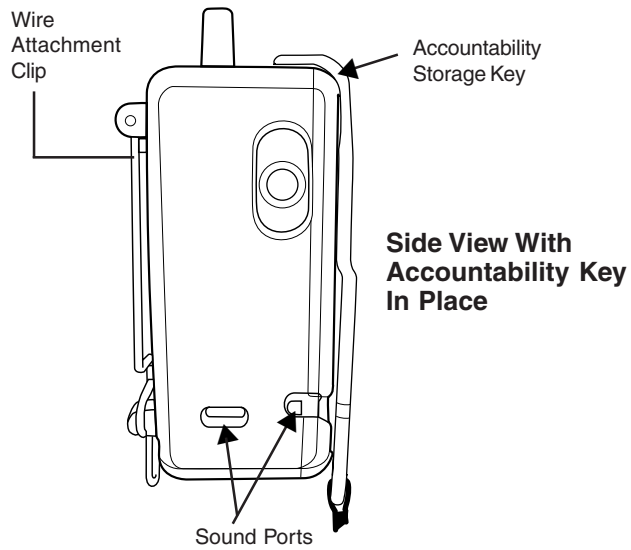
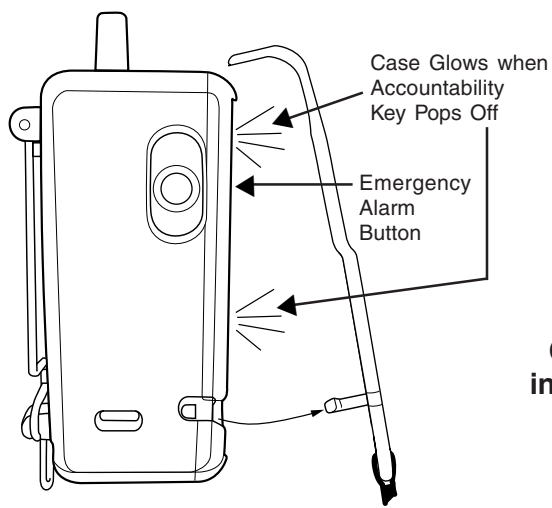


