



SMOKE ALARM MANUAL Ionization Type Models - 120 VAC Hardwire

- **Model ESA5010** - 120 Volt AC Hardwire Smoke Alarm.
- **Model ESA5011** - 120 Volt AC Hardwire with Relay

Important information about your smoke alarm

- Install alarms outside of every bedroom area and on every floor of your home. Please refer to Section 3 “Where to Locate Smoke Alarms” for details.
- Test the alarm weekly by pressing and holding the test button for up to 20 seconds until the alarm sounds.
- The models described in this manual are designed for single family residences, including homes and apartments rather than commercial or industrial use.

Smoke Alarm Safety Features

- **Dual-Ionization Chambers** - Advanced design responds to visible or invisible particles of combustion (smoke) to sense fires in their earliest stages. Compensates for changes in humidity and temperature to virtually eliminate “nuisance” alarms caused by normal atmospheric changes in the home.
- **Operating Light (LED)** - A continuous green light located behind the slotted case indicates the smoke alarm is receiving AC power.
- **Interconnection** - Interconnection facilities for up to 11 other units, using only three wires, including AC power. When one alarm sounds, all properly interconnected smoke alarms follow. NOTE: Interconnect only with the models specified in Section 6.
- **Alarm Sound Indicator** - The red operating light in the unit originating the alarm will flash rapidly in the event of an alarm. With interconnected units, this feature allows for an easy check to determine the originator.
- **Locking Key** - The auxiliary locking key provided can be used to lock the smoke alarm to the mounting plate. This helps to reduce the risk of unauthorized removal.
- **Sensitivity Test Button** - Test sensitivity, as well as circuitry and horn. With interconnected units, activating test button on one unit will cause all properly interconnected units to sound. An important and convenient check of system integrity.
- **Quick Disconnect Power Connector** - For easy installation, connect the wires separately from the unit and then plug into the back of the unit.
- **Detachable Mounting Plate** - For easily securing the alarm to the junction box.
- | MAXIMUM POWER REQUIREMENTS
OPERATING VOLTAGE 120VAC | | | |
|--|--------------|---------|-------|
| Model | Power Supply | Standby | Alarm |
| ESA5010 | 120 VAC | 20mA | 50mA |
| ESA5011 | 120 VAC | 20mA | 70mA |

• Relay Connection

Model ESA5011 only - The ESA5011 smoke alarm provides one Form C, normally open/normally closed contact which is activated on alarm.

Integral relay - The ESA5011 comes complete with voltage free contacts, allowing the unit to be used with a variety of auxiliary equipment. The contacts remain closed for the whole period of the alarm. Once the alarm ends, the contacts open.

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1. CAPABILITIES AND LIMITATIONS OF SMOKE ALARMS

ASI Electronics smoke alarms are designed to provide early warning of fire and smoke at reasonable cost. Early warning can mean the difference between a safe escape and no escape at all. While smoke alarms can provide invaluable protection for you and your family, they do have limitations.

- **Smoke alarms cannot work without power.** Battery operated alarms will not work without proper batteries, with dead batteries or if batteries are not properly installed. AC powered alarms will not work if their AC power supply is cut off by an electrical fire, an open fuse, a circuit breaker or any other reason. If you are concerned about the reliability of either battery or your AC power supply for any of the above reasons, you should install in your home both AC and battery powered smoke alarms for added security. American Sensors also offers the SA379 model which is AC powered with battery back-up.
- **Smoke alarms are incapable of sounding the alarm until smoke reaches the sensing chamber.** Anything preventing smoke from reaching the alarm may delay or prevent an alarm. A smoke alarm cannot detect fire in the walls, chimney or roof unless and until a significant amount of smoke reaches the alarm. A closed door may prevent smoke from reaching an alarm on the other side of the door. A smoke alarm may not sense a fire on another floor of a home. For example, a basement smoke alarm may not detect a fire which started on the first or second floor.
- **Smoke alarms may not be heard.** The loudness of the horn in your alarm meets current standards. However, the sound may be blocked by distance, closed doors, or ambient noise such as traffic or a stereo. Smoke alarms may not be heard by persons who are hard of hearing. For these reasons, a smoke alarm should be installed in every room or at least on every level of your home. American Sensors recommends that hardwire AC Powered smoke alarms be interconnected, so that one alarm will trigger all other alarms to sound their alarms.
- **Smoke alarms are not fool-proof.** Smoke alarms may not always sense every kind of fire. They cannot be expected to sense fires caused by carelessness or by safety hazards. They may not give early warning of fast growing fires caused by smoking in bed,

violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits, natural causes such as lightning, children playing with matches, or arson.

- **Smoke alarms are not substitutes for property, disability, life or other insurance of any kind.** Home owners and renters should continue to insure their lives and property. Consult your insurance agent.
- **Smoke alarms have limited lives.** One or more of the many components could fail at any time. Therefore, test your smoke alarm weekly. Clean and take care of it as described in this manual. Repair or replace the smoke alarm when it fails to test properly. **Your smoke alarm should be replaced if it is ten years old.**



There are two different types of smoke alarm technology currently in general use: Ionization and photoelectronic. While both types of technology are suitable for general residential use, an ionization alarm will normally respond faster to fast flaming fires, while a photoelectronic alarm may be more sensitive to detecting slow smoldering fires. Because home fires develop in different ways and are often unpredictable in their growth, it is impossible to predict which type of alarm will provide the earliest warning. For best home protection install at least one photoelectronic and one ionization smoke alarm on each level of your home. Models ESA5010 and ESA5011 are ionization type smoke alarms.

A photoelectronic smoke alarm senses smoke using an electronic photo receptor to sense the scattering of light by smoke particles.

2. SAFETY TIPS

Properly installed and maintained smoke alarms are an essential part of a good home fire safety program. **Your fire safety program should also include a review of fire hazards and the elimination of dangerous conditions** whenever possible. Consider the following tips:

- Use smoking materials properly. Never smoke in bed.
- Keep matches and cigarette lighters away from children.
- Store flammable materials in proper containers. Never use them near an open flame or sparks.
- Keep electrical appliances in good condition. Do not overload electrical circuits.
- Keep stoves, fireplaces, chimneys, and barbecue grills grease free. Make sure they are properly installed and away from any combustible materials.
- Keep portable heaters and open flames such as candles away from combustible material.
- Do not allow rubbish to accumulate.
- Keep a supply of extra batteries on hand for your battery powered smoke alarms.
- Do not stand too close to the alarm when the unit is in alarm as the loud horn could damage your hearing.

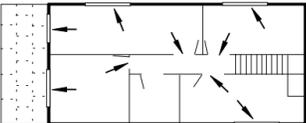
WARNING Never disconnect the battery or the AC power on any type of smoke alarm to silence a nuisance alarm. Clear the area of smoke by opening doors and windows or fanning the smoke away.

Most important, when fire strikes, a prepared and practiced escape plan can make the difference between life and death. Develop an escape plan and practice it with the entire family, including small children.

- Ensure all family members are familiarized with the alarm signal.
- Prepare an escape plan. Draw a Floor Plan of Your Home and determine two exits from each room. There should be a way to get out of each bedroom without opening the door.
- Have Fire Drills Often. Practice your Escape and BE PREPARED.
- Decide on a meeting place at a safe distance from your home.

IN CASE OF FIRE

- Don't waste time collecting possessions after a fire starts.
- Arouse all occupants and leave the building. Your most valuable possession is your life.
- Doors can mean escape or death. Never open doors without first checking for heat. Test them with your hands, if they feel warm, fire may be walled up behind them - leave closed and find another escape route.
- Call the fire department from OUTSIDE the building.
- If trapped inside, stay close to the floor, cover mouth with cloth, conserve breath as you crawl to safety.
- Keep all doors and windows closed except for escape purposes.
- NEVER re-enter a burning building.
- Keep your family in a pre-arranged meeting place after your



escape. Your local fire department may be able to offer you additional ideas for safety and escape plans in the home.

