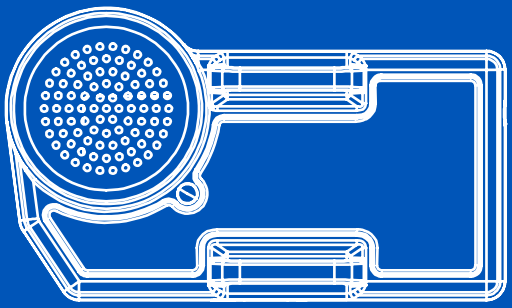


TRU-ALERT HEIGHT SENSOR and RESET REMOTE

Operator Manual

NOTE TO INSTALLERS

Always Read Instructions Before Use

Keep a copy of this manual available for reference.
A QR Code linking to an electronic version of the manual is printed on the case of the device. The Operator Manual contains information relating to the proper use of the TRU-ALERT Height Sensor and Reset Remote and includes all warranty information. Ensure that this Operator Manual is readily available to operators at all times.

Head Rush Technologies TRU-ALERT Height Sensor and Reset Remote Operator Manual
P/N 13226-03

TRU-ALERT HEIGHT SENSOR


TRU-CLIP
CONNECTOR
TRU-ALERT

TABLE OF CONTENTS

IMPORTANT SAFETY NOTICE

Climbing/Descent from Height Is a Dangerous Activity

Read Before Installation & Operation

Failure by the operator to heed any and all instructions, warnings, and cautions for the correct installation, operation, and care of the TRU-ALERT system may result in death or serious injury.

The TRU-ALERT system was designed to be installed and used as one component of a safe climbing environment, which includes facility design and maintenance, equipment selection, installation and maintenance, staff and user training, and appropriate supervision.

The TRU-ALERT system, when used as instructed, can help mitigate certain risks and enhance overall safety. However, the facility owner, operator, or user are always responsible for maintaining a safe climbing environment. The TRU-ALERT system does not replace the need for appropriately designed and maintained equipment and facilities and does not replace the need for appropriate instruction and supervision of customers and users.

The TRU-ALERT system is designed to provide owners and operators with flexibility to adapt the system to enhance safety in their individual facilities and with their equipment. It is essential that owners, operators, and staff fully understand the modes of operation of TRU-ALERT components and other information contained in this manual prior to utilizing the TRU-ALERT.

Health and Safety

Owners and operators must abide by all Standards, International, Federal, State and Provincial laws, and any specific health and safety regulations pertaining to the installation and use of this product.

Site Rescue Plan

Owners and operators must have devised an emergency rescue plan for any climber in distress at all sites operating Auto Belay devices, including TRUBLUE Auto Belay devices. Operators must inform Users of the Auto Belay of the procedure for rescuing a climber in distress prior to climbing.

1.0 SAFETY INFORMATION

1.1 Symbols Used in this Manual

The following safety symbols are used throughout this manual to highlight potential dangers. One or more precautions may be associated with practices and procedures described within this manual. Failure to adhere to any precautions highlighted can result in death, serious injury, or equipment damage.

Ensure that you read and understand all safety procedures related to the working environment and the task you are performing.

DANGER

Indicates a hazardous situation exists that, if not avoided, will result in serious injury or death.

WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death.

CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in injury or equipment damage.

NOTICE

Indicates an action that must be taken to ensure personal safety and prevent damage to property or equipment.

CARE FOR THE ENVIRONMENT

Take care to minimize impact on the environment when carrying out this procedure.

1.2 Product Safety

- Do not expose the device to temperatures outside of the specified operating temperature range as it may damage internal components and reduce performance.
- Avoid spilling liquids on the device as it may damage internal components and reduce performance. Do not submerge in liquid. Reference Maintenance and Care section for proper cleaning techniques.
- Do not attempt to open, modify, or repair the device yourself as this will void the warranty and pose safety risks.
- Use only the included or manufacturer-approved charging accessories to prevent overheating, fire, or damage to the device.
- If you have a medical implant or condition, consult your physician before use as the device may emit electromagnetic signals that could interfere with medical equipment.
- Do not wrap the cord around any part of the body as entanglement or injury can occur.
- If you are at risk of light sensitive medical episodes such as seizures, consult your physician before use as the device emits flashing lights which may trigger medical episodes.

