



STATE OF CONNECTICUT
BOARD OF TRUSTEES
FOR THE STATE COLLEGES

P. O. Box 2008 NEW BRITAIN, CONNECTICUT 06050
TEL. NEW BRITAIN: 203-229-1607 TEL. HARTFORD: 203-566-7373

*Recorded
see 90-99*

RESOLUTION

concerning

INSTALLATION OF SMOKE DETECTORS

November 5, 1982

- BE IT
RESOLVED, That it is the intent of the Trustees to have individual smoke alarms in the bedrooms of on-campus student residences and that such smoke alarms be permanently wired into the buildings' electrical systems, and, further, that it is their intent to make required corridor and common area installations in said residences, and be it
- RESOLVED, That, pending the wiring of smoke alarms to the buildings' electrical systems, battery powered smoke alarms may be used, and be it
- RESOLVED, That the funds for this purpose shall be taken from the Housing Budget of the Auxiliary Services accounts of each College, major projects to continue to be financed as repair and renovations projects from the Central Office Auxiliary Services Account or from available bond authorizations, and be it
- RESOLVED, That the Executive Director and the College Presidents are hereby directed to continue to pursue this matter with the utmost diligence.

A Certified True Copy:

James A. Frost
James A. Frost
Executive Director

Interdepartment Message

TO-201 REV. 5/80 STATE OF CONNECTICUT
(Stock No. 6938-051-01)

SAVE TIME: *Handwritten messages are acceptable.*
Use carbon if you really need a copy. If typewritten, ignore faint lines.

<i>To</i>	NAME <i>Antoinette Bascetta</i>	TITLE	DATE <i>10/26/82</i>
	AGENCY <i>BOT</i>	ADDRESS	
<i>From</i>	NAME <i>William H. McDonald</i>	TITLE	TELEPHONE
	AGENCY <i>CCSC Police Dept.</i>	ADDRESS	
SUBJECT			

Following your efforts and subsequently those of Mr. Richard Tedder, BHE, Public Act 81-381 which required the installation of smoke detectors in all dormitory sleeping rooms in confusing and contradicting language has been replaced by PA 82-344, which carries basically the same requirements, allows each college sufficient flexibility to design a system and select equipment that will best satisfy the individual needs of each college.

The law specifically requires -

- 1. That an alarm capable of detecting visible and invisible smoke be installed in each sleeping room.*
- 2. That the alarm be capable of providing level 4 protection, a standard set by the National Fire Protection Association and available in all detectors sold commercially. The alarm must be capable of warning the occupants of the room.*
- 3. Literature must be available to all building residents that explains the operational limitations of the equipment, operating and testing procedures, maintenance and replacement procedures and installation instructions.*
- 4. The manner and location of installation of the smoke detectors must be approved by the state fire marshal.*
- 5. The law does not require, but strongly implies, the need for a regular inspection and maintenance program. Regular maintenance would be necessary from the liability perspective.*

★ Improve Job Performance through Suggestions? Please call 566-5669. Thank you. ★
Send your suggestion to: *Employees' Suggestion Awards Program, 165 Capitol Ave., Hartford, 06115.*

Interdepartment Message

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SUBJECT

In order to satisfy the requirements of the law, 3 separate systems are available.

#1 Battery Powered

The requirements of the law will be satisfied by installing battery powered smoke detectors in each individual sleeping room. These units are easy to install as they require no wiring. Accordingly, they are designed to alert only the occupants of the sleeping area and are not tied into a Central alarm system.

These units are relatively inexpensive. The purchase of 2000, enough to meet the needs of our existing sleeping rooms, would cost \$21,000. \$(10.50 per unit, Industrial Safety, Inc. 10/25/82). Costs per unit have been decreasing with improved production techniques. Batteries when purchased in quantity, will cost \$.60 - \$.70 per unit. Thus an additional cost of about \$1,200.00 - \$1,400.00 would be necessary annually for the replacement of batteries.

