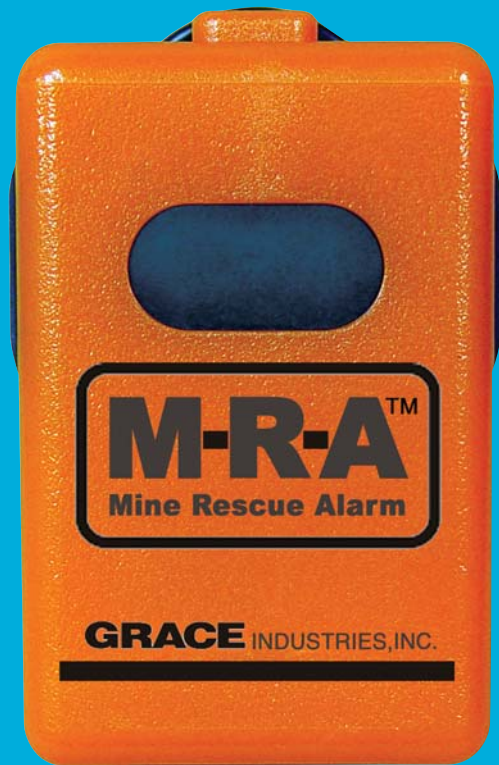


# Mine Rescue Alarm™

***The Smallest, Lightest,  
Loudest Distress Alarm***

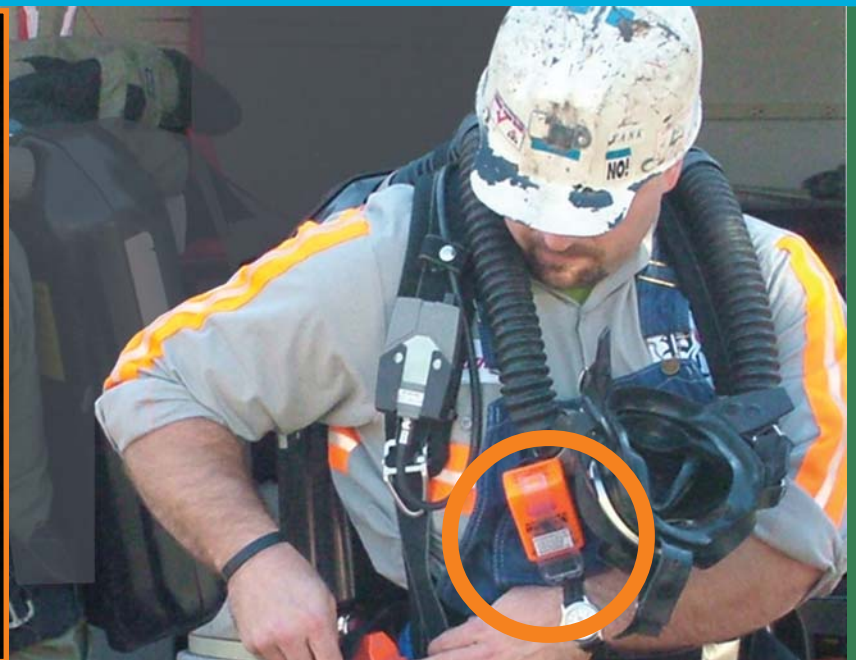
- MSHA Approved for Use in Gassy Underground Mines
- Engineered Specifically for Mining and Tunneling
- Manual or Auto-On Activation
- Motion Sensing
- Bright, Highly Visible LED Status Indicators
- Temperature Sensing Option Available



**MADE IN  
USA**



**Flashing LEDs  
when in Alarm**



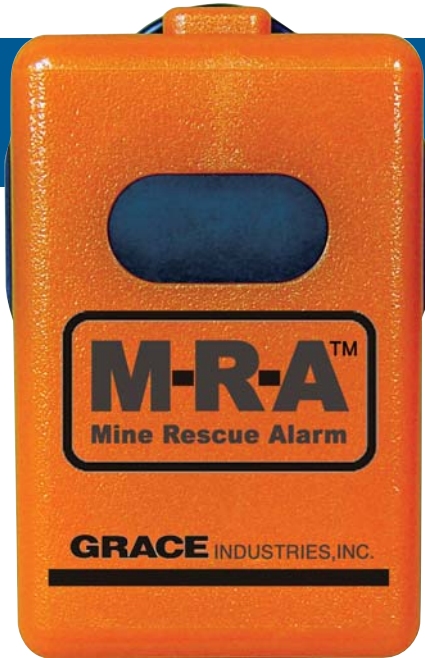
**Rescue Pass and Equipment Safety Check.**

**Miner shown wearing Mine Rescue Alarm™**

*Photo Courtesy of Carl E. Baisden Mine Rescue School Instructor.*

**GRACE** INDUSTRIES, INC.  
*Solutions for Life Safety*

# Mine Rescue Alarm™



Shown  
Actual Size

## Design

Designed and tested to meet the life safety needs of miners.