2.0 INTRODUCTION

Thank you for choosing the TRU-ALERT family of products from Head Rush Technologies. The TRU-ALERT Height Sensor and TRU-ALERT Reset Remote are designed to enhance safety in your facility by providing real-time monitoring of climbing activity, audible and visual notifications of unsafe climbing activity, and custom use modes to accommodate unique facility features. Please read this manual thoroughly prior to use to get the most out of your TRU-ALERT devices.

3.0 REGULATORY INFORMATION

3.1 Standards

NOTICE

If TRU-ALERT Products are resold outside of the country of destination, the reseller must provide instructions for use and care in the language of the country of use.

The TRU-ALERT Height Sensor and Reset Remote conform to Directive (EU) 2014/53/EU and Directive 2014/30/EU and have been tested in accordance with the following harmonized standards and:

- EN 300 328 V2.2.2:2019 – Wideband transmission systems; Data transmission equipment operating in the 2.4 GHz band; Harmonized Standard for access to radio spectrum
- EN 62479:2010 – Assessment of the compliance of low-power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)
- FCC 47 CFR Part 15 Subpart B:2023 – Telecommunications; Radio Frequency Devices - Unintentional Radiators
- ICES-003 Issue 7:2020 – Information Technology Equipment (including Digital Apparatus)
- IEC 62133-2:2017/AMD1:2021 – Safety Testing for Lithium Batteries
- UN 38.3 – Safety Testing for Lithium Batteries
- UL 1642 – Safety Testing for Lithium Batteries

NOTICE

Radio interference in residential settings has not been tested.

Details, test results, and EU declaration of conformity for TRU-ALERT devices can be found at: https://headrushtech.com/product-resources/certification-documents/

MANUFACTURER'S INFORMATION:

Head Rush Technologies

1699 Cherry Street, STE C

Louisville, CO 80027

USA

4.0 GETTING STARTED

4.1 In The Box – TRU-ALERT Height Sensor

COMPONENT	MATERIAL	IMAGE
TRU-ALERT Height Sensor	ABS, TPE, Copper, Li-Ion Battery, Speaker Magnets	
Attachment Bracket – TRU-CLIP	Polypropylene and Steel Screws	
Attachment Bracket – Self Belay	Polypropylene and Steel Screws	
Attachment Bracket – Belay Mate	Polypropylene and Steel Screws	
Quick Attach Strap - Case	Silicone	
Quick Attach Strap - Cord (x2)	Silicone	
USB Type-A to USB Type-C Cable	PVC, TPE, Copper	

4.2 Device Overview – TRU-ALERT Height Sensor

FEATURES

ITEM	NAME
1	Height Sensor Assembly with Elevation Detector
2	Orientation Detector
3	Coiled Cable
4	Speaker
5	LED
6	USB-C Port
7	Physical Reset Button (requires a Physical Reset Pin or large paper clip)
8	Model Name
9	Country of Origin
10	Company Name
11	WEEE Disposal and Compliance Testing Information
12	QR Code to Product Manual

4.3 In The Box – TRU-ALERT Reset Remote

COMPONENT	MATERIAL	IMAGE
TRU-ALERT Reset Remote	ABS, Li-Ion Battery, Speaker Magnets	
TRU-ALERT Physical Reset Pin	Steel	

4.4 Device Overview – TRU-ALERT Reset Remote

FEATURES

ITEM	NAME
1	Blue Reset Button
2	Speaker
3	LED
4	Reset Remote Case
5	USB-C Connection
6	Physical Reset Button (requires a Physical Reset Pin or large paper clip)
7	Model Name
8	Country of Origin
9	Company Name
10	WEEE Disposal and Compliance Testing Information
11	QR Code to Product Manual

5.0 SET-UP

Follow the steps below to properly set-up the TRU-ALERT Height Sensors and TRU-ALERT Reset Remotes.

