

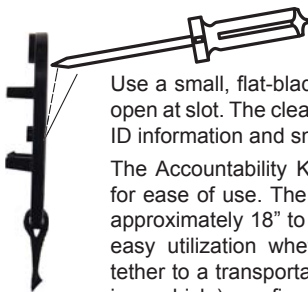
## TFX™ 5 GPS with Accountability Key in Place

1. To **Reset**, press both side buttons simultaneously when Accountability Key is off unit.
2. To turn **OFF**, replace Accountability Key and press both side buttons simultaneously.



### Accountability Key

TFX5 Accountability Key can be personalized to the specific identity of the user. The clear Identification Window easily snaps into place to protect enclosed information (photo, name, number, dept ID, barcodes, etc.) and provide quick identification.

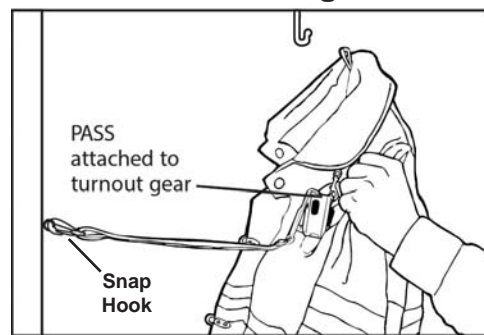


Use a small, flat-blade screwdriver to pry window open at slot. The clear ID Window will release. Add ID information and snap window back in place.

The Accountability Key has an adjustable tether for ease of use. The tether can be adjusted from approximately 18" to 36" in length. This allows for easy utilization whether you are anchoring the tether to a transportation position (such as a seat in a vehicle) or a fixed storage position (such as in the fire station).

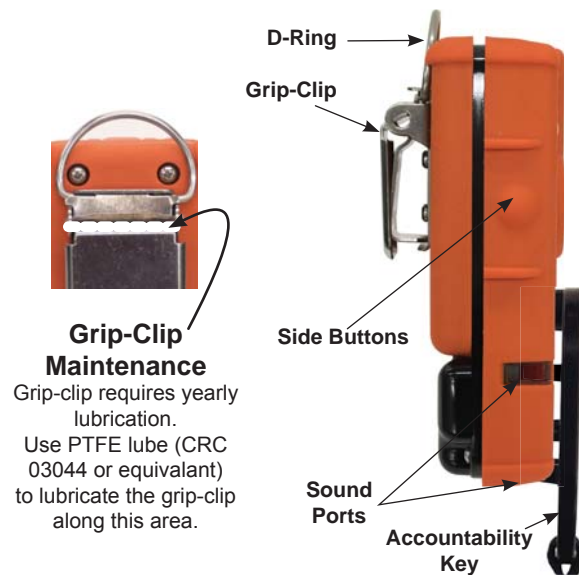
Accountability Keys are available with various length tethers to facilitate operational needs.

### 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 Accountability Key off the TFX5, automatically activating TFX5 into the Sensing Mode.

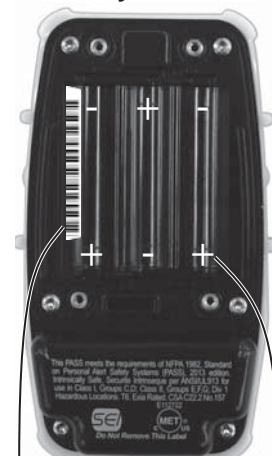
## Side View with Accountability Key in Place



