically. If an internal failure of the detector is detected, red LED will flash once and an audible beep will sound every 30-60 s. At the same time, Trouble Relay will operate to send a trouble signal to the connected system.

If the trouble signal activates, remove power to the detector, wait a few seconds, then re-apply detector power. If this problem persists, your detector requires repair, contact the monitoring company to investigate the fault condition. If repair is required, return the unit to manufacturer or qualified distributor.

## Specifications

| | | |
|---|---|---|
| Power source | DC 12-28V(w/o Adapter) / AC120V~240V (with Adapter) | |
| Quiescent current | residential | max 43 mA @ DC 12 V<br>max 25 mA @ DC 24 V |
| | conventional | max 73 mA @ DC 12 V<br>max 53 mA @ DC 24 V |
| Alarm current (max) | residential | max 80 mA @ DC 12 V<br>max 60 mA @ DC 24 V |
| | conventional | max 110 mA @ DC 12 V<br>max 90 mA @ DC 24 V |
| Sensing cell | Catalytic bead sensor | |
| Alarm response threshold | <25%LEL | |
| Alarm & Trouble relay outputs | Alarm1: form A (N/O),<br>Alarm2: form A (N/O) or B (N/C) adjustable<br>Trouble (If have): form A (N/O) or B (N/C) adjustable<br>All contacts: 1.0 A @ DC 30 V / 0.5 A @ AC 125 V | |
| Operating temperature | 0 °C ~ +50°C | |
| Operating humidity | 15 % ~ 90 % RH, non-condensing | |
| Alarm sounder output | ≥ 85 dB @ 3 m | |
| Life expectancy | 5 y | |
| Dimensions (diameter × h)) | Φ102mm×40.5mm | |

## Installation Preparation

### Equipment

Before commencing installation, ensure all equipment and tools to mount and test the device are available, such as drills, mounting screws (supplied), cables and ladders.

Use 0.33 mm$^2$ (22 AWG) to 1.3 mm$^2$ (16 AWG) conductors.

### Where to Install

For this gas detector, mount location depends on the type of explosive gas you intend to detect.

**Methane** is typically supplied through a main utility line connected to your home. If you do not live in a rural area you are likely to be a user of methane. Methane is a fossil fuel consisting mainly of Methane. Methane is much lighter than air and will rise rapidly in air. If you are a user of methane, the detector should be mounted between 6 and 12 inches (152mm and 305 mm) away from the ceiling to ensure the earliest opportunity to detect a leak.

**Propane** is typically supplied to homes by delivery truck in liquid form and stored near the home in propane tanks. Propane is used by homes in rural areas that do not have natural gas (methane) service. Since propane is the most commonly used Liquefied Petroleum Gas (LPG), propane and LP-Gas are often used synonymously. Unlike methane, propane is heavier than air and will collect at lower levels. If you are a user of propane, the detector should be mounted near the floor to ensure the earliest opportunity to detect a leak.

Both propane and methane are colorless and odorless. For safety reasons, an odorant (Mercaptan) is added so that any leak can be detected by smell. The common detection threshold for smelling the gases is around 20% of the Lower Explosion Limit (LEL). This can vary greatly depending on the individuals sense of smell and how long they have been exposed to it. The LEL of each of these gases defines the bottom range of flammability for the gas. Your Alarm is calibrated to sound before 25% of the LEL of either gas is detected.

**Therefore, it is possible that you may smell gas before the Alarm is activated. If you are not sure which gas your home uses, contact your utility company.**

### Where *Not* to Install Your Gas Detector

**The detector is NOT intended for use in industrial applications such as refineries, chemical plants, etc.**

**The detector is not recommended to be installed in kitchens or bathrooms - alcohol's, ammonia, cleaning solvents, paint thinner, gasoline vapors, and aerosol propellants (aerosol cans such as hair spray usually contain a combustible gas) may cause nuisance alarms. If the detectors must have to install in kitchens, make sure there is no disturbing gas as above.**

**To avoid causing damage to the unit, to provide optimum protection, and to prevent unnecessary alarms, DO NOT locate this Alarm:**

- In garages, kitchens, crawl spaces and unfinished attics. Avoid extremely dusty, dirty or greasy areas. Installation in these areas could lead to nuisance alarms, may expose the sensor to substances that could damage or contaminate it, or the Alarm may not be heard by persons in other areas of the home, especially if they are sleeping.