5.1 Charging the Device

NOTICE

This device must be charged prior to first use.

The Height Sensor and Reset Remote arrive in Inventory Mode and in a low power state. Devices will not charge while in Inventory Mode. To deactivate Inventory Mode, press and release the Physical Reset Button using the Physical Reset Pin or a large paper clip. The LED will turn solid green for 10 seconds indicating deactivation of Inventory Mode.

To charge, plug a USB-C cable into the slot on the edge of the device, then plug the opposite end of the cable into the TRU-ALERT Charging Bank or a 5V power adapter.

The LED will pulse blue while charging. The LED will change to solid blue when charging is complete. Initial charging will take approximately 2 hours.

After initial charging, Head Rush Technologies recommends charging the devices at least every 2 or 3 days to maintain optimal battery performance. Battery life will vary depending on the number of alarms per day. A fully charged TRU-ALERT Height Sensor should last four (4) days between charges.

5.2 Device Pairing

Height Sensors must be paired to the Reset Remotes during initial set-up. Once paired, the devices will maintain connection. Each Reset Remote must be paired with all Height Sensors that will be used in a climbing area. Height Sensors can support pairing with up to 32 Reset Remotes.

For pairing:

NOTICE

The Height Sensors must be paired at the same height. For best results, set the Height Sensors and the Reset Remote on a table or the floor to ensure they are at the same height during the pairing process.

The Height Sensors must not be in Sleep Mode during the pairing process. The Height Sensors will go to sleep if not moved for 5 minutes. If the LED is not on or flashing, the Height Sensor is in Sleep Mode. If the Height Sensors are asleep, move them to wake them up just before beginning to pair.

Height Sensors will properly pair to Reset Remotes in Pause Mode or Normal Mode.

NOTICE

The visual and audible notification will emit from the newly paired Height Sensor(s). The Reset Remote will not emit sound during pairing.

Pairing Step 1

To begin, arrange all Height Sensors within approximately 1m of the Reset Remote to be paired

Pairing Step 2

Press and Hold the Blue Reset Button

Pairing Step 3

While holding the Blue Reset Button, Press and Release the physical Reset Button using the Physical Reset Pin or a large paper clip

NOTE:
Pairing Step 3 must be completed within 5 seconds of Pairing Step 2.

Pairing Step 4

Continue holding the Blue Reset Button until the LEDs flash Blue-to-Green, then release the Blue Reset Button

Pairing Step 5

The Reset Remote will begin searching for and pairing to all Height Sensors within approximately 1m. Successful pairing is indicated by a Blue-to-Green flashing LED and a paired audio sequence.

5.3 Device Installation

The Height Sensor must be installed on a climbing harness for proper function. Follow the steps below for installation.

5.3.1 ATTACHMENT BRACKET INSTALLATION

Install the Orientation Detector Attachment Bracket to the Auto Belay Connecting Element using two (2) of the included screws and a #2 phillips screwdriver (not included). DO NOT over-tighten the screws or damage to the brackets may occur.

WARNING

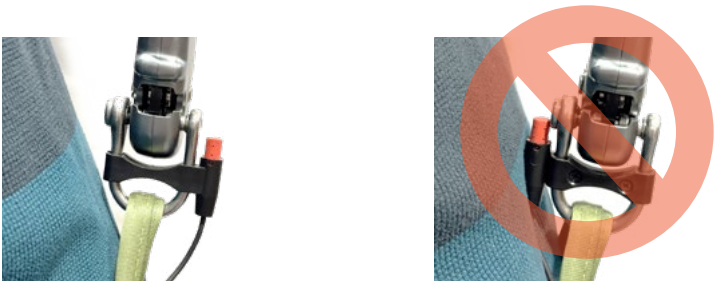
Failure to properly install the Attachment Brackets could result in death, serious injury, or equipment damage.