### Auto-On Activation



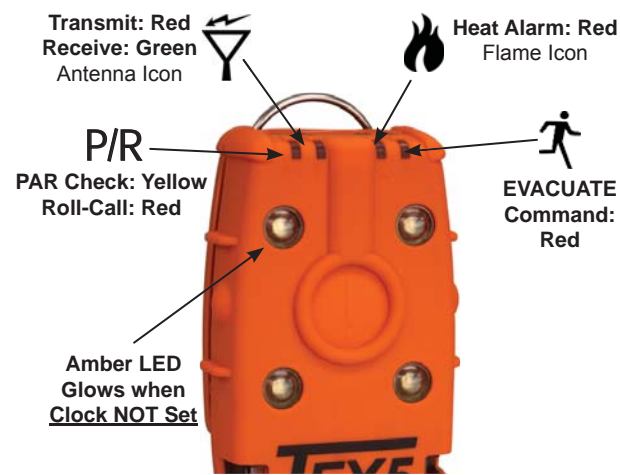
### Battery Chamber



Inside Battery Cover

Serial Number Battery Orientation

## LED Status Indicators



### Safety Certifications

This RF PASS (RPT) meets the requirements of NFPA 1982, Standard on Personal Alert Safety Systems (PASS), 2018 edition. Intrinsically Safe per ANSI/UL913 6th edition for use in Class 1, Groups C, D; and Class II, Groups E, F, G; Division 1 Hazardous Locations.

Certified to CSA C22.2 No.157-92 3rd edition.

### Radio Certifications

FCC ID: J5XT5HIP -- Meets FCC Part 15

IC: 5916A-T5HIP -- Complies with Canadian ICES-003

Australia / New Zealand: Compliant to ACMA AS/NZS CIS-PR22:2006, Class A Digital Apparatus | AS/NZS 4268:2012 for Intentional Radiators

EMC93142C-ACMA

EMC93142C-AS/NZS 4268



### Intrinsically Safe, Sécurité Intrinsèque

#### WARNINGS!

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

**WARNING!** To prevent ignition of a hazardous atmosphere, batteries must only be changed in an area known to be nonhazardous.

**WARNING!** To reduce the risk of explosion, do not mix new batteries with used batteries, or mix batteries from different manufacturers.

**WARNING!** Substitution of components may impair intrinsic safety. After battery replacement, always test TFX5 to insure proper operation.

#### AVERTISSEMENTS!

**AVERTISSEMENT!** Les changements ou modifications non expressément approuvés par la partie responsable de la conformité pourraient annuler l'autorité de l'utilisateur à utiliser cet équipement.

**AVERTISSEMENT!** Afin de prévenir les inflammations des atmosphères dangereuses, ne changer les batteries que dans des emplacements désignés non dangereux.

**AVERTISSEMENT!** Pour réduire le risque d'explosion, ne pas mélanger des piles neuves avec des piles usagées, ou mélanger des piles de fabricants différents.

**AVERTISSEMENT!** La substitution de composants peut compromettre la sécurité intrinsèque. Après le remplacement de la batterie, toujours tester TFX5 pour assurer un fonctionnement correct.

## FCC Statements

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

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### Industry Canada Statements

This Class A digital apparatus complies with Canadian ICES-003.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.(select the class for your device)

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

### Warranty Information

Grace Industries, Inc. warrants TFX5 to be free from defects in workmanship and materials for a period of one year from date of purchase. This warranty is valid only when the returned TFX5 is accompanied by a sales receipt 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 TFX5 while in possession or control of the consumer or outside of Grace Industries Inc's control. 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. TFX5 technical assistance is available by contacting Grace Industries, Inc. at (724) 962-9231 or by email at [info@graceindustries.com](mailto:info@graceindustries.com). For training purposes a copy of this information is available by contacting Grace Industries, Inc.

TFX5 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.

[www.graceindustries.com](http://www.graceindustries.com)

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Printed in U.S.A.