- In the kitchen, some gas appliances can emit a short burst of CO or gas upon start-up. This is normal. If your Explosive Gas/CO Alarm is installed too close to these appliances, it may alarm often and become a nuisance.

- Keep units at least 20 feet (6 meters) from the sources of combustion particles (stove, furnace, water heater, space heater) if possible. In areas

where a 20-foot (6m) distance is not possible – in modular, mobile, or smaller homes, for example – it is recommended the Alarm be placed as far from these fuel-burning sources as possible. The placement recommendations are intended to keep these Alarms at a reasonable distance from a fuel-burning source, and thus reduce "unwanted" alarms. Unwanted alarms can occur if an Alarm is placed directly next to a fuel-burning source. Ventilate these areas as much as possible. **If you must install the Alarm near a cooking or heating appliance, install at least 5 feet (1.5 meters) from appliance.**

- In extremely humid areas. This Alarm should be at least 10 feet (3 meters) from a shower, sauna, humidifier, vaporizer, dishwasher, laundry room, utility room, or other source of high humidity.

- In direct sunlight.

- In turbulent air, like near ceiling fans or open windows. Blowing air may prevent CO or gas from reaching the sensors.

- Less than 12 inches (305 mm) away from fluorescent lights. Electrical "noise" can interfere with the sensor.

- In "dead air" spaces. See "Avoiding Dead Air Spaces". Do not install detectors in the following locations.

- In the space, where the temperature below 0 °C or above 50 °C. Using the detector outside of the operating temperature range may adversely affect product performance.

### Avoiding Dead Air Spaces

"Dead air" spaces may prevent gas from reaching the detector. To avoid dead air spaces, follow installation recommendations below.

**On ceilings,** install Alarms as close to the center of the ceiling as possible. If this is not possible, install the Alarm at least 4 inches (102 mm) from the wall or corner.

**For wall mounting,** the top edge of Alarms should be placed between 6 inches (152 mm) and 12 inches (305 mm) from the wall/ceiling line.

**On a peaked, gabled, or cathedral ceiling,** install Alarm within 3 feet (0.9meters) from the peak of the ceiling, measured horizontally.

### Wiring (when applicable)

Install 4 wire conductors (powered by panel), or 2 wire conductors (powered by separated power supply) between the control panel and the selected detector location.

### Power Supply

If the panel has the capacity to power the detectors connected, there is no other power supply needed. If not, there should be a power supply for each detector.

## Installation and Test

Please read the previous section **Installation Preparation**, before commencing installation.

### Installing the Gas Detector

⚠️ **WARNING**: To avoid the electrical shock hazard, turn off power to the area where you plan to install the alarm at the fuse box or circuit breaker box. All wiring must conform to national or local requirements. Where such requirements do not apply, wiring should conform to the National Electric Code (NEC).

Before commencing installation and testing, and to avoid any unwanted alarms, notify any alarm monitoring company that maintenance is being
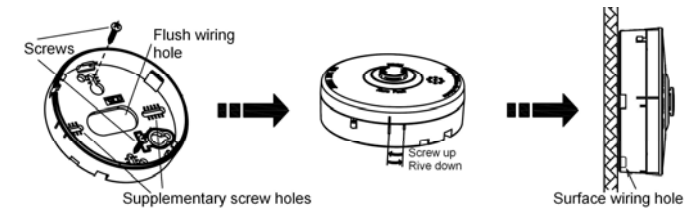
performed and the system will be out of service temporarily. Disable the zone or system to which the detectors will be connected.