A non-technician can complete the installation process in about 30 minutes. It is anticipated that installation would be possible without additional costs. Initial costs for equipment would be about \$22,500.

Some concerns about vandalism have been expressed. The units are easily opened, exposing the interior workings and the battery. Because they are useable in radios and tape recorders, the batteries are susceptible to theft. Locking protective coverings are available to prevent this problem. However, at about \$15.00 per unit (Ibid) total costs will increase \$30,000 to \$52,000. Installation time would also double to 1+ hours and would require a technician.

Southern has had battery powered units in the apartments of Swartz Hall since September, 1980. They have not used the protective coverings, but a

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SUBJECT

system of student awarness and regular inspection they report almost no vandalism to their units.

Kent State has used the same system for at least 5 years and has reported little or no vandalism.

An identical system is being used in some locations at U. of Mass with similar results.

#2 Individual Units Wired Into The Electrical System

In this system individual smoke detectors, identical to the battery powered units, permanently wired into the 110 volt building electrical system, would be used. The vandalism and battery replacement problem would be eliminated. The alarms would function to alert the occupants of the room only and would not be wired into the central alarm system.

Costs per unit will be about the same as for battery powered units, \$21,000 (Industrial Safety, 10/25/82). The equipment would be wired from a ceiling installation point to the nearest electrical outlet. Additional wire and wire molding would be required. The amount of additional materials required, and accordingly the cost, would vary with building design. At Central an average additional cost of \$8.00 per unit would be incurred. (Director, Plant Maintenance 10/25/82) Applied, system wide, this estimate would add an additional \$16,000 to total costs.

All units would have to be installed by a certified electrician. Specific installation time will vary from building to building. A 2 man hour installation per unit has been suggested. (Mr. Stevens, ECSC, Mr. Stevens, CCSC, 10/25/82). Using this figure, 4,000 man hours would be required to complete the project through the system. Labor costs for a public works project using this minimum usggested figure would be about \$60,000 at \$15.00 per man hour. (Public Works, 10/25/82).

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Thus total suggested costs for this system using an outside contractor would be about \$97,000. Using inhouse electricians during normal working hours would reduce costs to \$37,000.

This system is being utilized at Eastern. Their project is about 80% completed. Mr. Stevens, the Director of Plant Maintenance is reviewing his costs for comparison with these estimates. His figures will be available in the next few days.

#3 Hard Wired, Centrally Alarmed Smoke Detectors

This system employs smoke detectors that are permanently wired to the building electrical system and to the Central fire alarm system. Thus when an alarm is activated in an individual sleeping room, it automatically activates the entire building alarm and alarms at the local fire department. This system presupposes that each college has a centralized fire alarm system. Unfortunately, this is not yet the case.

Universities who have employed this system have reported substantial problems with maintenance and false alarms. Installation costs are high. U of N.H. estimated \$15,000 per 150 room residence hall in 1979. Furthermore, the Conn. State Fire Marshall has expressed an opinion that this type of system in dormitory dormitory sleeping rooms creates a false alarm hazard. He would prefer another system.

The installation of these units in hallways and common areas of residence halls, while not required by the public act, is suggested by the National Fire Protection Association. Eastern has nearly completed the installation of this supplemental system.

We have not determined specific cost estimates because of the Central fire alarm problems.

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There is a second regulation which we must consider in implementing a smoke detection system in the residence halls. The Conn. Fire Safety Code section 11-2332 requires that all hotels install a corridor smoke detection system connected to the central alarm system of the building. According to the State Fire Marshal's Office our residence halls are considered dormitories. We must, therefore, plan to install individual sleeping room alarms and hard wired centrally alarmed smoke detectors in corridors and common areas. This is the system currently in use at Eastern, presently being installed at Yale and in the planning stages at U of Conn.