P/N: TFX5 GPS UI 1119

# TFX™ 5 GPS

## USER'S INFORMATION

Only To Be Removed By End User



MADE IN USA

Front View without Accountability Key in Place

Grace Industries, Inc.  
[www.graceindustries.com](http://www.graceindustries.com)  
Ph. 724-962-9231 • Fax 724-962-3611



Front View with Accountability Key in Place

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



## **READ INSTRUCTIONS BEFORE USE**

### **TFX5 GPS Intended Use**

**TFX5** is a motion-sensing, radio telemetry PASS device designed for use by firefighters, first-responders, and industrial users engaged in firefighting, rescue, and other hazardous duties. TFX5 provides distinct audible and visual alarms for indicating a user distress or panic alarm. The TFX5 also incorporates Evacuate, PAR, and Roll-Call signaling that establishes an Automated Accountability System when used with other Grace monitoring equipment. TFX5 has a very loud audio alarm, allowing rescue personnel to rapidly pinpoint the location of the firefighter or worker in distress.

**It is highly recommended that all personnel be thoroughly trained in the proper use and operation of TFX5, including other Grace equipment such as the In-Command Automated Accountability System prior to use. Always inspect and test TFX5 prior to use. Failure to do so may expose the user to serious injury or loss of life.**

**WARNING! When using TFX5 with the In-Command system, ensure In-Command Computer Speakers Are Not Muted During Firefighting Activities As Emergency Alarms May Not Be Noticed.**

### **TFX5 GPS Features**

- Auto-On Activation by Removal of Accountability Key
- Panic Button Alarm Activation
- Pre-Alert: Audible Warning Before Full Alarm
- Automated Accountability System using In-Command
- Radio telemetry for immediate notification of firefighter emergency distress
- No voice radio needed for Evacuation signaling and user acknowledgement
- Automated PAR check signaling without using a voice radio, configurable time from In-Command
- Roll-Call signaling without voice radio, configurable from In-Command
- Audible and Visual Indicators for all Modes of Operation
- High performance radio signaling with Smart-Signal® repeating capability

### **Operating Instructions**

**ACTIVATING TFX5:** When the TFX5 is removed from a storage position, the Accountability Key automatically detaches, activating TFX5 into the motion **Sensing Mode**.

During activation, an operational signal of escalating audio tones will be heard and an alternating display of two Green LEDs indicates the TFX5 is in **Sensing Mode**. When TFX5 is activated, its internal radio transmits signals that are received and displayed on In-Command.

In motion sensing mode, TFX5 will strobe two Green LEDs in opposing corners, alternating to the opposite corners when motion is sensed.

**PRE-ALERT MODE:** After approximately 18 to 23 seconds of no motion, TFX5 begins an audible Pre-Alert sound and an alternating Green and Yellow LED display. The Pre-Alert sound progressively becomes louder, indicating TFX5 is closer to going into **Alarm**.

**ALARM MODE:** There are two methods of activating the Alarm Mode.

**1) MOTION-ALARM:** After 30 to 35 seconds of no motion, TFX5 enters the **Alarm Mode**.

**2) PANIC ALARM:** PASS user can activate **Alarm Mode** at any time (from **Sensing Mode** or **Off Mode**) by pressing the Emergency Alarm Button.

**ALARM MODE** is indicated by a rapid pulsing of four front Red LEDs while sounding a loud audio alarm. During Alarm, an emergency radio signal is transmitted to In-Command alerting other personnel of a firefighter in distress.

**Reset the Alarm Mode** and return TFX5 to **Sensing Mode** by simultaneously pressing both side buttons.

**TURN OFF:** To turn TFX5 **OFF**, replace Accountability Key and press both side buttons simultaneously. A brief series of de-escalating audio tones will be heard and all LED activity will cease.

### **TFX5 GPS SPECIAL FEATURES**

**EVACUATE:** The TFX5 evacuate function is activated from In-Command. When the **Evacuate Command** signal is received by a TFX5, the top Red EVAC LED and all four front Yellow LEDs will strobe, accompanied by a loud, unique audio alarm tone easily distinguished from other TFX5 audio tones. EVAC alarm tone sounds like “deetle-y deet”).

After the **Evacuate Command** signal is received by the TFX5, it automatically transmits a receive acknowledgment to In-Command, indicating TFX5 has received the Evacuate signal from In-Command.