## TPASS® 4 Features and Labeling

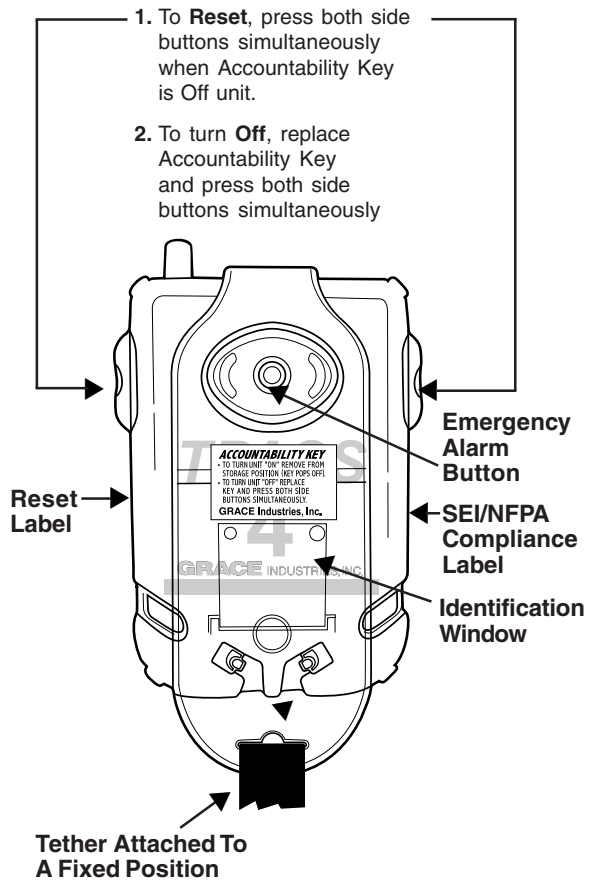


Side View With Accountability Key In Place

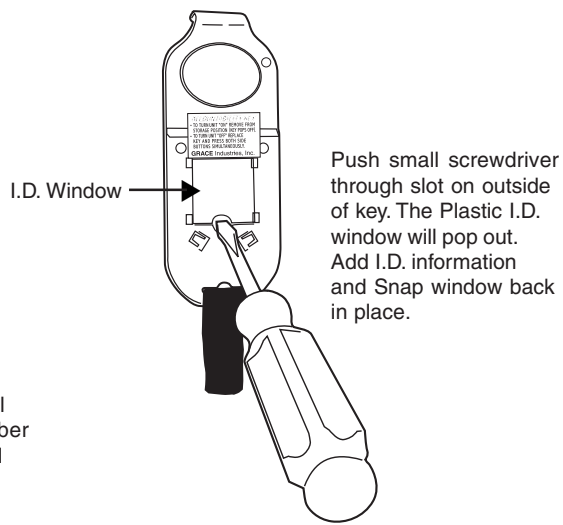
### Auto-On Activation



## TPASS® 4 with Accountability Storage Key in Place

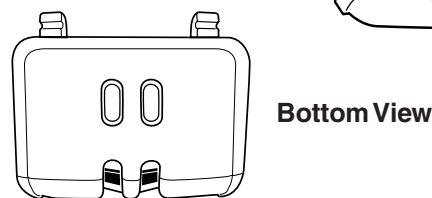
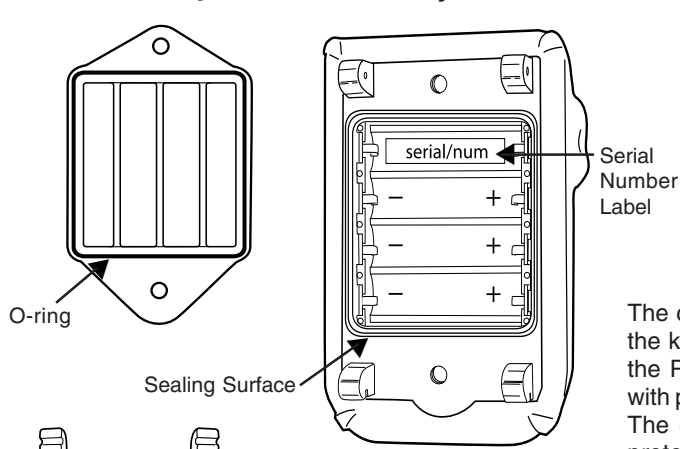


### Changing the identification information in the Accountability Storage Key window



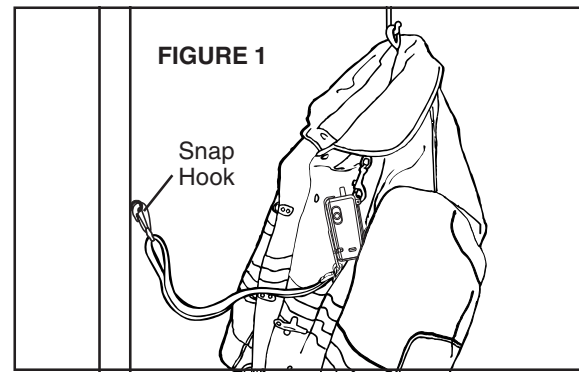
The clear Identification Window located on the front of the key provides the opportunity for specific identity of the PASS user through the ability to personalize keys with pictures, names, numbers, dept. ID, bar-codes, etc. The clear access window easily snaps into place to protect the enclosed information 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 bottom of the ID window.

### Inside Battery Cover Battery Chamber

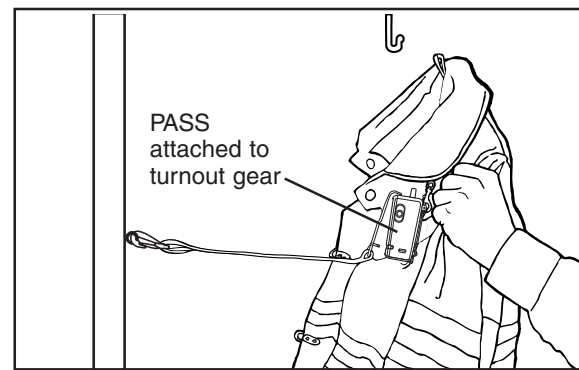


Bottom View

## Pull Away Tether for Auto-On Activation from Storage Positions



Snap hook attached to Transportation or Fixed Storage Position.