Current standards recommend that a single alarm be installed every thirty feet. A very rough estimate of costs, based on Easterns experience, places the cost of each individual alarm at \$35.00 plus a \$50 - \$75 unit installation cost. (figure includes labor cost). In order to determine the total estimated costs to the colleges a study would have to be done of each individual residence hall, as many variables come into play.

It is possible that a wavier of the corridor requirements can be obtained from the State Fire Marshal's Office for individual buildings based on their design and the local college's fire safety program. However, in lieu of a wavier I would suggest that we initiate a 2 phase program, (a) an immediate program to have individual sleeping room alarms installed (b) a more comprehensive program for the corridor system, coordinated with central fire alarm system projects currently underway. I believe that the second phase would require funding for an engineering study.

29-40
Auto { P.A. 82-432

Dead ends
35 AT

CONNECTICUT FIRE SAFETY CODE

11-2.3.1.2* Any required exit stair which is so located that it is necessary to pass through the lobby or other open space to reach the outside of the building shall be continuously enclosed down to the lobby level.

11-2.3.1.3 No floor below the level of exit discharge, used for only storage, heating equipment, or other purposes other than hotel occupancy open to guests or the public, shall have unprotected openings to floors used for hotel purposes.

11-2.3.2 Interior Finish.

11-2.3.2.1 Interior finish, in accordance with Section 6-2 and subject to the limitations and modifications therein specified, shall be as follows:

For new or existing construction for ceilings and walls,

- (a) Exits (see 5-1.2.1(b)—Class A or Class B.
Exception: Where wood construction is allowed for stairs and floors, wood flooring over 1/2-inch thick may be permitted.
- (b) Exit access (see 5-1.2.1(a)—Class A or Class B.
Exception: Where wood construction is allowed for stairs and floors, wood flooring over 1/2-inch thick may be permitted.
- (c) Lobbies, corridors that are not exit access—Class A or B.
Exception: In existing buildings interior finish may be Class A, B, or C.
- (d) Places of assembly (see 8-3.2).
- (e) Individual guest rooms and other rooms—Class A, B, or C.
- (f) Requirements for floors (see Section 6-2).

11-2.3.3 Detection, Alarm and Communication Systems.

11-2.3.3.1 An alarm system, in accordance with 6-3, shall be provided for any hotel having accommodations for 15 or more guests.

Exception: Where each guest room has a direct exit to the outside of the building and the building is 3 or less stories in height.

11-2.3.3.2 Every sounding device shall be of such character and so located as to alert all occupants of the building or section thereof endangered by fire.

11-2.3.3.3 New and existing buildings shall have a corridor smoke detection system (6-3.8) connected to the alarm initiation system.

Exception No. 1: Where each guest room has direct exit to the outside of the building and the building is not over 3 stories in height.

Exception No. 2: Buildings with complete automatic sprinkler protection.

11-2.3.3.4 A manual fire alarm station shall be provided at the hotel desk or other convenient central control point under continuous supervision of responsible employees. Additional manual alarms (as specified in 6-3.6) may be waived where there are other effective means (such as complete automatic sprinkler or automatic fire detection systems) for notification of fire as required in 11-2.3.3.2.

halls wired in central system

Hotel

- ① 30 FT - Tuffy suggestion
- ② One in every room (batteries okay)
- ③ Heat detector in Kitchen Unit

Senate Bill No. 563

PUBLIC ACT NO. 82-344

AN ACT CONCERNING THE INSTALLATION OF SMOKE DETECTION DEVICES IN DORMITORIES AND PERMITS FOR INDOOR USE OF PYROTECHNICS FOR SPECIAL EFFECTS.

