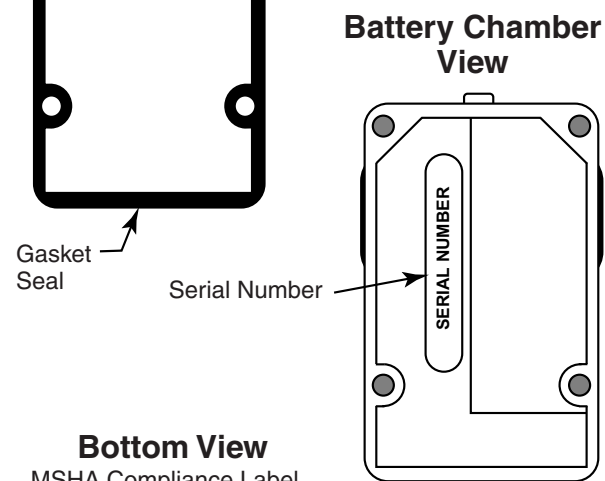
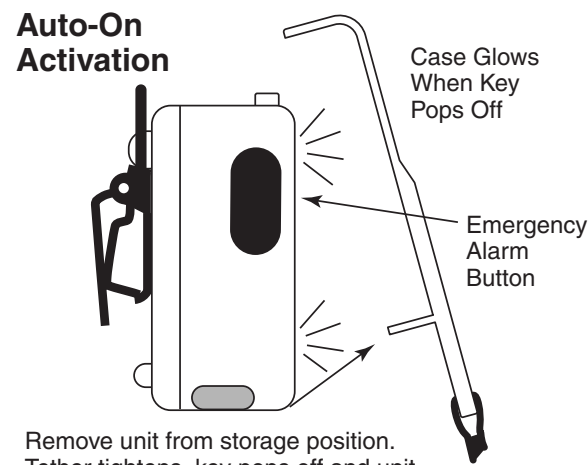
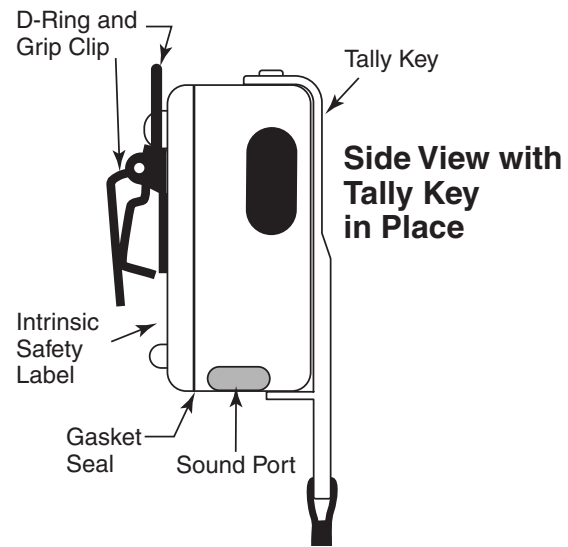


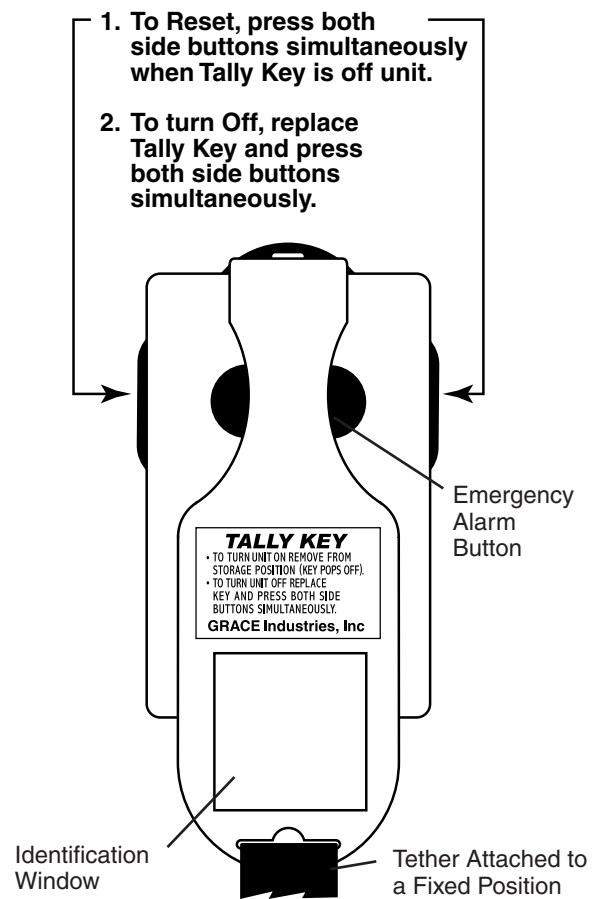
Mine Rescue Alarm™ Model A FEATURES AND LABELING



