



RECREATIONAL VEHICLE (RV) Combination Carbon Monoxide and Gas Alarm

USER'S MANUAL Models 85-741

PATENT US 7,248,156 ALL RIGHTS RESERVED 85RV042021-1

ATTENTION: This user's manual contains important Carbon Monoxide (CO) and gas alarm installation, operation, troubleshooting and warranty information. Read, follow, and keep this manual for future reference.

NOTE: If you install or purchase this alarm for another person, give this manual to that person.

IMPORTANT: It is recommended that this alarm is replaced after five years of service. Record the installation / retail sale date in the Owner's Replacement Record section of this manual and also record a replacement date. This unit has an End of Life (EOL) signal that will sound after 5 years of use.

DUAL SENSOR TECHNOLOGY

The SAFE-T-ALERT™ 85 Series combination CO / Gas Alarm is an alarm that combines into a single compact system, a powerful alarm that detects both Carbon Monoxide (CO) and explosive Propane (LPG) gas. The 85 Series uses the latest microprocessor technology combined with two electronic self-cleaning sensors that operate independently of each other. The combined unit can detect both CO and explosive gases simultaneously.

This detector is listed as a CO and Propane gas detector for RV use. Other explosive gases detected, but not tested for, include Acetone, Alcohol, Butane, and Gasoline all of which you may have in your RV.

To prevent false alarms from brief "puffs" of gas the detector has a recheck cycle before alarming. If high levels of gas remain during the recheck cycle, the detector will alarm.

The electronic CO sensor in your SAFE-T-ALERT™ CO alarm is very sensitive to CO gas. It will not react to safe levels of most other gases.

WHY EVERY RV NEEDS AN 85 SERIES CO AND GAS ALARM

Everyone is at risk for carbon monoxide poisoning! Particularly sensitive are children, pregnant women, the elderly and people with lung or heart disease or anemia! Carbon monoxide (CO) is an odorless, colorless gas that prevents the blood from carrying oxygen to vital organs. CO is 200 times more likely to replace oxygen in the blood. The Consumer Product Safety Commission (CPSC) recommends using at least one CO alarm located outside of

sleeping areas. For the best security, locate a CO alarm in each sleeping area. Safe-T-Alert CO alarms are available for secondary installations.

Propane gas can cause explosions! Using propane requires taking safety precautions to avoid injury. LP gas is usually identified by an unpleasant odor. Certain conditions may make some people unable to detect this unpleasant odor. These conditions include advanced age, colds, allergies, and the use of tobacco, alcohol or drugs that may diminish the sense of smell.

ABOUT THIS ALARM

Because CO is a colorless, odorless, tasteless and highly poisonous gas; it can endanger lives even at low levels of concentration. The CO Alarm will alert you to potentially dangerous situations. **The following symptoms may be related to CO POISONING. Discuss these symptoms with ALL household members and RV guests:**

- **Mild Exposure:** Headaches, running nose, sore or watery eyes, often described as "flu-like" symptoms.
- **Medium Exposure:** Dizziness, drowsiness, vomiting.
- **Extreme Exposure:** Unconsciousness, brain damage and death.

NOTE: Reported cases of CO gas poisoning indicate that while victims are aware they are not well, they are disoriented. They are unable to save themselves by exiting the RV or calling for assistance. **Small children and pets may be affected first.**

Your SAFE-T-ALERT™ 85 Series alarm helps protect your household members and guests from CO produced while using your RV. CO gas is produced when any type of fuel is incompletely burned. Potential sources of CO in and around your RV can include gas or diesel engine exhaust, portable space heaters, gas stoves and ovens, furnaces, defective engine exhaust systems, portable grills, other nearby RVs, portable generators, generator exhaust, and other propane-powered appliances. All are sources of CO.

The following are also sources of CO that may affect your RV:

- Extended operation of unvented fuel burning appliances can build up high CO levels.
- An idling vehicle in an open or closed garage.
- Temperature inversions can trap exhaust near the ground.
- CO build up can be caused by reverse/negative venting of fuel burning appliances including; 1) Clogged, loose or faulty stacks or chimneys of (clothes dryers, furnaces and water heaters, etc.), 2) wind direction and/or velocity, 3) simultaneous operation of multiple fuel burning appliances, and/or exhaust fans.