TFX5 user manually acknowledges receipt of the **Evacuate Command** by simultaneously pressing both side buttons which causes the TFX5 to transmit a manual-acknowledgment signal to In-Command, providing verification that the user has received the Evacuate Command. Manual acknowledgment of the Evacuate Command also places the TFX5 back into Sensing Mode.

**PAR CHECK:** TFX5 and In-Command system provides for an automated Personnel-Accountability-Report without the need to use voice radios. The In-Command PC software is configurable to allow an incident commander to periodically signal each user wearing TFX5 and solicit a response indicating their presence. When TFX5 receives the PAR check signal from In-Command, it will automatically reply by transmitting a receive-acknowledgment, the top Yellow P/R LED will strobe, two front Yellow LEDs (upper right and lower left) will strobe, and begin sounding a unique audible alert that sounds like “ba deetle deet”. The audible PAR alert remains until the user presses both side buttons, which silences the audible alarm and transmits the PAR manual-acknowledgment signal to In-Command. See In-Command user’s manual for a more detailed description of auto and manual PAR checks.

**ROLL-CALL:** TFX5 and In-Command system provides for an automated Roll-Call-Report without the need to use voice radios. The In-Command PC software is configurable to allow an incident commander to signal each user with TFX5 and solicit a response indicating their presence and well-being during a Roll-Call. When TFX5 receives the Roll-Call signal from In-Command, it will automatically reply by transmitting a receive-acknowledgment, the top Red P/R LED will strobe, all four front Yellow LEDs will strobe, and TFX5 will begin sounding a unique audible alert that sounds like “ba deetle deet”. The audible Roll-Call alert remains until the user presses both side buttons which silences the audible alarm and transmits the Roll-Call manual-acknowledgment signal to In-Command. See the In-Command user’s manual for a more detailed description of Roll-Call.

**LOSS of SIGNAL:** TFX5 and In-Command system monitors for loss of RF signal when the TFX5 is in Sensing Mode. When loss of RF signal is detected, TFX5 will indicate this by a periodic alternate flashing of Green and Red telemetry/antenna LED.

**GPS:** TFX5 units with GPS scan for the GPS location from the global GPS satellite network. The TFX5 will display GPS detection status through the LED display, and the detected location will be included in the telemetry data sent to In-Command. NOTE: The TFX5 will not detect a GPS signal in a building and any other location that does not have a view of the sky.

### **TFX5 GPS Mounting & Attachment**

TFX5 is equipped with a high-strength grip-clip designed for secure attachment to a firefighter’s turnout-gear such as to an SCBA vertical strap on the upper left or right shoulder and in the horizontal position with the sound port facing out to the side, or on the right hip area. **However, the ideal wearing position of TFX5 is often best determined by the end user for ease of access and operation.**

### **Visual / Audio Mode Display**

#### **OFF**

- Accountability Key in place with no LED display.

#### **ON (Sensing Mode)**

- Accountability Key removed, a series of escalating, loud audio tones.
- Followed by an alternating display of front Green LEDs.

#### **PRE-ALERT**

- No motion sensed for 18 - 23 seconds.
- Alternating Green and Yellow LED display.
- Accompanied by progressively louder audio tones.

#### **ALARM**

- No motion sensed for 30 - 35 seconds.
- Rapid pulsing of four front Red LEDs.
- Accompanied by a loud (95+ dBA) audio alarm.
- Audio alarm signal is current NFPA sound signature.

#### **EVACUATE**

- Evacuate LED (running man) strobes Red with a 1-second pause between strobes.
- Four front Yellow LEDs strobe.
- Loud, unique audio alarm tone (“deetle-y deet”)

#### **PAR CHECK**

- P/R LED will strobe Yellow with a 1-second pause between strobes.
- Two front Yellow LEDs strobe. (Opposing corners).
- Unique audio alarm tone (“ba deetle deet” twice, with a pause before repeating).