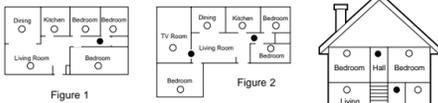
3a. WHERE TO LOCATE SMOKE ALARMS

- As a **minimum**, smoke alarms should be located between sleeping areas and potential sources of fire such as a kitchen, heated garage or basement. In single storey homes with one sleeping area, an alarm should be installed in the hallway outside the bedrooms (see Figure 1). In single storey homes with two separate sleeping areas, a minimum of two alarms are required, one outside each sleeping area (see Figure 2). In multi-level or split-level homes, as a minimum, an alarm should be installed outside each sleeping area, in the basement and at every level of the home (see Figure 3).
- In every room of your home (except the bathroom): Research indicates that substantial increases in warning time can be obtained with each properly installed, additional alarm.
 - In bedrooms: In anticipation of fires originating within these rooms, caused by faulty wiring, lamps, appliances, smoking or other hazards.
 - In hallways: At a distance no greater than 13 feet (4 meters)

from the farthest wall and no greater than 26 feet (8 meters) from the next alarm.

- In the center of a room or hallway: As it is impossible to predict the source of a fire. If it is necessary to place the alarm on a wall, always locate the top of the smoke alarm 4-6 inches (10-15 cm) from the ceiling.
- As needed: To compensate for closed doors and other obstacles that may interfere with the path of smoke to an alarm. They may also prevent occupants on one side of a closed door from hearing an alarm on the other side of the door.
- Models ESA5010 and ESA5011 - Hardwire models can be located in any area of the home.

READ “CAPABILITIES AND LIMITATIONS OF SMOKE ALARMS” in Section 1 of this manual. Your local fire department or insurance



These diagrams show smoke alarm locations as recommended above in 3a.

company may be able to give you further advice on the best smoke alarm locations in your home. Call them and ask.

3b. WHERE TO LOCATE SMOKE ALARMS IN MOBILE HOMES.

NOTE: Power supply must be 120 Volts AC for models ESA5010 and ESA5011. In mobile homes built after 1978 locate the smoke alarm as described above.

Older mobile homes may have little or no insulation compared to the ones built post 1978. These uninsulated exteriors can disrupt airflow around the smoke alarm in hotter or colder weather. **Locate the alarm only on interior walls 4” to 6” (10 to 15 cm) from ceiling 1.** if you own an older mobile home, or 2. if you notice the exterior walls and/or ceiling are noticeably cold or warm or 3. if you are uncertain about the quality of insulation.

Regardless of the age of the mobile home, locate alarms throughout to ensure maximum protection. Follow the location instructions in this manual.

4. NFPA RECOMMENDATIONS

For your information, the National Fire Protection Association's Standard 72, Section 2-2.1.1.1 & A-2.5.2.1, reads as follows:

2-2.1.1.1 Smoke alarms shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms and on each additional storey of the family living unit, including basements and excluding crawl spaces and unfinished attics. In new construction a smoke alarm also shall be installed in each sleeping room.

A-2.5.2.1 Smoke detection - Are more smoke detectors desirable? The required number of smoke alarms might not provide reliable early warning protection for those areas separated by a door from the areas protected by the required smoke alarms. For this reason, it is recommended that the householder consider the use of additional smoke alarms for those areas for increased protection. The additional areas include the basement, bedrooms, dining room, furnace room, utility room, and hallways not protected by the required smoke alarms. The installation of smoke alarms in kitchens, attics (finished or unfinished), or garages is not normally recommended, as these locations occasionally experience conditions that can result in improper operation.