Pull turnout gear away, tether tightens and pulls the Accountability Key off the PASS. This will automatically activate the PASS into the **Sensing Mode**.

The TPASS® 4 is designed to be automatically activated into the **Sensing Mode** (motion sensing mode) or turned **ON** when removed from the PASS storage position, whether it is a transportation or a fixed storage position. When removed from the storage position, the tether will tighten and the Accountability Storage Key will automatically pop off putting the TPASS® 4 into the **Sensing Mode**. At this point, the unit can be **reset** (from the **Alarm to the Sensing Mode**) but cannot be turned **OFF** until the Accountability Storage Key is replaced and both side buttons pressed simultaneously.

The Accountability Storage Key has an adjustable tether for ease of use. The tether can be adjusted from approx. 3' to 6½' in length. This allows for easy utilization whether you are anchoring the tether to a transportation position (such as to a seat in a vehicle) or a fixed storage position (such as in the fire station). Accountability Storage Keys are available with various length tethers to facilitate various operational needs.

### Internal Datalogger

The internal datalogging function meets and exceeds NFPA requirements. The datalogger records dates and times of the last 2,000 events. Recorded PASS events include: Power On, Pre-Alert and Lack of Motion Alarm, Manual Alarm, Alarm Reset, Evacuation Messages, Power Off and Low Battery Warnings. The datalog information can be downloaded to a PC using the datalog-transfer software and IR Dongle available from Grace Industries. **Important: To preserve the internal date & time setting when changing batteries - batteries must be replaced within 3 minutes of removing the exhausted set.**

## Safety Certifications

Certified to meet the requirements of: NFPA 1982, Standard on Personal Alert Safety Systems (PASS), 2007 edition.

Certified Intrinsically Safe to ANSI/UL 913: Class 1, Groups C and D; and Class II, Groups E, F, and G; Division 1 Hazardous Locations.

**CAUTION:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

### Warranty Information

Grace Industries, Inc. warrants the TPASS® 4 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 TPASS® 4 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 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.

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

TPASS® 4 system technical assistance is available by contacting Grace Industries, Inc. at 724-962-9231. For training purposes a copy of this information is available by contacting Grace Industries, Inc. TPASS® 4 issues may be reported at any time to Grace Industries, Inc. at 724-962-9231. After working with the manufacturer to resolve any issues, they may be reported to SEI at 703-442-5732.



# TPASS® 4 USER'S INFORMATION

Only To Be Removed By End User



Front View with Accountability Key In Place

Grace Industries, Inc.  
305 Bend Hill Road, Fredonia, PA 16124  
Ph. 724-962-9231 Fax 724-962-3611



Front View without Accountability Key In Place

## TPASS® 4 Operating Instructions

TPASS®4 is an **Auto On**, two-way signaling, Personal Alert Safety System (PASS). Through the utilization of the TPASS®4 and Command Base, Incident Commanders are provided with the ability to EVACUATE or call-back firefighters as needed from dangerous situations. The **Auto On** feature ensures that the TPASS®4 is turned on **Automatically** when removed from a storage position.

When removed from a storage position, the TPASS®4 Accountability Storage Key automatically pops off, activating the unit into the **Sensing** mode (**motion sensing**). When the TPASS®4 turns **ON**, the operational signal (an escalating series of loud attention getting audio tones) will be heard, accompanied by a visual alternating display of four green LEDs. The alternating display indicates that the TPASS®4 unit is in the **Sensing Mode**. At the same time, the integrated TPASS®4 transceiver is also activated and starts signaling the Base. If the PASS is motionless for a few seconds, the green LEDs cease the alternating display and flash into opposing corners until the PASS is moved or enters **Pre-Alert**.

After lack of motion for approximately 18 to 23 seconds, the unit will go into **Pre-Alert** and a 12 second sweeping **Pre-Alert** audio signal will be heard, accompanied by an alternating green and yellow display. 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 30 to 35 seconds, the unit will go into the **Alarm Mode**. When in **Alarm**, the **Pre-Alert** LED display is replaced by a rapid pulsing of four red LEDs accompanied by a rapid modulated loud audio **Alarm** signal. When the TPASS®4 goes into **Alarm**, an emergency radio transmission is sent to the Base. This alerts personnel outside the immediate area that firefighters may need assistance.