#### **ROLL-CALL**

- P/R LED will strobe Red with a 1-second pause between strobes.
- Four front Yellow LEDs strobe.
- Unique audio alarm tone (“ba deetle deet” twice, with a pause before repeating).

#### **LOSS of SIGNAL**

- Telemetry/Antenna LED alternates Green and Red.

#### **LOW BATTERY**

- Alternating Green and Yellow pulsing LED display.
- Series of two audio beep tones enunciated every 23 seconds.

#### **GPS**

- **No Lock:** System has not received valid location data within the last 180 Seconds. Display LED’s Alternate corner to corner.
- **GPS Lock:** System has acquired a GPS signal lock, GPS data has been updated within the last 180 Seconds. Display LED’s Alternate side to side.

### **Mode Selection**

#### **AUTO-ON**

- When TFX5 is removed from storage position, the Accountability Key detaches and **Sensing Mode** is activated.

#### **ALARM**

- **Alarm Mode** can be manually activated at any time (from **Sensing Mode** or **Off Mode**) by pressing the Emergency Alarm Button.

#### **RESET**

- When in **Alarm**, the TFX5 can be reset to **Sensing Mode** by simultaneously pressing both side buttons.

#### **OFF**

- Turn OFF TFX5 by replacing the Accountability Key and then pressing both side buttons simultaneously.

### **Maintenance**

TFX5 requires minimum maintenance and will provide years of service.

#### **Please Observe These Guidelines**

- At the end of each use, clean unit with a damp cloth. **DO NOT** use cleaning solvents.

- After each use, inspect unit for signs of physical damage. **Remove TFX5 from service if physical damage is observed.**

- Grip-clip requires yearly lubrication with PTFE lube (CRC 03044 or equivalent) as shown in side-view drawing.

- Store TFX5 in a dry, well ventilated area consistent with battery manufacturer requirements. Recommended storage conditions are: 50° to 77°F (10° to 25°C) at no more than 65% relative humidity.

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

- Replace batteries approximately every 3 to 4 months or sooner if indicated by Low Battery Alarm.

- **DO NOT mark or apply paint to TFX5.**

### **Specifications**

**Dimensions:** 2.75” wide, 5” high, 2” deep

**Weight:** 14 ounces with batteries (without key)

**Alarm Audio Output:** 95+ dBA at 1 meter.

**Case:** Rugged, high temperature, impact resistant, engineered plastic with high temperature silicone over-mold.

**Attachment:** Large, stainless steel grip-clip and D-ring.

**Antenna:** Internal.

**Batteries:** Three approved AA (LR6), 1.5 volt, alkaline batteries.

**Battery Life:** Estimated at 24-30 hours in **Sensing Mode**; 4 hours in **ALARM Mode**.

**Product Life:** Approximately 3 to 5 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.**

### **Limitations**

**To reduce risk of serious injury or loss of life, ensure TFX5 is fully operational by testing and inspecting the unit prior to use. Use of a TFX5 maintenance and training program including replacement of exhausted or low batteries is required for safe and proper use.**

If proper operation of TFX5 is questionable, remove unit from service and contact Grace Industries for assistance.

### **Temperature Sensing**

TFX5 is equipped with internal temperature sensing to alert the user of internal temperature rise inside the TFX5, and to warn of potential heat-stress for the user. The Heat Alarm function has a three stage alert feature to provide the user with a relative indication of internal TFX5 temperature rise.

**Stage 1 Heat Alert:** When the internal TFX5 temperature reaches **120°F**, the top Red LED (above the flame icon) begins to flash briefly.

**Stage 2 Heat Alert:** Begins when the internal TFX5 temperature reaches **130°F**. The flame icon LED will flash brighter and longer, accompanied by loud 2-tone audio alerts once every 1 minute.