5. LOCATIONS TO AVOID

Avoid locations where smoke may not reach the alarm in time to provide early warning, or where the alarm may not be effective. DO NOT PLACE SMOKE ALARMS:

- **In turbulent air** from fans, doors, windows, etc. The rapid air movement may prevent combustion particles from entering the alarm.
- **In dead air spaces** such as at the peak of an “A” frame ceiling. “Dead air” at the top may prevent smoke from reaching the alarm in time to provide early warning. In rooms with simple sloped, peaked or gabled ceilings, install smoke alarms on the ceiling 3 feet (90 cm) from the highest point of the ceiling. Note: For complex ceiling structures, consult a safety expert for the number of alarms required and the best locations.
- **In very hot or cold areas** where the temperature exceeds 100°F (38°C) or falls below 40°F (5°C).
- Less than 6 inches (15 cm) from the wall when mounted on the ceiling.

WARNING Nuisance alarms could result when smoke alarms are located where interference may occur with the sensing chamber. **To avoid nuisance alarms, DO NOT place smoke alarms:**

- **In high humidity areas** such as bathrooms and attics. Place smoke alarms at least 10 feet (3 meters) away from bathrooms.
- **In insect-infested areas.**
- **In poorly ventilated kitchens or garages.**
- **In very dusty and dirty areas.**
- **Near fluorescent lights.** Place smoke alarms at least 5 feet (1.5 meters) from fluorescent lights.

This smoke alarm is suitable for residential use. It is not to be connected to a commercial or industrial fire alarm panel.

6. INSTALLATION AND TESTING

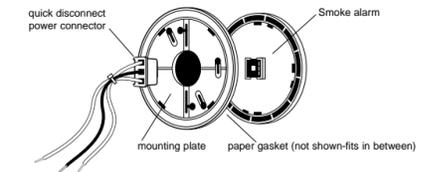
Note: This equipment should be installed in accordance with the National Fire Protection Association Standard 72. (National Fire Protection Association, Batterymarch Park, Quincy, MA 02269).

This model has an optional Locking Key to better secure the alarm to inhibit unauthorized removal. If securing the alarm is a concern, remove and save the “Locking Key” from the back plate with needle nosed pliers before installing the alarm. See point 12 in this section for more details on this feature.

A. Installation

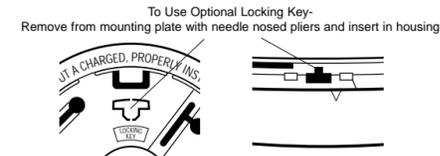
Mount to any standard or rectangular junction box with a minimum depth of 1 inch (2.5 cm). Model ESA5010- 120 VAC, 60Hz, 50mA operation Model ESA5011- 120 VAC, 60Hz, 70mA operation **WARNING:** Wiring should only be installed by a licensed electrician in accordance with the National Electrical Code and local codes. **WARNING:** The circuit used to power the smoke alarm must be a

24 hour voltage circuit that cannot be turned off by a switch or a ground fault interrupter. It is highly recommended that smoke alarms be wired on a separate circuit (one with no other lights or appliances) to ensure maximum reliability of AC power supply. For

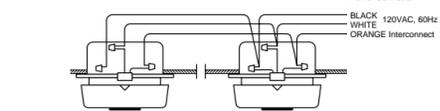
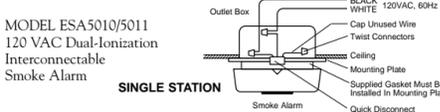


installation of smoke alarms in Dwelling Units, it is important to follow the National Electrical Code and local codes.

1. Electricity must be turned off at service entrance before beginning installation to prevent electrical shock or equipment damage.
2. Location must comply with applicable building codes.
3. Install a junction box where you plan to install the alarm. Use standard 14 gauge wire.
4. Connect black and white wires color to color from power connector to AC power leads.
5. For multiple station application use the orange wire to interconnect. If unit is not to be interconnected, cap unused wire. NOTE: The ESA5010 and ESA5011 are interconnectable with up to 11 other units.
6. Loosen or remove screws from junction box.
7. Attach flat side of mounting plate and tighten screws to fit snugly against the junction box and ceiling or wall.
8. Bring power connector through center opening.