WARNING:

LIMITATIONS OF CO and GAS ALARMS

THIS ALARM WILL NOT WORK WITHOUT POWER. Some reasons for no alarm power are; a blown or missing fuse, broken wire, a faulty wire connection or circuit breaker, a discharged battery, cut lead wires, or improper supply (+) or ground (-) connections.

THIS ALARM WILL ONLY INDICATE THE PRESENCE OF GAS AT THE SENSOR. CO or explosive propane/ gas gases may be present in other areas. MTI recommends installing CO alarms in all sleeping areas. **Do not block or cover** the alarm with any object that can prevent a gas leak or carbon monoxide from reaching the sensor.

THIS ALARM IS INTENDED FOR USE IN RV's. It is intended for use in inside locations of a RV. It is not designed to measure compliance with commercial and industrial standards.

THIS ALARM MAY NOT BE HEARD. The alarm's loudness is designed to meet or exceed regulatory standards; however, the alarm may not be heard if alarms are located in remote locations or behind closed doors. Persons who are hard-of-hearing, have consumed alcoholic

beverages, taken prescription, non-prescription or illegal drugs, may not hear the alarm.

THIS ALARM IS DESIGNED TO DETECT CARBON MONOXIDE AND PROPANE GAS. THE ALARM IS NOT DESIGNED TO DETECT SMOKE OR FIRE.

THIS ALARM MAY NOT ALARM AT LOW CO LEVELS - It is not designed to measure compliance with the Occupational Safety Health Administration (OSHA) commercial or industrial standards. Individuals with medical problems may consider using warning devices, which provide audible and visual signals for CO concentrations under 30 ppm.

THIS ALARM IS NOT A REPLACEMENT FOR INSURANCE. Always be sure your RV is fully insured.

Warning: Installation of the device should not be used as a substitute for proper installation, use, and maintenance of fuel-burning appliances, including appropriate ventilation and exhaust systems.

HOW TO PROTECT YOUR FAMILY

CAUTION- The SAFE-T-ALERT™ 85 SERIES combination CO and Gas Alarm is designed to protect individuals from the acute effects of carbon monoxide exposure and gas leaks. It will not fully safeguard individuals with specific medical conditions. If in doubt, consult a medical practitioner.

To protect your family, you should:

- **INSTALL THE ALARM PROPERLY.** Carefully read and follow ALL the instructions in this manual. Test your unit every week. Alarms that do not work will not alert you to hazardous levels of CO or explosive gas. See the section, Test Procedure, in this manual for further information.
- **MAKE REGULAR VISUAL INSPECTIONS.** Check all fuel burning equipment including gas water-heaters, kitchen gas stoves, space heaters, gas dryers and all pilot lights. Check the color of the pilot flame. The color should be blue.
- **MAKE REGULAR VISUAL INSPECTIONS OF THE ENGINE AND GENERATOR EXHAUST SYSTEMS.** Cracked exhaust systems can allow CO to enter the living area.
- **PROFESSIONALLY MAINTAIN YOUR ENGINE AND GENERATOR.** Although gas engines and generators produce CO, a poorly tuned engine and generator will produce greater amounts CO.
- If you smell unusual odors you may have a gas leak, immediately call a local propane gas supplier or fire department to check for possible leaks.

WHERE TO INSTALL

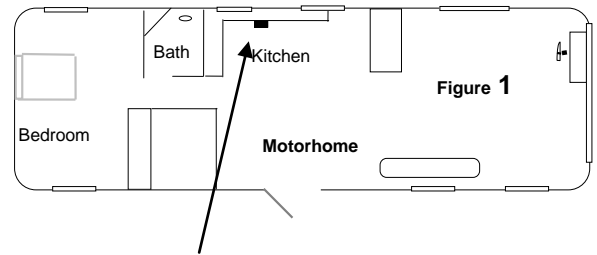
- Install the 85 Series in an area near sources of a potential gas leaks. Some potential sources are a furnace, refrigerator, stove or oven. If potential sources of a gas leak are in separate areas, MTI recommends installing a gas alarm in each area.
- The Consumer Product Safety Commission recommends installing a CO alarm outside the sleeping area. The 85 Series combination CO and gas alarm complies with that recommendation.
- **INSTALL ALARM** at least 4 inches but not more than 20 inches off the floor.