## Sound Intensity and Sound Discernability

At 98 dBA, Mine Rescue Alarm™ is the loudest distress alarm available in the mining industry. More important, the sound signature is designed to generate multiple tones that sweep through 2,000- 4,000 Hz and pause periodically. This special technique allows the M-R-A™ to be quickly identified and tracked by the human ear.

## Visibility

Grace Industries specializes in the integration of highly visible LEDs that illuminate from inside the case; which glow, flash and pulsate. The colors and patterns include those most easily recognized by the human eye.

## Motion Detection

Grace Industries employs the most effective method of detecting motion. The solid state accelerometer can sense a broad range of motion, and is not position sensitive. This results in little or no false alerts which are common in mercury tilt switches and similar motion detectors.

## Durability

To ensure the M-R-A™ will withstand rigorous mining environments, the case tolerates being dropped a total of eight times from a height of 3 m (9.9 ft) onto a concrete surface. To ensure product reliability, the M-R-A™ incorporates all-electronic switching and is rated for a service life of not less than 50,000 cycles.

## Water Proofing and Corrosion Resistance

M-R-A™ is preheated in an oven, then immersed in a test water container for two-hours to ensure it is watertight. A salt spray is also performed to rule out potential corrosion.



Mine Rescue Alarm™ Audio Beacon Model AB  
During Equipment Safety Check.

*Photo Courtesy of Carl E. Baisden, Mine Rescue School Instructor.*

## Mine Rescue Alarm™ Audio Beacon Model AB

**An Audible and Visual Beacon that  
will alarm for 72 hours.**

The M-R-A™ AB Model is the ideal choice where the potential for a protracted emergency exists and the motion sensing feature is not desired. When an emergency occurs, the wearer simply pushes t



# Mine Rescue Alarm™

the Alarm Button, causing the device to sound its alarm for up to 72 continuous hours. Additional AB units may be stored in each *Cache* where they can be activated and dropped to establish a *breadcrumb* trail for rescue personnel to follow. In addition to the loud, audible alarm, ultra-bright LEDs will pulse and strobe, giving rescue personnel a visual beacon to track in low-light conditions.

This lightweight alarm can be worn by miners, maintenance personnel, inspectors or anyone who enters a mine and may become trapped for an extended period of time and need to summon help.

## Temperature Sensing Option

Optional temperature sensing capability is for rescue teams wearing M-R-A Model M or Model A. When the solid state thermostat threshold has been exceeded by exposure to extreme environmental conditions, the unit will sound a temperature alarm audio tone.

Environment Temperature and Alarm Response Time\*

350° F	6 Minutes	300° F	8 Minutes
250° F	10 Minutes	200° F	12 Minutes

\*Alarm response times are approximate.

## Mine Rescue Alarm™ Manual Operation Model M

**Manual Operation Model M is recommended when it is advantageous for the wearer to control all modes of operation manually.**

When the workers job task is such that there are periods of time that do not require continuous movement or when the employee is performing tasks in a sedentary manner, the manual operation model may be the best choice. Manual Operation Model M, is available in 60, 90 or 120 second *lack-of-motion* alarm times.



## Mine Rescue Alarm Shown with Tally Key

Clip, Buckle and 3' Tether to anchor unit to a fixed storage position.

ID Window

Tether

## Mine Rescue Alarm™ Auto-On Model A

**Recommended for workers who enter hazardous environments and it is advantageous to have the alarm activated and remain in the sensing mode.**

By removing the Tally Key, the M-R-A becomes activated to the motion sensing mode and can be reset, but can not be turned off until the Tally Key is placed back on the unit. Tally Key is an added benefit of Grace Industries Mine Rescue Alarm™. The Tally Key features a clear access window providing the opportunity to specifically identify a user through the ability to personalize with photos, names, numbers, department ID, bar-codes, etc. M-R-A Auto-On Model A is available in 60, 90 or 120 second *lack-of-motion* alarm times.

## Mine Rescue Alarm™ Features



## Mine Rescue Alarm™ Specifications

**Dimensions:** 2-1/8" wide by 3-1/8" high by 1-5/8" deep, excluding Grip Clip.

**Weight:** Seven ounces with battery (without key).

**Alarm Audio Output:** 98+ dBA measured at 10 feet.

**Motion Sensor:** Solid State Accelerometer.

**Case:** Rugged, high temperature, impact resistant, translucent polycarbonate plastic.

**Sound Discernability:** 6 dBA against background noise.

**Battery:** Approved for use with Duracell # MN1604 or ProCell # PC1604, 9 volt alkaline batteries only.

**Certifications:** M-R-A™ 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.**

**Warranty:** One year from date of purchase.

**GRACE**  
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