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Section 1. Section 29-40 of the general statutes, as amended by section 1 of public act 81-381, is repealed and the following is substituted in lieu thereof:

(a) The state fire marshal shall adopt, promulgate and administer a fire safety code and at any time may amend the same. The regulations in said code shall provide for reasonable safety from fire, smoke and panic therefrom, in all buildings and areas adjacent thereto except in private dwellings occupied by one or two families and upon all premises except those used for manufacturing, and shall include provision for smoke detection and warning equipment in residential buildings designed to be occupied by two or more families for which a building permit is issued on or after October 1, 1976, AND in new residential buildings designed to be occupied by one or more families for which a building permit for new occupancy is issued on or after October 1, 1978, [and in student dormitories at all colleges and universities not later than September 1, 1982, within the amounts appropriated for such purpose,] to provide Level Four Protection, as defined in the 1974 edition of Standard Number Seventy-four of the National Fire Protection Association. Said regulations shall provide the requirements for markings and literature which shall accompany such equipment sufficient to inform the occupants and owners of such buildings of the purpose, protective limitations and correct installation, operating, testing, maintenance and replacement procedures and servicing instructions for such equipment and shall require that smoke detection and warning equipment which is installed in such residential buildings shall be capable of sensing visible or invisible smoke particles, that the manner and location of installing smoke detectors shall be approved by the local fire marshal or building official, that such installation shall not exceed the standards under which such equipment was tested and approved and that such equipment, when activated, shall provide an alarm suitable to warn the occupants.

Senate Bill No. 563

(b) No certificate of occupancy shall be issued for any residential building designed to be occupied by two or more families for which a building permit is issued on or after October 1, 1976, or any new residential building designed to be occupied by one or more families for which a building permit for new occupancy is issued on or after October 1, 1978, unless the local fire marshal or building official has certified that said building is equipped with smoke detection and warning equipment complying with the fire safety code.

(c) Detailed plans and specifications of structures subject to the state fire safety code may be submitted to the state fire marshal for review and a determination concerning compliance with the state fire safety code. The state fire marshal shall develop a schedule of fees for reviewing such plans and specifications, which schedule shall provide for fees payable to the state treasurer in amounts of not less than ten dollars nor more than one hundred dollars, depending upon the complexity of the review.

Sec. 2. Section 29-97 of the general statutes is repealed and the following is substituted in lieu thereof:

Except as hereinafter provided, no person, firm or corporation shall offer for sale, expose for sale, sell at retail or use or explode or keep with intent to sell, use or explode any fireworks, provided the state fire marshal may adopt reasonable regulations for the granting of permits for supervised displays of fireworks OR FOR THE INDOOR USE OF PYROTECHNICS FOR SPECIAL EFFECTS by municipalities, fair associations, amusement parks [and] other organizations or groups of individuals OR ARTISANS IN PURSUIT OF THEIR TRADE upon application to said state fire marshal and after approval of the chiefs of the police and fire departments, or, if there is no police or fire department, of the first selectman, of the municipality wherein the display is to be held as is provided in this section, and the filing of a bond by the applicant as provided in section 29-98. No such display shall be handled or fired by any person until such person has been granted a certificate of competency by the state fire marshal, in respect to which a fee of twenty-five dollars shall be payable to the state treasurer when issued and which may be renewed every three years upon payment of a fee of ten dollars to the

Senate Bill No. 563

state treasurer, provided such certificate may be revoked by said marshal at any time for cause. Such certificate of competency shall attest to the fact that such operator is competent to fire a display. Such display shall be of such a character and so located, discharged or fired as in the opinion of the chief of the fire department or such selectman, after proper inspection, will not be hazardous to property or endanger any person or persons. In an aerial bomb, no salute, report or maroon may be used that is composed of a formula of chlorate of potash, sulphur, black needle antimony and dark aluminum. Formulas that may be used in a salute, report or maroon are as follows: (1) Perchlorate of potash, black needle antimony and dark aluminum and (2) perchlorate of potash, dark aluminum and sulphur. No high explosive such as dynamite, fulminate of mercury or other stimulator for detonating shall be used in any aerial bomb or other pyrotechnics. Application for permits shall be made in writing at least fifteen days prior to the date of display, on such notice as the state fire marshal by regulation prescribes, on forms furnished by him, and a fee of twenty-five dollars shall be payable to the state treasurer with each such application. After such permit has been granted, sales, possession, use and distribution of fireworks for such display shall be lawful for that purpose only. No permit granted hereunder shall be transferable.