WHERE NOT TO INSTALL 85 SERIES ALARMS

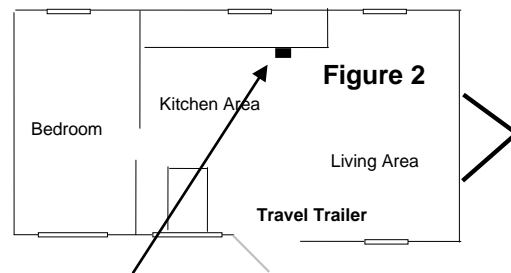
- **DO NOT INSTALL** behind furniture, drapes, in closets or areas that will block gas flow to the alarm.

- **DO NOT INSTALL** within 12 inches (30cm) of opening windows, exterior doors, heating or return vents, or other drafty areas.
- **DO NOT INSTALL** on an outside wall.
- **DO NOT INSTALL** on a wall switch controlled by a power line, ground fault circuit or to a circuit breaker.
- **NOTE:** Older RVs may have little or no insulation and therefore are draftier. Carefully consider mounting locations.

The following diagrams provide additional alarm installation information:



■ Recommended Alarm Location

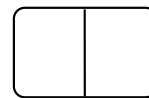


■ Recommended Alarm Location

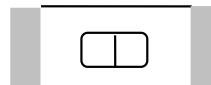
DO NOT INSTALL Figure 3



Do not install within 12" of a door



Do not install within 12" of a window that can open



Do Not install behind drapes or furniture



Do not install within 12" of vents

INSTALLATION INSTRUCTIONS



WARNING

FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN A MALFUNCTION OR FAILURE OF THE ALARM AND MAY VOID THE WARRANTY.

SHOCK HAZARD: Turn off power before installing.

Power Supply 12 VDC.

Recommended Wire Size 14 GA. TO 18 GA.

Connect the alarm to a properly fused circuit, maximum over protection device rating 15 amps.

Connect to wiring or circuit that CANNOT be turned off by a switch or ground fault protector. Only use UL or recognized permanent wire connectors. It is acceptable to connect the 85 Series CO / LP gas alarm to the main disconnect. The alarm will be off along with all other 12 volt equipment when the main disconnect is turned to the off position. The RV must not be occupied when the main disconnect is in the off position.

Follow these instructions carefully. Failure to follow these instructions can damage the unit and void the warranty. Select a wall location at least 4" but not more than 20" off the floor.

85-741: Disconnect the power supply being connected to. This model requires a 1/2" hole be drilled where mounting. Connect the RED (+) power lead to the fused circuit. Connect the BLACK lead to Ground (-). Fasten the unit to the wall using the two screw holes located on the ends of the case. Reconnect the power supply. Wait 10 minutes for warm up and then test the alarm.



85-741 with optional trim ring: Disconnect the power supply being connected to. This model requires a 1/2" hole be drilled where mounting. Connect the RED (+) power lead to the fused circuit. Connect the BLACK lead to Ground (-). Fasten the unit to the wall using the two screw holes located on the ends of the case. Reconnect the power supply. Wait 10 minutes for warm up and then test the alarm. Use the trim ring to cover existing cutouts.

NOTE: All connections must be in accordance with the National Electrical Code in the United States and the Canadian Electric Code in Canada.

TEST PROCEDURE

⚠ WARNING

TO REDUCE THE RISK OF CARBON MONOXIDE POISONING OR PROPANE GAS EXPLOSION, TEST THIS ALARM'S OPERATION AFTER THE RV HAS BEEN IN STORAGE, BEFORE EACH TRIP AND AT LEAST ONCE PER WEEK DURING USE.

⚠ WARNING

WARNING: THE TEST BUTTON ONLY TESTS THE ALARM CIRCUIT NOT THE SENSORS. YOU MAY USE PROPANE OR BUTANE GAS TO TEST THE GAS SENSOR. Note it may take up to 10 seconds for the alarm to sound.

TO TEST THE CO SENSOR USE A CAN OF SAFE-T-ALERT CO TEST GAS TO TEST THE 400 PPM CALIBRATION POINT. DO NOT TRY TO GENERATE CO TO TEST THE ALARM. The TEST/RESET button tests all ELECTRICAL functions of the alarm. It does not check the sensor operation.