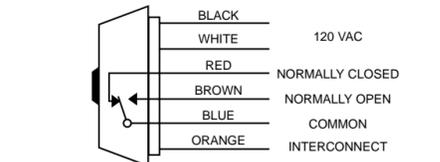


9. Slip the paper gasket supplied with the alarm over the power connector and then onto the mounting plate so that the four plastic tabs on the mounting plate will hold the gasket in place.



MULTIPLE STATION RELAY CONNECTION- Model ESA5011 only

The gasket will prevent downward air currents from entering the smoke alarm through holes in the back of the alarm unless blocked off downward air currents could prevent smoke from entering the alarm. **WARNING: IT IS IMPERATIVE THAT**



YOU INSERT THE GASKET WHEN INSTALLING YOUR SMOKE ALARM.

10. Align the plug area on the smoke alarm with the cut-out in the gasket and place the smoke alarm on the mounting plate, turn clockwise to fasten it to the mounting plate.
11. Plug wire connector into the back of the alarm.
12. If auxiliary lock is desired, insert the Locking Key into the slot in the base of the alarm. Locking Key should “click” into position and be flush with the alarm housing. CAUTION: Do not attempt to remove alarm without first removing the Locking Key. If the key is not first removed, damage may result. To remove use a screwdriver and gently pry the Locking Key loose.

13. Test alarm operation after installation in accordance with “Operation: How to Test” instructions. Model ESA5011 provides one form C (NO/NC) contact which activates on alarm. Contact rating (resistive): 10 A at 120 VAC/ 10A at 28 VDC. Relay wires (red/brown/blue) 14 gauge stranded copper. Install in accordance with National Electrical code and local building codes. Note: Maximum interconnect wiring length is 150 feet (50 meters).

IMPORTANT: The ESA5010/5011 is not interconnectable with any other model produced by another manufacturer. The ESA5010/5011 may be interconnected only with the following Underwriters Laboratories Inc. Listed smoke alarm models:

American Sensors	SA379
American Sensors	SA360
ASI Electronics	ESA5010
ASI Electronics	ESA5011
Dicon Safety Products Inc.	670L
Dicon Safety Products Inc.	670LR
Dicon Safety Products Inc.	370LXB

B. Operation: How To Test Testing After Installation

1. **Smoke Test** - Hold a piece of cotton string with pliers. Leave about 2 inches (5 cm) of string dangling from the pliers. Burn the tip of the string with a safety match, extinguish flame and hold smoking string 6 inches (15 cm) below and to one side of the smoke alarm. Blow smoke towards the smoke alarm until the horn sounds. The horn will sound until the sensing chamber is clear of smoke. Repeat this monthly.
2. Check to see that the green “POWER ON” light is on. The “POWER ON” light is visible behind the slotted case and

confirms that the smoke alarm is receiving AC power.

3. Press and hold the test button until the alarm sounds. NOTE: It may be necessary to press the test button for up to 20 seconds for an alarm to sound. An alarm is indicated by 3 load beeps repeating every 5 seconds. Alarm may continue to sound for up to 10 seconds after button is released. (NOTE: Model ESA5011: Pressing the test button activates the relay.)
4. At least once a week, press the test button and hold until the alarm sounds, then release. NOTE: Multiple Station Only:
5. Test each alarm separately in the system.
6. Determine that the initiating alarm triggers other alarms in the system.
7. Model ESA5011: Pressing the test button activates the relay.

WARNING Test smoke alarm operation after vehicle has been in storage, before each trip, and at least once per week during use.

7. MAINTENANCE & TROUBLESHOOTING

TEST THE ALARM WEEKLY. VACUUM EVERY SIX MONTHS. Your smoke alarm should be cleaned every six months to help keep the unit working efficiently. REMOVE POWER TO ALARM. Gently vacuum through the vents of the alarm with a soft brush attachment. Keep vacuum nozzle from touching the unit. RE-ESTABLISH POWER TO ALARM. Problems may be indicated by the following:

1. The alarm does not sound upon pressing the test button.
2. The alarm does not sound with the smoke test.
3. The green operating light does not remain steadily on when unit is AC powered.
4. The red operating light remains steadily on or off. (i.e. does not flash once every 45 seconds, when the unit is not in alarm).