NOTICE

Three (3) different attachment brackets are included with the Height Sensor to accommodate the most common connecting elements: TRU-CLIP, Belay Mate, and Self Belay.

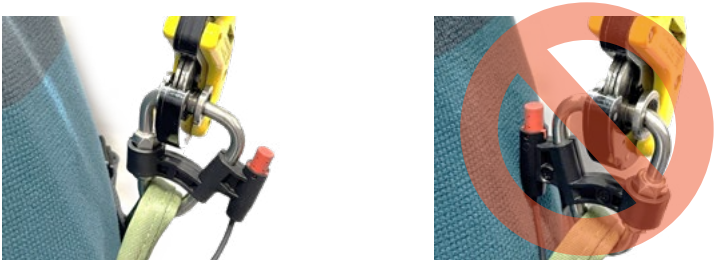
TRU-CLIP BRACKET

Ensure the Orientation Detector is not against the climber after installation.



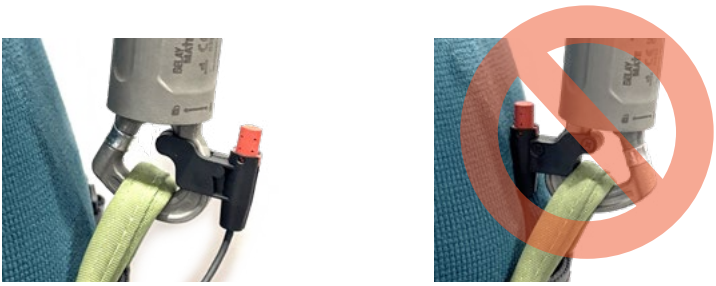
SELF BELAY BRACKET

Ensure the Orientation Detector is not against the climber after installation.



BELAY MATE BRACKET

Ensure the Orientation Detector is not against the climber after installation.



5.3.2 HEIGHT SENSOR INSTALLATION

Install the Orientation Detector

- Ensure the Orientation Detector is fully inserted into the attachment bracket with the cord exiting the bottom of the attachment bracket as shown.
- Press on the top of the Orientation Detector to install into the attachment bracket. Do not pull on the cord to install the Orientation Detector.

NOTICE

Failure to properly install Orientation Detector will cause improper device function and may result in equipment damage.

Route the wire around the Harness

- Choose a wire route that avoids interference when fitting or adjusting harnesses on climbers
- Use Quick Attach Straps to secure the excess wire
- Ensure that the wire runs through, not around, any containment loops on the harness

Use the Quick Attach Strap to secure the Height Sensor

- The Speaker and LED should be facing outward.
- Use whatever securing method suits your set-up. Once secured, this will not need to be removed when swapping units between harnesses or during device charging.

WARNING

The wiring and Quick Attach Straps are not structural components and must not be pulled on or loaded during climbing activity.

5.4 Test Proper Function

Testing proper function of the devices ensures that they were set-up and installed properly. Follow the procedure outlined below to verify proper function.

NOTICE

Testing for proper function should be performed after each device charging cycle.

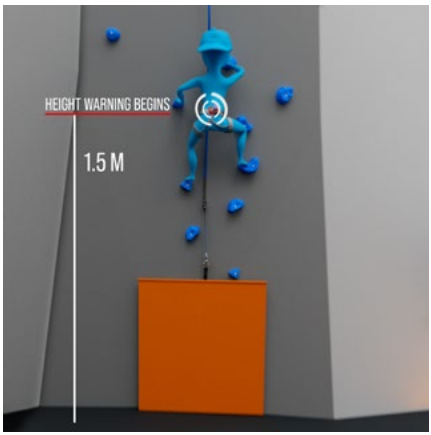
5.4.1 TRU-ALERT HEIGHT SENSOR

NOTICE

The proper operation of the Height Sensor must be tested and confirmed before the TRU-ALERT system is placed into service.