The alarm may be tested at any time -The TEST/Mute switch is located on the front of the alarm Press and hold the test button for 1 second. The alarm is working properly if the GREEN indicator light changes color to RED and the horn beeps 4 times. The Gas LED should also blink Red.

IMPORTANT - If this alarm does not test properly return it immediately for repair or replacement.

OPERATION

Each time the unit is first powered up, the CO sensor requires a ten (10) minute initial warm-up period to clean the sensor element and achieve stabilization. The GREEN LED indicator will flash on and off during the 10 minute warm-up period. This unit cannot go into a CO alarm during the warm-up period. To test your unit during the warm-up period, press the test button. See Test Procedure in this manual. After the warm-up period, the GREEN power ON indicator should glow continuously. If the ON indicator light does not light, see the section, **Trouble-Shooting Guide**, in this manual for further information. **Do not attempt to fix it yourself.**

Gas Alarm: When you power the alarm, it has a warm-up period of approximately 1 minute. This unit cannot go into a gas alarm during the warm-up period. After 1 minute the alarm can detect explosive gas.

Simultaneous CO and Gas Alarms— Because the risk of a propane gas explosion is generally a more serious danger, your alarm unit gives the gas alarm a higher priority during simultaneous alarm condition.

If your unit generates alarms for both Gas and CO at the same time, the gas LED will flash red and the beeper will sound. The CO LED will be a solid Red until the CO is ventilated out of the RV, at which time the LED will return to the Green operational/safe color.

Brownout Protection - The unit can tolerate short power interruptions and brownouts where the circuit voltage drops as low as 1VDC. If the brownout lasts too long, the unit will reset and operate as described above.

LOW POWER OPERATION

This alarm will operate normally down to 7 VDC. Do not operate this alarm below 7 VDC.

VISUAL AND AUDIBLE ALARM SIGNALS

This SAFE-T-ALERT™ CO / Propane Gas Alarm is designed to be easy-to-operate. The alarm has two indicator lights that display a specific color for each monitored condition. There also is a matching sound pattern for alarm conditions.

CO ALARM

The Red CO LED will flash and the alarm will sound 4 "BEEPS" then silent for 5 Seconds. These signals indicate that the CO level is over 35 ppm. **IMMEDIATE ACTION IS REQUIRED.** See **Procedures To Take During An Alarm**. This cycle will continue until the TEST/Mute button on the front of alarm is pressed. Ventilate the RV. The RED light will stay ON until the CO has cleared, or the alarm will reactivate in approximately 6 minutes if the CO is still present. DO NOT RE-ENTER THE RV. This alarm will return to normal operation after the RV is properly ventilated.

PROPANE GAS ALARM

The Red LED will Flash and the alarm will sound a steady beeping whenever a dangerous level of propane gas is detected. **IMMEDIATE ACTION IS REQUIRED.** See **Procedures Take During A Gas Alarm**. The detector will continue to alarm until the Test/Mute switch on the front of the alarm is pressed. Ventilate the RV. The RED Gas LED will continue to flash until the gas has cleared, or the gas alarm will reactivate in approximately 5 minutes if the gas is still present. DO NOT RE-ENTER THE RV. This alarm will return to normal operation after the RV is properly ventilated.

MALFUNCTION/SERVICE SIGNAL If any malfunction is detected, the Gas LED will remain off and the Operational/CO LED will alternate Red/Green and the alarm will sound once every 15 seconds. Press the Test/Mute button. If the Test/Mute button does not clear the signals, check the battery voltage. **If the battery voltage is not low and the unit will not return to normal operation, immediately remove the alarm and return**

for service or warranty replacement. See the warranty section in this manual.

OPERATION	AUDIBLE SIGNAL	VISUAL SIGNAL
NORMAL	NONE	STEADY GREEN
CO ALARM	4 "BEEPS" 5 SECONDS OFF	STEADY RED
PROPANE ALARM	CONSTANT BEEPING	FLASHING RED
ALARM MALFUNCTION	BEEP" EVERY 30 SECONDS	ALTERNATING RED/GREEN
END OF LIFE	BEEPS EVERY 25-30 SECONDS	RED RED GREEN GREEN FLASHING
WARM UP CYCLE (ABOUT 10 MINUTES)	NO SOUND	FLASHING GREEN

TROUBLE-SHOOTING GUIDE

Use this chart to trouble-shoot problems with this 85 Series Alarm.