TRY THE FOLLOWING:

1. Inspect breaker or fuse in power circuit to alarm.
2. Gently vacuum as recommended above.
3. Call an electrician to inspect house wiring and connection to alarms. If these procedures do not correct the problem, do NOT attempt repairs. If the smoke alarm is within warranty period and terms, indicate the nature of the problem and return the unit with proof of purchase to the point of purchase, distributor or manufacturer. See below for instructions. Units beyond warranty cannot be economically repaired.

FALSE ALARMS: Abnormal air conditions may cause the highly sensitive smoke alarm to give a “false” alarm. If no fire is apparent, ventilate the room and/or blow fresh air into the unit until the alarm stops. Once cleared, the smoke alarm will automatically reset.

DO NOT DISCONNECT THE AC POWER SUPPLY. Dust can lead to excess sensitivity. Vacuum as recommended above.

8. LIMITED WARRANTY

Your American Sensors smoke alarm is warranted for ten years from the date of purchase against defect in material and workmanship. Units returned to Dicon Global Inc. with proof of purchase date during this period as a result of such defects will be repaired, or replaced at Dicon Global Inc.'s option. This warranty only covers defects in material or workmanship in normal residential use. This warranty does not cover damage resulting from negligent handling, misuse, or lack of reasonable care. This warranty is in lieu of any other warranty either expressed or implied.

dICON gLOBAL INC. SHALL HAVE NO LIABILITY FOR ANY PERSONAL INJURY OR PROPERTY DAMAGE, OR ANY SPECIAL INCIDENTAL, CONTINGENT OR CONSEQUENTIAL DAMAGE OF ANY KIND RESULTING FROM A FIRE. THE EXCLUSIVE REMEDY FOR BREACH OF THE LIMITED WARRANTY CONTAINED HEREIN IS THE REPAIR OR REPLACEMENT OF THE DEFECTIVE PRODUCT AT DICON GLOBAL INC.'S OPTION. IN NO CASE SHALL DICON GLOBAL INC.'S LIABILITY UNDER ANY OTHER REMEDY PRESCRIBED BY LAW EXCEED THE PURCHASE PRICE. YOUR SMOKE ALARM IS NOT A SUBSTITUTE FOR PROPERTY, DISABILITY, LIFE OR OTHER INSURANCE OF ANY KIND. APPROPRIATE COVERAGE IS YOUR RESPONSIBILITY. CONSULT YOUR INSURANCE AGENT.

This warranty gives you specific legal rights and you may have other rights which may vary from state to state.

Units may be returned to point of purchase according to retailers exchange / return policy. Or call 1-800-387-4219, for shipping instructions and a returned goods authorization number “RGA” number, to return to Dicon Global Inc. Returned goods must be shipped prepaid. A cheque for \$5.00 is also required for return postage. Please mark the “RGA” number on the exterior of your package. Date code located on back of smoke alarm.

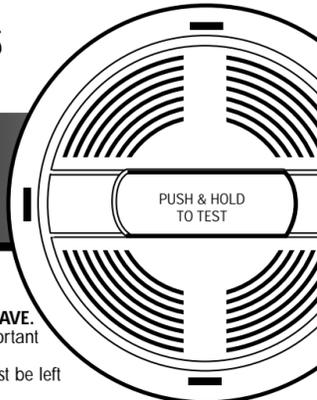
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120 VAC-IONIZATION Smoke Alarms

MODELS

- **ESA5010-**
120 VAC
- **ESA5011-**
120 VAC with Relay



Owner's Manual

READ CAREFULLY AND SAVE. This manual contains important information. A copy of this manual must be left with the end user.