1. Choose one of the following mounting methods:

**A. Hanging on the hook and fasten with a lower screw hole**
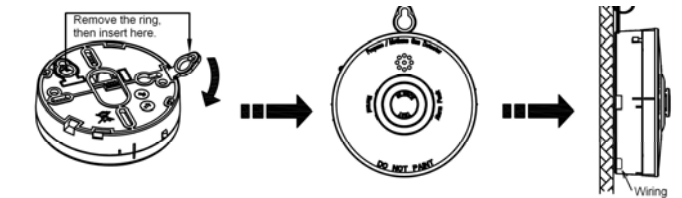


**B. Mount with screws**



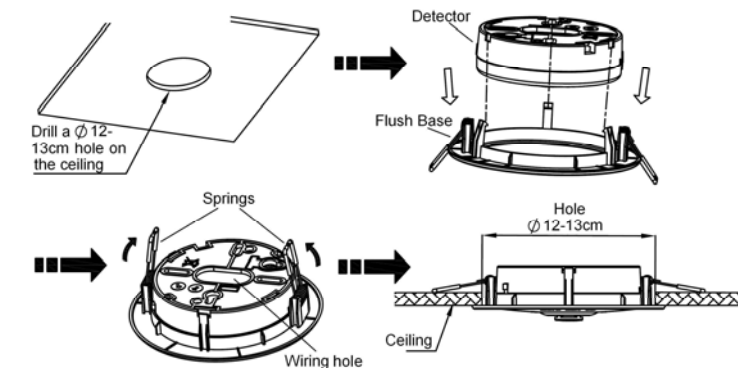**C. Flush mount with optional flush mount base**



Fig.1 Three mounting options

To install the detector, follow the steps below.

2. Carefully remove the base from the detector.

3. Select the wiring type as you need - flush or surface. If surface wiring is used, install the wiring in electrical conduit.

4. Strip the conductor insulation to expose 5 mm (1/4-inch) of the conductor, then pass through the wiring hole (flush or surface).

5. Connect the wiring to the terminals to complete the circuit wiring as shown in Fig. 2 to Fig. 4. Terminal designation are marked on the back label of the detector as Fig.5.
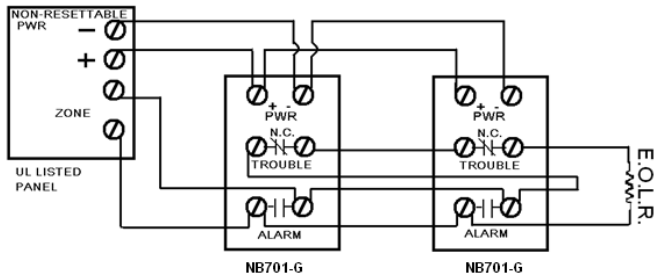
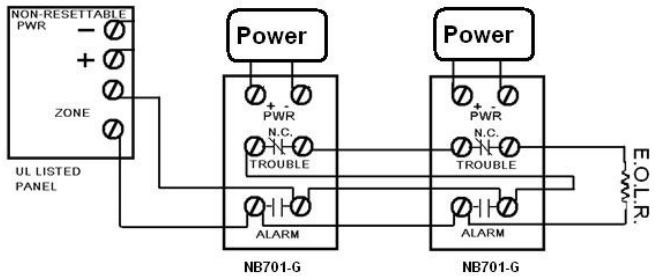**Fig. 2 – Gas Detector and control panel wiring connections for panel powered**



**Fig. 3 – Gas Detector and control panel wiring connections for separated powered**
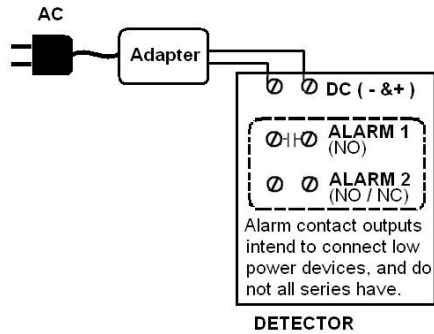


**Fig. 4– Residential Gas Detector wiring connections**

6. Set jumpers as NO or NC as shown in Fig. 5 to be compatible with the requirements of the device connected. NO - If the jumper is set on this position, the contact output is open while detector is not powered. NC - If the jumper is set on this position, the contact output is closed while detector is not powered.

NOTE: There are two separated outputs for Alarm contact - Alarm1 & Alarm2. Alarm1 is N/O contact, and Alarm2 can be adjusted to N/O or N/C by the jumper near the Alarm2 terminal. And there is a separate jumper inside the conventional detector for the Trouble contact (near the Trouble terminal in Fig.5).

NOTE: Trouble relay will be energized continuously after full warm-up of the detector. If the jumper is set on 'NO' position, the contact output is closed when the detector operates normally.