Sec. 3. This act shall take effect from its passage.

Certified as correct by

Legislative Commissioner.

Clerk of the Senate.

Clerk of the House.

Approved June 4, _____, 1982

Governor.

● ANOTHER FIRST from the leader in home alarms!

BRK's new 79R is the first smoke detector UL listed for use with a carbon zinc battery. It has an improved dual chamber ionization sensor, a new solid-state electronic horn and a flashing LED to indicate that the battery is powering the detector. It also has a battery monitoring circuit which monitors *both* voltage and internal impedance!

Firsts have been a habit with BRK since 1969 when we produced the first battery-operated smoke detector to receive UL listing. In 1976 we became the first to protect over a million families, and by 1978 we were first to sell over 10 million smoke alarms! Now we're first again—with a technically superior detector that meets UL's new 7% smoldering smoke test and can be powered by a low cost, easily replaceable 9 volt carbon zinc battery.

The 79R's new ionization sensor was developed after two years of detailed research at BRK. It combines dual chamber design for performance stability during periods of changing humidity and atmospheric pressure with a more open design assuring good smoke entry characteristics. Detector sensitivity is pre-set and does not have to be calibrated in the field. The 79R also features an improved battery monitoring circuit. Not only will the monitoring circuit trigger a trouble beep when battery voltage is

low, it will also sound a trouble signal when the battery's internal impedance reaches unacceptable levels. Tests have shown that batteries with excessive impedance will not function properly.

There is extra reassurance built into the 79R, too. Its full function test switch is complemented by a blinking LED which flashes approximately once per minute to indicate the battery is supplying power to the detector. Its highly reliable 85 dB electronic horn has a penetrating high frequency sound, and there's a special horn start-up capacitor circuit to help assure reliable operation.

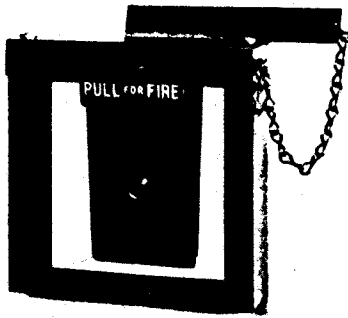
Quite clearly, BRK's seventh generation ionization detector is in a class by itself!

BRK
ELECTRONICS

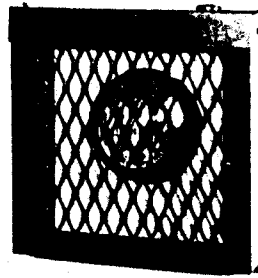
First in Fire Warning™

UL LISTED

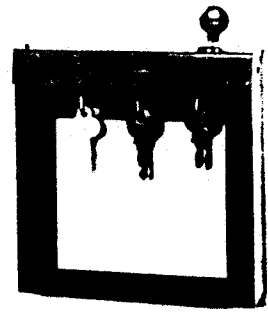




FIRE ALARM COVER
Part No. 750



THERMOSTAT COVER
Part No. 751



KEY BOX
Part No. 752

FIRE ALARM COVER

***Recessed alarm only**

With the 750 cover - tampering with fire alarm stations will be deterred. Ideal for schools and public buildings. Overall dimensions 6⁷/₈"x6⁷/₈"x2" deep. Glass opening 5-5/16"x5-5/16" - Red Bake Enamel. Ordering information: Includes glass front, chain and breaker bar. Optional features cam lock and scored plexiglas front.