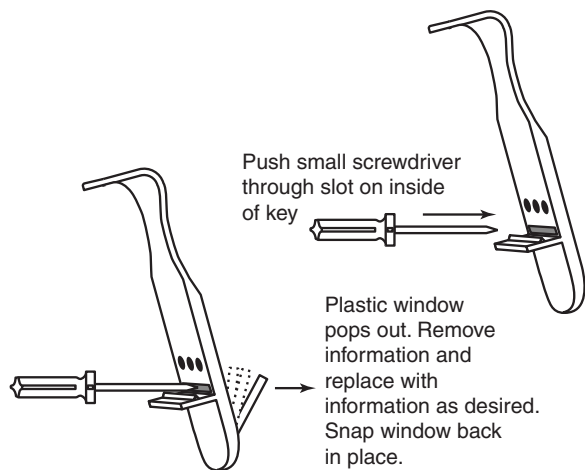
Bottom View MSHA Compliance Label



Front View with Tally Key in Place



Changing the identification information in the Tally Key window



An added benefit of the Grace system is the Tally Key. The clear Identification Window located on the front of the key provides the opportunity for specific identity of the MRA™ user through the ability to personalize keys with pictures, names, numbers, dept. ID, bar-codes, etc. The clear access window easily snaps into place to protect the enclosed information and provide instant access for quick ID should the need arise. Information in the Identification Window can easily be changed by partially popping the ID window out with a small, flat blade screwdriver through the access slot located on the back side of the Tally Key.

Pull Away Tether for Auto-On Activation from Storage Positions

The MRA™ is designed to be automatically activated into the **Sensing Mode** (motion sensing mode) or turned **ON** when removed from the MRA™ storage position, whether it is a transportation or a fixed storage position.

When removed from the storage position, the tether will tighten and the TallyKey will automatically pop off. If the tether is not anchored, the wearer can simply pull on the tether and the Tally Key will pop off. The Tally Key can then be given to the Safety Officer to be placed on the Tally Board for accountability and storage until the wearer returns to the point of entry. Removing the Tally Key will put the MRA™ into the **Sensing Mode**. The unit can be reset (from **Alarm** to the **Sensing Mode**) but cannot be turned off until the Tally Key is replaced and both side buttons are pressed simultaneously.

The Tally Key has an adjustable tether for ease of use. The tether can be adjusted from approx. 18" to 36" in length. This allows for easy utilization for anchoring. Tally Keys are available with various length tethers to facilitate various operational needs.

Warranty Information

Grace Industries, Inc. warrants the MRA™ to be free from defects in workmanship and materials for a period of one year from the date of purchase. This warranty is valid only when the returned MRA™ is accompanied by a sales slip or other proof of purchase that states the date and location of purchase. Grace Industries, Inc. will not repair or replace any merchandise under warranty which has been damaged because of accident, misuse or abuse of the MRA™ while in possession or control of the consumer. This warranty is void if any attempt to repair or replace parts was made or attempted by other than qualified Grace Industries, Inc. personnel. This warranty is void if any of the sealed compartments are opened or tampered with. Send all returned merchandise, prepaid and accompanied by proof of purchase to: Grace Industries, Inc., Repair Division, 305 Bend Hill Road, Fredonia, PA 16124. Customer is responsible for return shipping. Grace Industries, Inc. shall not be liable for any direct, incidental or other consequential loss or damage arising out of the failure of the device to operate.

The sole and exclusive remedy under all guarantees or warranties, expressed or implied, is strictly limited to repair or replacement as herein provided. ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF FITNESS AND MERCHANTABILITY, ARE HEREBY LIMITED IN DURATION TO A PERIOD ENDING ONE (1) YEAR FROM THE DATE OF PURCHASE. The warranty and liability set forth in the prior paragraphs are in lieu of all other warranties, expressed or implied, in law or in fact, including implied warranties of merchantability and fitness for a particular purpose. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

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

NOTE: The information contained in this booklet is believed to be accurate and reliable. Grace Industries, Inc. provides this information as a guide only.