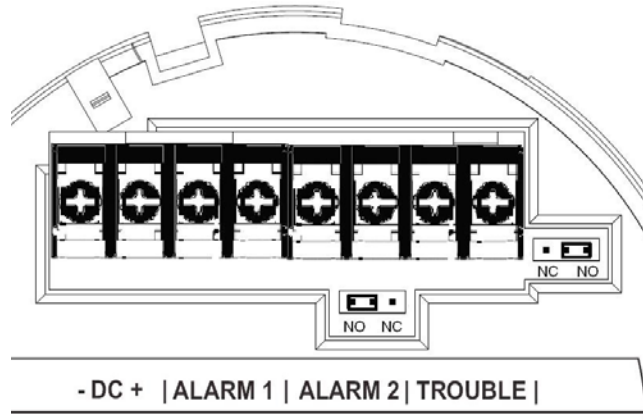NOTE: The Alarm and Trouble contact jumpers are both set on 'NO' position by default.



**Fig. 5 – Terminals and Jumpers**

7. Install the end-of-line resistor (see the control panel manual for requirements). For residential detectors, ignore this step.

8. Cut down the tamper-proof latch, and it should be inserted to the detector as indicated in Fig.6 after installation. It will lock the detector head to the base to prevent unauthorized removal without tool.

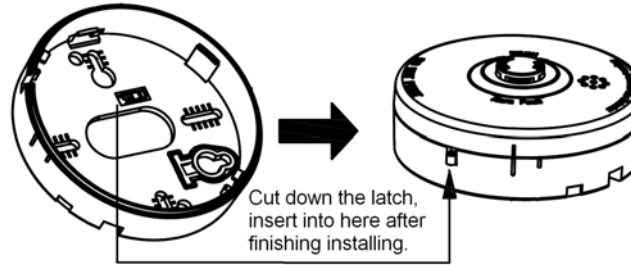9. Install the detector according to the instruction in Fig 1.



Cut down the latch, insert into here after finishing installing.

**Fig. 6 –Tamper-proof latch**

**NOTE:** If surface wiring is used, install the wiring in electrical conduit.

## Test the Gas Detector

After installation, test the detector(s) as follows.

**WARNING**: The gas detector has a loud alarm signal. Use hearing protection when testing the gas detectors.

1. Apply power to the detector and check that LED flashes green every second for approximately 5 minutes, and then be continuously on. When applicable, the Trouble relay will be energized (means normal condition) after green LED finishes flashing.

2. Press and hold the Test/Silence button. Monitor the following.
   a. The LED lights red.
   b. The Alarm relay outputs energizes (if there)
   c. The detector gives 1 beep per second.

3. Release the Test/Silence button and monitor the following.
   a. The Alarm relay outputs de-energizes (if there)
   b. The LED lights green.

If the tests fail or the trouble relay does not operate, replace the detector.

## Normal Operation

Once installed and tested, your gas detector will immediately start monitoring for methane or propane gas, and should provide years of service. The green LED will be on continuously.

### Alarm Condition

⚠ **WARNING: If you hear the alarm horn sound one beep per second, gas has been detected. Evacuate everyone from the building.**

**If the unit alarms and you are not testing the unit, it is warning of a potentially dangerous situation that requires your immediate attention. NEVER ignore any alarm. Ignoring the alarm may result in injury or death.**

**Never disconnect the power to quiet an unwanted alarm. Disconnecting the power disables the Alarm. This will remove your protection.**

### WHAT TO DO IF EXPLOSIVE GAS IS DETECTED

1. Leave the house immediately, open doors and windows as you leave.

2. Do not use your telephone or electrical appliances. Do not turn any light switches off or on. Any spark or flame could ignite the gas.

3. Call 911 and your gas company from a phone that is away from your home.

4. Do not re-enter the area until the source of the leak is found and corrected.

Note: To prevent false alarms, be sure there is adequate ventilation when using household cleaning solutions or similar contaminants.

Note: The detector automatically resets to normal operation when gas dissipates.

### Silence

⚠ **WARNING**: Before using the Silence feature, identify the source of the gas and be certain that safe conditions exist.

If investigation determines the alarm signal is likely caused by a known nuisance source (such as cooking fumes), the Test/Silence button can be pressed to silence the gas detector for 2 min.

## Care and Maintenance

### Weekly Tests

Before commencing test, and to avoid any unwanted alarms, notify any alarm monitoring company that testing is being performed and the system will be temporarily out of service.