- With the Height Sensor in Normal Mode, raise the Height Sensor above Height Warning level with the Orientation Detector pointing down

  ✓ Confirm that Height Warning activates, which is indicated by a slow repeating chirp sound and a slow repeating red LED flash



- With the Height Sensor above Height Warning level, rotate the Orientation Detector to point up

  ✓ Confirm that Height Warning deactivates

- With the Height Sensor above Height Warning level, rotate the Orientation Detector to point down

  ✓ Confirm that Height Warning re-activates

- With the Orientation Detector pointing down, lower the Height Sensor to Safe Level

  ✓ Confirm that Height Warning deactivates

Reference the Troubleshooting section to diagnose any abnormal function.

5.4.2 TRU-ALERT RESET REMOTE

- Momentarily press the blue Reset Button within 20cm of a Height Sensor which is in Normal Mode.
  - ✓ Confirm the Height Sensor is reset, which is indicated by a single beep and a green LED flash.

- Press and release the Physical Reset Button using the Physical Reset Pin or a large paper clip to initiate Identification of Paired Devices
  - ✓ Confirm that nearby Height Sensors flash purple which indicates proper pairing

Reference the Troubleshooting section to diagnose any abnormal function

5.5 Staff Training

NOTICE

The TRU-ALERT system does not replace the need for skilled, alert, and professional staff.

To ensure proper operation, staff must be fully trained on the function of the Height Sensor and Reset Remote.

Ensure staff have read and understood this manual. For further training resources contact your Head Rush Technologies representative.

5.6 Climb on!

Set-up is now complete! You may begin using the devices in your facility to monitor safe climbing activity.

Continue reading this manual for detailed information about the function of the device and other relevant information.

6.0 USING THE DEVICE

6.1 How it works – TRU-ALERT Height Sensor

The Height Sensor attaches to a climbing harness and the climber-to-Auto Belay connection point (e.g. TRU-CLIP Key Link) to monitor climbing activity.

NOTICE

The Height Sensor is only compatible with TRU-CLIP, Self Belay, and Belay Mate connectors. It is not intended for use with other auto belay connection types or climbing ropes.

When unsafe climbing activity* is detected, and the TRU-ALERT system has been properly installed and tested, the Height Sensor emits audible and visual alerts to notify the climber and nearby staff. There are two levels of alerts – Height Warning and Safety Alarm.

*Unsafe climbing activity includes, but is not limited to:

- Climbing without proper connection to an Auto Belay
- Climbing with slack in the webbing line
- Pulling webbing out of the Auto Belay prior to descending

6.1.1 PRIMARY FUNCTION – NORMAL MODE – PAIRED

For best results, Height Sensors must be paired to Reset Remotes. See the Device Pairing section for instructions. Paired Normal Mode is indicated by a slow green flashing LED.

The Height Sensor uses an Elevation Detector to continuously compare climber elevation with the average elevation of all paired Reset Remotes. For improved accuracy, Head Rush Technologies recommends pairing at least five (5) Reset Remotes to all Height Sensors.

Proper connection to an Auto Belay is monitored by an Orientation Detector which is attached to the climber-to-Auto Belay connection link. The Orientation Detector must be installed following the instructions in Section 5.3. When the climber-to-Auto Belay connection link is pointed downward (i.e. hanging freely from a climbing harness), the Orientation Detector assumes no connection or improper connection to an Auto Belay.

Climber Disconnected or Improperly Connected – Orientation Detector pointing downward

Climber Properly Connected – Orientation Detector pointing upward

6.1.2 PRIMARY FUNCTION – NORMAL MODE – UNPAIRED

When unpaired, the Height Sensor uses an Elevation Detector to establish safe level and continuously monitor climber elevation. Unpaired Normal Mode is indicated by a quick green flashing LED.

Proper connection to an Auto Belay is monitored by an Orientation Detector which is attached to the climber-to-Auto Belay connection link (e.g. TRU-CLIP Key Link). The Orientation Detector must be installed following the instructions in Section 5.3. When the climber-to-Auto Belay connection link is pointed downward (i.e. hanging freely from a climbing harness), the Orientation Detector assumes no connection or improper connection to an Auto Belay.