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Solutions for Life Safety

Mine Rescue Alarm™ Auto-On Model A 60 Second Alarm USER'S INFORMATION

Only To Be Removed By End User



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Solutions for Life Safety

Mine Rescue Alarm™ Auto-On Model A 60 Seconds Alarm

Operating Instructions

When removed from a storage position, the MRA™ Tally Key will automatically pop off, putting the unit into the **Sensing** mode (motion sensing). When the MRA™ turns **ON**, the operational signal (a series of loud attention getting audio tones) will be heard, accompanied by the visual alternating display of four yellow LEDs. The alternating display indicates the unit is in the **Sensing** mode.

When there is lack of motion for approximately 48 to 53 seconds, the unit will go into **Pre-Alert** and announce a **Pre-Alert Signal**. While in **Pre-Alert**, the yellow alternating display is interrupted by intermittent pulsing of four red LEDs accompanied by a progressively louder sweeping **Pre-Alert** audio signal. The longer the unit is in **Pre-Alert**, the louder the sweeping **Pre-Alert** signal becomes, signifying the unit is closer to going into **Alarm**. When there is lack of motion for approximately 60 to 65 seconds, the unit will go into the **Alarm Mode**. When in **Alarm**, the **Pre-Alert** display is replaced by a constant rapid pulsing of four red LEDs accompanied by a rapidly modulated, loud audio **Alarm Signal**. Model A is also available in 90 and 120 lack of motion alarm times.

While in the **Sensing** mode, the MRA™ may be put into **Alarm** at any time by manually pressing the alarm button located on the front surface of the unit. Once in alarm, the unit can be reset or returned to the **Sensing** mode by simply pressing both side buttons simultaneously. To turn the MRA™ **OFF**, simply replace the Tally Key and press both side buttons simultaneously. **Always test prior to use.**

An added benefit of the Grace system is the Tally Key. The clear Identification Window provides the opportunity for specific identity of the MRA™ user through the ability to personalize keys with pictures, names, numbers, dept. ID, bar-codes, etc. The clear access window easily snaps into place to protect the enclosed information and provide instant access for quick ID should the need arise.

Note: See back page for information on Tally Key tether attachment for **Auto On** activation.

The rugged grip clip allows for attachment to work belt on the hip or an appropriate location on the front of the torso. The **D-Ring** can also be used to affix the MRA™ to the wearer. However, the ideal wearing position of the MRA™ is often best determined by the end user for ease of access and operation.

All personnel should be thoroughly familiar with and trained in the proper operation of the MRA™ prior to field use. Failure to do so may expose the user to serious injury or loss of life.

Battery Installation / Replacement



To reduce the risk of ignition of a flammable atmosphere, battery must only be changed in an area known to be non-flammable. To change the battery, remove the four screws securing the back. Remove the back cover, disconnect and dispose of the spent battery and connect the new battery. Replace the back cover and gently tighten all four screws using a crisscross pattern for even gasket pressure, ensuring a good seal. **Do not over tighten screws.**

WARNING!! Always use the specified 9 volt alkaline battery. The Duracell MN1604 or PC1604 are recommended for optimum performance, as other batteries may not provide the same operating life. Replacing the battery twice per year is recommended unless indicated sooner by the Low Battery Alarm. The Low Battery Alarm will sound when the battery has been exhausted to 20% of capacity (indicating approximately 1 hour operating time remains). Immediate replacement of the battery is necessary when the low battery alarm sounds. The low battery alarm is an easily recognized series of three audio beep tones enunciated every five seconds when the MRA™ is in the **Sensing** mode. Grace Industries, Inc. assumes no liability for mechanical, electrical or other types of battery failure. **Warning** - substitution of components may impair MSHA compliance.

Limitations

The MRA™ is designed to meet the design and performance requirements for MSHA certified Mine Rescue Alarms.

Failure to ensure that the MRA™ is fully operational prior to use, may expose the user to serious injury or loss of life. Although the MRA™ meets rugged specifications, there is no inherent guarantee against MRA™ failure. Even the best MRA™ cannot compensate for abuse or the lack of a MRA™ training and maintenance program.