**WARNING**: The gas detector has a loud alarm signal. Use hearing protection when testing gas detectors.

1. Press and hold the Test/Silence button. Monitor the following.
   a. The LED lights red.
   b. The Alarm relay outputs energizes (if there)
   c. The detector gives 1 beep per second.

2. Release the Test/Silence button and monitor the following.
   a. The Alarm relay outputs de-energizes (if there)
   b. The LED lights green.

## Annual Maintenance

⚠️ **WARNING**:

DO NOT use spray cleaning chemicals or insect sprays directly or near the alarm. DO NOT paint over the alarm. Doing so may permanently damage the alarm.

The outside can be wiped with a damp cloth. Ensure the sensor opening is free from dust and lint.

Do not use any household cleaning agents, ammonia-based cleaners, paints, varnishes or any other chemical on or near your alarm.

## Service

For service or repair, return the detector intact to the supplier or to Wizmart (see the address at the end of this manual), stating the reason for the return and details of any fault.

## Replacement Information

This product is designed to work reliably for 5 years after the manufacture date, The End-of-Life indicator will activate after approximately 5 years to signal it is time to replace the detector. At that time, contact your local distributor for a replacement.

Detectors should not be disposed of as land-fill. Please dispose in an environmentally friendly manner.

## Models

| SKU | Description | Detect | Approvals |
|---|---|---|---|
| NB701-GR2-AU | 2 alarm relay outputs, 1 trouble relay output, with AC adapter | Methane & Propane | UL 1484, Residential Gas Detector |
| NB701-GR-AU | 2 alarm relay outputs, with AC adapter | Methane & Propane | |
| NB701-G-AU | without replay, with AC adapter | Methane & Propane | |
| NB701-NR2-AU | 2 alarm relay outputs, 1 trouble relay output, with AC adapter | Methane | |
| NB701-NR-AU | 2 alarm relay outputs, with AC adapter | Methane | |
| NB701-N-AU | without replay, with AC adapter | Methane | |
| NB701-GR2-U | 2 alarm relay outputs,1 trouble relay output | Methane & Propane | UL 2075, *Gas and vapor detectors and sensors* |
| NB701-GR-U | 2 alarm relay outputs | Methane & Propane | |
| NB701-G-U | without relay | Methane & Propane | |
| NB701-NR2-U | 2 alarm relay outputs,1 trouble relay output | Methane | |
| NB701-NR-U | 2 alarm relay outputs | Methane | |
| NB701-N-AU | without replay | Methane | |

## Accessory

| SKU | Description |
|---|---|
| NB701-FB | NB701 Flush mount base |

## Limited Warranty

Wizmart Technology Inc. warrants to the original consumer purchaser that the sensor enclosed in this detector will be free from defects in material and workmanship under normal use and service for a period of five (5) years from date of manufacture.

Wizmart Technology Inc. warrants other components of the detector to be free from defects in material and workmanship under normal use and service for a period of one (1) year from date of manufacture.

The manufacturer's liability hereunder is limited to replacement of the product, repair of the product or replacement of the product, at the discretion of the manufacturer. No agent, representative, dealer or employee of Wizmart Technology Inc. has the authority to increase or alter the obligation of this Warranty, which shall be limited to repair or replacement of any part of the detector which is found to be defective in materials or workmanship under normal use and service during the first (1) year from the date of manufactured, except for the sensor, which is warranted for five (5) years from the date of manufacture. During the latter four (4) years of the warranty period, such repair or replacement other than the sensor itself, shall be charged to the customer and shall not exceed the purchase cost.

Wizmart Technology Inc. shall not be obligated to repair or replacement units which are found to be in need of repair because of damage by accident, unreasonable use, neglect, tampering or other causes not arising from defects in material or workmanship.

Units in need of repair should be returned to Wizmart Technology Inc. prepaid to the address shown in this manual.

In no case shall Wizmart Technology Inc. be liable for any consequential or incidental damages for breach of this or other warranty, expressed or implied whatsoever, even if the loss or damage is caused by the negligence or fault of Wizmart Technology Inc. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply. This Warranty gives specific legal rights, and other rights which vary from jurisdiction to jurisdiction.

**IMPORTANT: Do not remove unit back cover. Back cover removal will void warranty.**

View the complete range of products at
www.wizmart.com

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