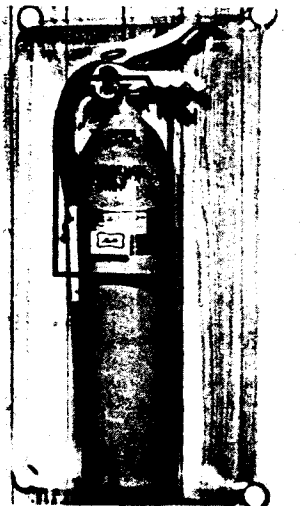
THERMOSTAT COVER

Stops thermostat settings from changing. Saves energy. Overall dimensions 6⁷/₈"x6⁷/₈"x2" deep. Ordering information: Includes perforated metal front and cam lock.

KEY BOX

Solves lost key problems in large buildings. Will hold 8 keys or more on 4 hooks. Overall dimensions 6⁷/₈"x6⁷/₈"x2" deep. Red bake enamel.

Ordering information: Includes key bar (attaches at mounting holes of cover) cam lock and glass front. Optional features - plexiglas front.



Part No. 800

CLEAR-VIEW FIRE EXTINGUISHER CABINET

- Special designed mounting feet allow installation in seconds.
 - Mounting feet release from wall by pulling cabinet. Cabinet is re-usable.
 - Helps prevent tampering & theft.
 - Ideal for industrial plants.
 - Keeps fire extinguishers clean.
- Size 27¹/₂"x14¹/₂"x5¹/₂"
Weight 10 ounces

FIRE ALARM COVER

This model is designed to fit over most surface mounted manual alarm pull stations, to prevent tampering with the alarm. The material used in fabrication is 20 ga. cold rolled steel. The glass or plexiglas front opening is 5-5/16" x5-5/16". The removable top bracket includes an obround slot for conduit clearance. As an optional item, a cam lock can be installed. Prior to ordering, check to see that the alarm pull station will operate with the 699 cover — some manual pull stations may be too large.

Comes complete with Glass Front and Breaker Bar (1/8"x1"x6" Steel). Optional items include cam lock and scored plexiglas fronts.



Model 699

MUCKLE MANUFACTURING DIVISION

County Road 45 North Owatonna, Minn. 55060

Phone: 507/451-7115

GENERAL DESCRIPTION

In 1968 BRK introduced the first battery powered ionization detector to be listed by Underwriters Laboratories. In the years since, BRK has continued to improve upon its detectors and has developed a worldwide reputation for performance and excellence.

We have now developed the 79R, a single-station ionization smoke detector, which is the first to be UL listed for use with a 9 volt carbon zinc battery, as well as the alkaline type of battery.

The 79R features a dual chamber, single-source ionization sensing mechanism. The dual chamber is highly sensitive and can detect visible and invisible products of combustion. It allows for non-electronic compensation for pressure and humidity changes and offers exceptional detection stability. The sensitivity of the 79R is pre-set and a solid state voltage regulator maintains it within close limits during decline in battery voltage, even to the point at which the trouble signal begins.

Weekly testing of the 79R is easy because it has a unique test switch that electronically stimulates the sensing chamber, creates the effect of smoke, and thereby causes an alarm. This switch tests the sensitivity, circuitry, alarm horn and other detector functions. The 79R also has a special horn start-up capacitor circuit that helps assure reliable operation.