PROBLEM	CAUSE/SOLUTION
Green Operational LED Off	1.Bad Wire Connection 2. Reversed Wiring 3. Main Power Off 4. Missing or Blown Fuse 5. Contact Customer Service
No Sound When Testing	Contact Customer Service
No Red LED When Testing	Contact Customer Service
Locked In Alarm	Contact Customer Service
MALFUNCTION ALARM LED Red/Green & Beeps Every 15 Seconds	1. Check Battery Voltage
Battery Voltage is Good and it Will Not Reset To Normal operation	2. Contact Customer Service
END OF LIFE ALARM	Push reset button to reset for 3 days – Replace within 30 days.
Customer Service 800-383-0269 www.safetalert.com	

HOW TO TAKE CARE OF YOUR ALARM

This CO / Propane Gas Alarm is designed to be as maintenance free as possible. To keep your alarm in good working order, you must:

- **TEST THE ALARM WEEKLY.** See the section, Test Procedure, in this manual for further information.
- **VACUUM THE DUST OFF THE ALARM COVER.** At least once a month (more frequently in dusty locations), use the soft brush attachment of your vacuum to clean the alarm cover.
- **CLEAN THE ALARM COVER WHEN DIRTY.** Wash the alarm cover by hand. Use a cloth dampened in clean water. Dry with a soft cloth.
- **DO NOT SPRAY CLEANING AGENTS OR WAXES DIRECTLY ONTO THE FRONT PANEL.** This action may damage the sensor, cause an alarm or cause an alarm malfunction.
- **OBSERVE THE COLOR OF THE INDICATOR LIGHT.** At frequent intervals and during your weekly test, check the indicator light on the on the front panel of the alarm.
- See the section, Operation, in this manual for further information.

PROCEDURES TO TAKE DURING GAS ALARM

1. Turn off all Gas appliances (Stove, Heater, Furnace, Refrigerator, etc.), extinguish all flames and smoking material.
 2. Press the Test/Mute switch. **DO NOT DISCONNECT POWER**
 3. Evacuate the RV. Make sure everyone is accounted for. Leave the door and windows open.
 4. Turn off the propane tank valve.
 5. Determine and repair the source of the leak. Get professional help if necessary.
- CAUTION- DO NOT RE-ENTER UNTIL THE PROBLEM IS CORRECTED.**

PROCEDURES TO TAKE DURING AN CO ALARM

Follow the alarm procedures for your country. The emergency number depends on your travel location.

**PROCEDURES TO TAKE
DURING A CO ALARM IN THE USA**



WARNING: Actuation of this device indicates the presence of carbon monoxide (CO) or propane gases, which can KILL YOU. If signal sounds (4 beeps and flashing or solid red light): 1) Operate the Test/Mute button; 2) Call your emergency local service (Phone Number _____) (fire department or 911); 3) Immediately move to fresh air - outdoors or by an open door/window. Check that all persons are accounted for. Do not reenter the premises or move away from the open door / window until the emergency responders have arrived, the premises have been aired out and your alarm remains in its normal operation. 4) After following steps 1-3, if your alarm reactivates within a 24-hour period, repeat steps 1-3 and call a qualified appliance technician. (Phone Number _____) to investigate for sources of CO from fuel burning equipment and appliances. Inspect for proper operation of this equipment. If problems are identified during this inspection have the equipment serviced immediately. Note any combustion equipment not inspected by the technician and consult the manufacturers’ instructions, or contact the manufacturer directly, for more information about CO safety and this equipment. Make sure that the motor vehicles are not, and have not been, operating in an attached garage or adjacent to the residence.

**PROCEDURES TO TAKE
DURING A CO ALARM IN CANADA**



WARNING: Actuation of this device indicates the presence of carbon monoxide (CO) and propane gases which can KILL YOU. If signal sounds (4 beeps and flashing or solid red light: 1) Operate the Test/Mute. Immediately move to fresh air - outdoors or by an open door/window. Check that all persons are accounted for. Do not reenter the premises or move away from the open door/window until the emergency responders have arrived, the premises have been aired out, and your alarm remains in its normal condition; 2) call your emergency local service (telephone number _____) (Fire department or 911).