While in the **Sensing Mode**, the TPASS®4 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 TPASS®4 **OFF** replace the Accountability Storage Key and press both side buttons simultaneously.

### TPASS®4 EVACUATE or Callback

The TPASS®4 EVACUATE function may be activated by the Incident Commander from the Command Base at any time. When the Evacuation signal is received by the TPASS®4, four yellow LEDs will flash rapidly accompanied by a loud chirping audio alarm tone. The Evacuation alarm tone is easily differentiated from other audio tones with minimal training.

When the Evacuation alarm signal is received by the TPASS®4, it automatically sends an electronic acknowledgement that the signal was received. A manual acknowledgement of the Evacuation signal, by the firefighter, is also required. The firefighter manually acknowledges the evacuation signal by momentarily pressing both side buttons simultaneously. The operational signal will be heard. The acknowledgement will cause the flashing LEDs and the loud chirping audio tones to reset. The manual acknowledgement notifies the Incident Commander that the signal was received and understood by the firefighter and is be-

ing complied with. When the firefighter is out of harms way and accounted for, the Incident Commander can clear the evacuation field on the Base.

### Accountability Key

An added benefit of the Grace PASS is the Accountability Storage Key. The clear Identification Window provides the opportunity for specific identity of the TPASS®4 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 identification should the need arise.

The TPASS®4 should be securely attached to a vertical strap on the upper left or right shoulder, in the horizontal position with the sound port facing out to the side or on the right hip area (See Figure 1).

Each member involved in rescue, fire suppression, or other hazardous duties shall be provided with and shall use a PASS device in the hazardous area, according to NFPA 1500. **All personnel should be thoroughly familiar with and trained in the proper operation of TPASS®4 and the Advanced Accountability System prior to field use. Always test TPASS®4 prior to 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, batteries must only be changed in an area known to be non-flammable. To change batteries, remove the two screws securing back. Remove the back cover, disconnect and dispose of the spent batteries and insert the batteries.

**Important: To preserve the internal date & time setting when changing batteries - batteries must be replaced within 3 minutes of removing the exhausted set.**

Prior to replacing the back, apply a light coating of silicone grease to the O-ring. Then apply a light coating of silicone grease to the inside (mating/sealing) edge of the case. **As a guideline, when applying silicone grease to the O-ring (and case), you should be able to feel the grease on your fingers, and see a thin film on the O-ring and sealing surface of case. Do not use an excessive amount of grease. Excess grease can attract dirt which could compromise the seal.**

Line up the mating/sealing edges of the back and case. Carefully press the back into place. **Secure the back by hand tightening both screws. Do not over tighten.**

**WARNING** Always use the specified AA 1.5 volt alkaline batteries. The Duracell MN1500 is recommended for optimum performance, as other batteries may not provide the same operating life. Replacing the batteries every 3 to 4 months is required unless indicated before by the Low Battery Alarm. The Low Battery Alarm will sound when the batteries have been exhausted to 20% of capacity (indicating approx. 1 hour operating time remains). Immediate replacement of the batteries is necessary when the low battery alarm sounds.

When the PASS is in **Sensing** mode, the low battery alarm is easily recognized by the alternating display of the green and yellow LEDs, accompanied by a series of two audio beep tones enunciated every 23 seconds and Lo Bat will appear on display. Grace Industries, Inc. assumes no liability for mechanical, electrical or other types of battery failure. **Warning - substitution of components may impair intrinsic safety. After battery replacement, always test TPASS® 4 with the Base to insure proper operation.**

### Limitations

TPASS®4 is engineered to meet the design and performance requirements for personal alert safety systems (PASS) to be used by firefighters engaged in rescue, fire fighting and other hazardous duties as defined in the NFPA 1982 Standard, 2007 edition on PASS.

Failure to ensure that TPASS®4 is fully operational prior to use, may expose the user to serious injury or loss of life. Although TPASS®4 meets all current NFPA specifications, there is no inherent guarantee against PASS failure. Even the best PASS cannot compensate for abuse or lack of a PASS training and maintenance program.

Although TPASS®4 can be checked for proper operation, most performance properties of the PASS cannot be tested by the end user in the field.