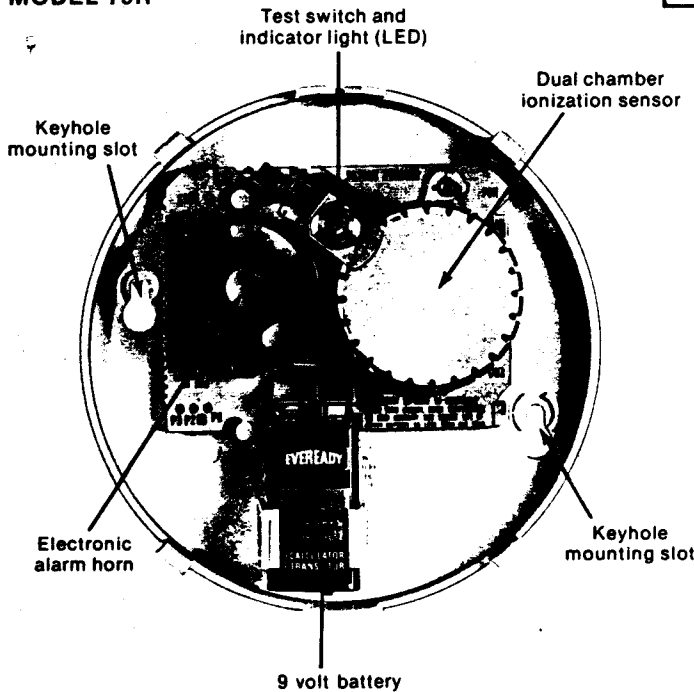
The 9 volt battery supplied with each detector is easily replaced at low cost and should last at least one year under normal use. Battery operation is supervised. When voltage drops to a pre-set warning level, the 79R's horn will give a short BEEP, indicating that it is time to insert a new battery. The warning BEEPS occur every minute or so. The detector will sound a warning if a "bad" battery (one with corroded contacts, or too much internal impedance to permit adequate current flow) is put in.

Another built-in feature of the 79R is a light-emitting diode (LED) that flashes on for about 20 milliseconds every minute to indicate that the battery is in place and the detector is receiving power.

The 79R is designed for surface mounting. Screws and mounting anchors are supplied. Ideally the detector should be located on the ceiling as close to the center of the room or hallway as possible. If ceiling location is impractical, wall mounting may be used except where a local code prohibits it. Wall mounted detectors should be located at least 3 feet from any corner and 1 foot from the top of the ceiling.



MODEL 79R



FEATURES

- Powered by a 9V carbon zinc battery built to last at least one year and so inexpensive that it can reduce battery replacement costs year after year.
- Flashing LED (light-emitting diode) provides constant reassurance that battery is properly connected and detector is receiving power.
- Dual chamber, one microcurie single-source ionization sensing mechanism.
- 85 decibel solid state electronic alarm horn.
- Can give early warning of slow, smoldering fires and precious extra seconds to escape fast-developing flaming fires.
- Built-in test switch checks sensitivity and proper operation.
- Trouble signal BEEPS for up to 30 days when battery is low and needs replacing. Also BEEPS when a "bad" battery (one with corroded contacts or too much internal impedance) is inserted.
- Special horn start-up capacitor circuit helps assure reliable operation.
- Non-electronically compensates for pressure and humidity changes.
- Pre-set sensitivity... maintained by voltage regulator.
- UL listed to Standard 217... meets new 7% smoldering smoke test.
- Self-resetting after smoke has cleared detection chamber.
- Easy to install, clean and maintain.

SPECIFICATIONS — Model 79R

Sensitivity	Meets requirements of UL Standard 217.
Detection	Dual ionization chamber.
Source	1 Microcurie of AM 241.
Alarm Duration	15 hours continuous with a fresh battery, five hours with a battery that just starts giving a low battery indication.
Test Switch	Electronically stimulates chamber to simulate smoke.
Alarm Circuit	100% solid state.
Battery	Supplied with 9V carbon zinc battery
Battery Life	1 year minimum.
Low Battery Indication ...	30 days minimum.
Alarm Horn	Solid State Electronic.
Horn Level	85 decibels at 10 feet.
Indicator Lamp	Solid State LED (light-emitting diode) flashes on for 20 milliseconds every minute to indicate unit is receiving power.
Weight	8 oz.
Temperature Range	40° to 100° F.
Humidity Range	10% to 85% relative humidity.

Manufactured by:

BRK ELECTRONICS
 A DIVISION OF PITTMAY CORPORATION
 780 McClure Avenue, Aurora, Illinois 60504

Distributed by:

Handwritten: #13 30
 Price X 15.00