Although the MRA™ can be checked for proper operation, most performance properties of the MRA™ cannot be tested by the end user in the field.

Maintenance

The MRA™ requires minimum maintenance and will provide years of service.

Please Observe The Following Guidelines

- At the end of each use, clean unit with a damp cloth and warm water. **Do not** use cleaning solvents.

- Inspect unit for signs of physical damage.

Store MRA™ in a dry, well ventilated area consistent with battery manufacturers requirements. Duracell's recommended storage conditions are: 50°F (10°C) to 77°F (25°C) at no more than 65 percent relative humidity.

- Units contaminated by chemical or radioactive materials must be disposed of or decontaminated in accordance with all applicable regulatory standards.

- Replace battery every 6 months or sooner if indicated by the low battery alarm.

- **Do not** mark or apply paint to case.

Safety Certifications

MRA™ design meets the requirements of Title 30 Code of Federal Regulations, Part 18 and is approved as permissible for use in gassy underground mines.

MSHA Approval No. 18-A080004-0

Specifications

Dimensions: 2-1/8" wide by 3-1/8" high by 1-5/8" deep.

Weight: seven ounces with battery (without key).

Alarm Audio Output: 98+ dBA @ 10 feet.

Visual / Audio Mode Display:

OFF

- Tally Key in place with no LED display
- a series of de-escalating, loud, attention getting audio tones

ON

- Tally Key removed with an alternating yellow LED display
- a series of escalating, loud, attention getting audio tones

Pre-Alert

- no motion sensed for 48 - 53 seconds
- yellow alternating LED display is interrupted by the pulsing of four red LEDs
- accompanied by a progressively louder, sweeping audio signal

Alarm

- no motion sensed for 60 - 65 seconds
- yellow alternating LED display is replaced by the rapid pulsing of four red LEDs
- accompanied by a rapidly modulated, loud (98+dBA) audio signal
- the alarm signal is between 1,000 and 3,000 Hertz and cycles at 5.25 seconds on and .75 seconds off as an aid for determining direction when personnel need assistance

Activation: all electronic switching

Auto-On

- going from **OFF** to the **Sensing Mode**
- when removed from storage position, Tally Key pops off and unit goes into the **Sensing** mode

Alarm

- unit may be put into **Alarm** from the **Sensing** or **OFF Mode** at any time by pressing the button on the front of the unit

Reset

- when in **Alarm**, the unit may be reset to the **Sensing** mode by simultaneously pressing both side buttons

OFF

- unit may be turned **Off** by replacing the Tally Key and simultaneously pressing both side buttons

Case: rugged, high temp., impact resistant, translucent, Orange polycarbonate. Entire case glows during the **Sensing**, **Pre-Alert** and **Alarm** modes.

Methods of Attachment: rugged Grip Clip and D-ring for versatility in attaching to attachment.

Sound Discernability: 6 dBA against given background noise.

Battery: 9 volt Duracell MN1604 or PC1604 recommended.

Battery Life: estimated at 100 hours in **Sensing** mode and 2 to 4 hours in the **Alarm** mode.

Product Life: Approx. 3 to 7 years or longer depending on fitness for use. Fitness for use is best determined by the end user through a proper inspection and maintenance program. Product should be retired from service when damaged or determined unfit for use.

MRA™ A - Temperature Sensing Option Your unit is equipped with temperature sensing capability if the side and alarm buttons are red and the serial number ends in a H. The serial number is located in the battery chamber.

The MRA™ temperature alarm (a rapid ringing tone) should not be regarded as an absolute measure of existing temperatures. The temperature alarm may sound an alarm earlier or later with regards to integrated time temperature sensing. The time variation is dependent upon where the unit is worn and the environmental conditions. When the temperature alarm solid-state thermostat threshold has been exceeded by exposure to extreme environmental conditions, the unit will sound the temperature alarm audio tone with a specific LED display. The temperature alarm sound signature is a loud, piercing, rapid chirping tone accompanied by the slow pulsing of four red LEDs. The temperature alarm cannot be turned off. The unit must cool down below the temperature alarm threshold and the alarm will automatically reset.

Approximate Temp. Alarm Response Times:

350°F - 6 minutes	300°F - 8 minutes
250°F - 10 minutes	200°F - 12 minutes