### TPASS® 4 Maintenance

TPASS®4 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 for signs of physical damage.
- Store TPASS®4 in a dry, well ventilated area consistent with battery manufacturer requirements. 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 batteries every 3 to 4 months or sooner if indicated by low battery alarm.
- Do not mark or apply paint to case or silicone sleeve.

### TPASS® 4 - Specifications

**Dimensions:** 3" wide by 4-9/16" high by 2-5/16" deep.

**Weight:** 16 ounces with batteries (w/out key).

**Alarm Audio Output:** 95+ dBA @9.9 feet.

**Case:** rugged, high temperature, impact resistant, translucent, amber colored Radel encapsulated in a durable, translucent, high-temp silicone cover. Entire case glows during **Sensing**, **Pre-Alert**, and **Alarm modes**.

**Methods of Attachment:** wire attachment clip.

**Sound discernability:** 6 dBA against given background noise.

**Antenna:** robust design which aids in signal propagation.

**Alarm Transmission:** a 1.5 second burst of RF transmissions occurring every 4.5 seconds.

**Range:** dependent upon environmental conditions.

**Batteries:** 4 Duracell MN1500, AA, 1.5 volt alkaline recommended.

**Battery Life:** estimated up to 80 hrs in **Sensing Mode** and 2 to 4 hours in **Alarm Mode**.

**Model Designation:** TPASS®4 **Motion Only**-Black triangle label below number 4. TPASS®4 **Lack of Motion** and **Temperature**-Red triangle label below number 4.

**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.

### TPASS® 4 Visual / Audio Mode Display

#### OFF

- Accountability key in place with no LED display.

#### ON

- Accountability key removed, a series of escalating, loud, attention getting audio tones.
- Followed by a green alternating LED display.

#### Pre-Alert

- No motion sensed for 18 - 23 seconds.
- Green and Yellow alternating LED display.
- Accompanied by a progressively louder, sweeping audio signal between 1,000 Hz and 2,000 Hz.

#### Alarm

- No motion sensed for 30 - 35 seconds.
- Green alternating LED display is replaced by the rapid pulsing of four Red LEDs.
- Accompanied by a rapid modulated, loud ( 95+dBA ) audio alarm.
- The alarm signal is made up of multiple frequencies between 500Hz and 4000Hz and cycles at 5.25 seconds **On** and 0.75 seconds **Off** as an aid in determining direction when assistance is needed.

#### EVACUATION signal received

- Activated by a signal from the BASE.
- Four rapidly flashing Yellow LEDs.
- Loud chirping audio alarm tone simultaneous with the rapid flashing of four Yellow LEDs.
- Manual acknowledgement of evacuation signal by momentarily pressing both side buttons simultaneously, the operational signal will be heard.

### TPASS® 4 Mode Selection

#### Auto-On

- From **Off** to the **Sensing Mode**.
- When removed from storage position, Accountability Storage Key pops off and **Sensing Mode** is activated.

#### Sensing

- Green alternating LED display
- Unit is in **Sensing Mode**.

#### Alarm

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

#### Reset

- When in **Alarm**, unit may be reset to the **Sensing Mode** by simultaneously pressing both side buttons.

#### OFF

- Unit may be turned **Off** by replacing the Accountability Storage key and simultaneously pressing both side buttons.

### TPASS® 4 with Temperature Sensing Option

TPASS®4 is equipped with an Integrated (internal) Temperature Detector if the serial number ends in **H** or has a **Red triangle label** below the number 4 on front of case. You may also remove the Accountability key, press both side buttons and observe a momentary flash of red LEDs. The serial number is located in the battery compartment under the top battery.

The Integrated Temperature Detector 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 detection. The time variation is dependent upon where the unit is worn and the environmental conditions. When the temperature alarm threshold has been exceeded by exposure to extreme environmental conditions, 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 slow pulsing of 2 diagonally - opposed Yellow LEDs with the word **HEAT** on the top display. The temperature alarm can be temporarily silenced for one minute by pressing both side buttons simultaneously while unit is in the sensing mode. The unit must cool down below the temperature alarm threshold to be silenced. TPASS®4 and the temperature alarm may be turned **Off** by replacing the accountability key and pressing both side buttons simultaneously.

**Note:** For TPASS®4 equipped with integrated temperature detection. The NFPA has not published criteria or guidelines for PASS with temperature sensing option.