**Stage 3 Heat Alert: When the internal TFX5 temperature exceeds 140°F, the heat alert becomes an Alarm.** The flame icon LED stays ON and is accompanied by loud 2-tone audio alerts once ever 10 seconds. Stage 3 Heat Alarm information is transmitted to In-Command and is also recorded in the TFX5 internal data-log. The audible alarm sound of Stage 3 Heat Alarm can be temporarily muted for up to 1 minute by simultaneously pressing both side buttons.

As TFX5 cools, the Heat Alert Stage will decrease when the internal temperature drops below the respective temperature levels. The flame icon LED will stop flashing when the internal temperature falls below 110°F.

**NOTE: The flame icon LED flashes proportionally to the TFX5 internal temperature between 120° and 140°F.**

**WARNING! The TFX5 internal temperature sensing is NOT intended to determine a “temperature safe” firefight-**

**er environment, and should NOT be relied on to warn the user of excess environmental temperature or possible flash-over conditions.**

### **Battery Installation and Replacement**

To change batteries, remove the four screws securing the back cover. Remove and dispose of the exhausted batteries and insert new batteries. Observe polarity for proper (+) and (-) placement. Dispose of used batteries in accordance with national or local regulations.

**Always use approved AA (LR6) 1.5 volt alkaline batteries. Batteries may be any of the following brands but DO NOT MIX battery brands and/or part numbers:**

**Approved Alkaline Batteries:**

**Rayovac, Rayovac-Fusion,  
Energizer E91, Energizer-Industrial EN91,  
Duracell MN1500, Duracell-Procell PC1500.**

**Important: To preserve the internal real-time-clock date & time setting, batteries must be replaced within 30 minutes of removing the exhausted batteries.**

Before replacing the back cover, inspect and remove any dust or dirt on the mating edges of the back cover and case.

**Carefully replace 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.**

Replacing the batteries every 3 to 4 months is recommended unless indicated earlier by the **Low Battery Alarm**.

**LOW BATTERY ALARM** will sound when the batteries have been exhausted to 20% of capacity (indicating approximately 1 hour of Alarm operating time remains). Immediate replacement of the batteries is necessary when **Low Battery Alarm** sounds.

When TFX5 is in **Sensing Mode**, the **Low Battery Alarm** is easily recognized by an alternating Green and Yellow LED pulsing display, accompanied by a series of two audio beep tones enunciated every 23 seconds.

Grace Industries, Inc. assumes no liability for mechanical, electrical, or other types of battery failure.

### **Internal Data Logger**

The internal data logging function meets and exceeds NFPA requirements. The data logger timestamps, dates and stores over 2,000 of the most recent events.

Recorded TFX5 events include: Power On, Pre-Alert, Motion Alarm, Panic Alarm, Alarm Reset, Evacuate Commands, Evacuate Acknowledgments, PAR Checks, PAR Acknowledgments, Roll-Call, Roll-Call Acknowledgments, Power Off, Heat Alarm and Low Battery indications. Data-log information can be downloaded to a PC using the datalog-transfer software and USB cable available from Grace Industries, Inc.

### **Internal Clock Status**

**Clock is Set:** Accountability Key removed to activate unit, a series of loud escalating audio tones. Followed by an alternating display of Green LEDs indicating PASS is operational and ready for use.

**Clock NOT Set:** Accountability Key removed to activate unit, a series of four audio tones (da, da, da, dat). Followed by a steady ON display of upper left Amber LED indicating PASS is not operational and should not be used.

**TFX5 and RF activated FX5X:** RF PASS Clocks will be automatically reset/update when used with In-Command “Full-Crew” and In-Command “First-In” Accountability systems. Once systems are active, the “polling signal” will update the RF PASS internal clock.

\* For information on how to reset the internal clock please visit our website at [www.gracefirefighter.com](http://www.gracefirefighter.com)

**NOTE: This user’s information also applies to FX5X with ACTIVATED telemetry functions.**