End of Life Signal – The Sensor has a 5 Year Service Life

All 85 Series models include an End of Life (EOL) Signal indicating the sensor has reached the end of its service life and you must replace the alarm. The signal is the LED flashing RED RED GREEN GREEN with a beep every 25-30 seconds. The EOL Signal may be reset by pushing TEST / RESET button on the alarm. This will reset the EOL Signal for a period of 72 hours (3 days) for a total of up to 30 days. After 30 days the signal cannot be reset and the alarm must be replaced. **DO NOT DISCONNECT THE ALARM UNTIL YOU HAVE A REPLACEMENT ALARM AVAILABLE TO INSTALL.**

SPECIFICATIONS

MODELS	85-741
POWER SUPPLY	12 VDC
NOMINAL CURRENT DRAW	108 mA
RELATIVE HUMIDITY	15% (+/- 5%) to 95% (+/- 4%)
AUDIBLE OUTPUT	85 dB @ 10 feet
GAS ALARM TRIGGER	< 25% of the LEL of Propane
GAS LEVEL CONFIRMATION	8 Second Alarm Delay
CO ALARM TRIGGER	<15 Minutes @ 400 ppm
CASE MATERIAL	ABS
CASE DIMENSIONS	85-741: 4.25" W x 2.75" H x 0.75" D 85-741 (with trim ring): 7" W x 4" H x 1" D
WARRANTY	1 Year Limited
CONFORMS TO:	ANSI / UL STD 1484 & CSA Std 6.19

OWNERS REPLACEMENT RECORD

Replace this SAFE-T-ALERT™ 85 SERIES CO / GAS propane alarm 5 years after date of installation. For new RV's enter the month and year the RV was manufactured. If you are not sure, enter the month and year you purchased the RV or enter May and the model year of the RV (example May 2021), whichever is the earlier date.

Installation Date: _____
(Example: March 2021)

Replace by Date _____
(5 years after Installation date – example: March 2026)

If you don't know the installation date, replace the alarm no later than 5 years after the production date on the back of the alarm.

Two self-adhesive labels are included with this Alarm. Add the phone numbers of your emergency service provider and qualified technician in the space provided. Record your replace by date on this label. Place one label near the alarm and one label near a fresh air source where you plan to gather if the alarm sounds.

LIMITED PRODUCTS WARRANTY

MTI INDUSTRIES, INC. warrants to the original retail purchaser that its products will be free from defects of material or workmanship for a period of One (1) year from the date of retail purchase. If proven to have been defective in original materials or workmanship and returned, delivery costs prepaid, MTI INDUSTRIES, INC. will replace this product free of charge.

LIMITS OF WARRANTY

Replacement is your exclusive remedy under this limited warranty or any other warranty (including any implied warranty of merchantability for a particular purpose). Any and all implied warranties or merchantability or fitness for a particular purpose shall be limited to the warranty period from the original date of retail purchase. MTI INDUSTRIES, INC., its dealers and distributors shall in no case be responsible or in any way liable for any incidental or consequential damages for any reason. Some states do not allow the limitation or exclusion of incidental or consequential damages, or allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. This warranty gives you specific rights, and you may also have other rights, which may vary, from state to state.

PRODUCT NOT WARRANTED

NOTE- There are no user serviceable parts inside the case. Opening any SAFE-T-ALERT™ product for any reason voids the warranty. This warranty does not cover damage or failure resulting from acts of God, abuse, misuse, neglect, or faulty installation.

WARRANTY RETURN PROCEDURES

It is MTI's experience that a CO / Propane Gas Alarm is sounding for a reason. Call, ask your dealer to call, or e-mail our Customer Service Department (as listed below) to trouble shoot the situation.

Customer Service Phone No. - 800-383-0269
Fax No. 847-546-9007
E-mail Service@mtiindustries.com
Web Site: www.mtiindustries.com

If Customer Service determines that the unit is defective, a Return Authorization (RA) number will be issued. **No product will be accepted for service or replacement without first obtaining a RA number.**

If authorized, return this product to:

MTI Industries, Inc.
Warranty Dept. RA # (INSERT RA NUMBER HERE)
206 C Tequesta Drive
Destin FL 32541

NOTE: Mark the RA number in the area shown on the outside of the box!

NOTE:

Model 85-741 is a basic dual CO / LP Gas alarm with no interconnection and no relay. If you want these features order a custom 70-742 from MTI Industries.

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