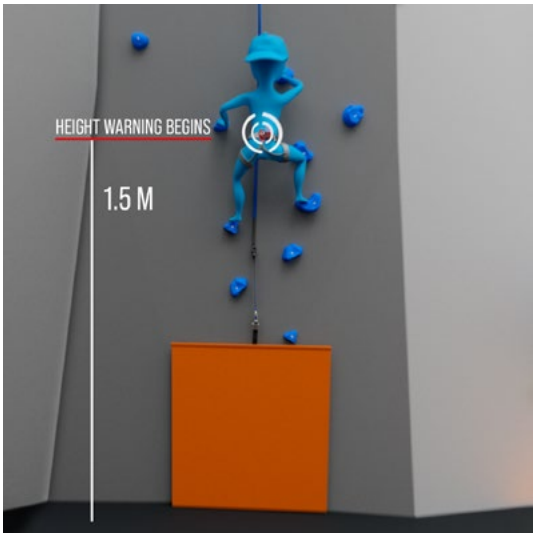
NOTICE

Using Height Sensors unpaired from Reset Remotes may result in false Height Warnings. For best results, Height Sensors must be paired to Reset Remotes.

HEIGHT WARNING

Height Warning activates when a climber – who is not properly attached to an Auto Belay – climbs ~1.5m above ground level.

Height Warning is indicated by a slow repeating chirp sound and a slow repeating red LED flash.



NOTICE

Actual height may vary slightly due to facility conditions.

NOTICE

Height Warning activation height is less accurate when the Height Sensor is used unpaired.

Height Warning will automatically deactivate when the climber descends below ~1.5m OR properly connects to an Auto Belay. Height Warning will remain active for as long as the climber is above 1.5m and not properly connected to an Auto Belay.

To manually deactivate Height Warning, press the blue Reset Button on the Reset Remote within 20cm of the Height Sensor OR press the physical reset button of the Height Sensor using the Physical Reset Pin or a large paper clip.

SAFETY ALARM

Safety Alarm activates when a climber – who is not properly attached to an Auto Belay – climbs ~2.5m above ground level.

Safety Alarm is indicated by a continuous chirp sound and continuous fast red LED flash.

NOTICE

Actual height may vary slightly due to unique facility conditions.

NOTICE

Safety Alarm activation height is less accurate when the Height Sensor is used unpaired. For best results, Height Sensors must be paired to Reset Remotes.

Safety Alarm will remain active until manually deactivated by a facility staff member, even if the climber descends below ~2.5m or properly connects to an Auto Belay.

To manually deactivate Height Warning, press the blue Reset Button on the Reset Remote within 20 cm of the Height Sensor OR press the physical reset button of the Height Sensor using the Physical Reset Pin or a large paper clip.

NOTICE

The mandatory staff interaction for all Safety Alarms provides an opportunity for facility staff to correct the unsafe climbing activity with the individual climber.

6.1.3 SECONDARY FUNCTION – NORMAL MODE – PAIRED AND UNPAIRED

SLACK SENSOR

The Height Sensor will detect slack in the webbing line during climbing. When slack is detected by the Orientation Detector and the climber is ~2.5m above ground level, the Height Sensor activates Height Warning for 2 seconds. This allows the climber to correct the slack issue or downclimb to a safe level. If the slack issue is not corrected within 2 seconds, the Height Sensor activates Safety Alarm.

NOTICE

Facilities must train climbers of the proper procedure in the event of webbing slack prior to climbing.

6.2 How it Works – TRU-ALERT Reset Remote

The Reset Remote is required to reset Height Sensors with active alerts. Pairing the Reset Remote to Height Sensors will improve the accuracy of Height Sensors.

See the Device Pairing section for instructions.

NOTICE

Reset Remotes are intended to be carried or worn by staff in the climbing area.

NOTICE

Reset Remotes monitor air pressure, avoid using or carrying Reset Remotes in a way which may artificially affect the air pressure reading. (e.g. avoid carrying Reset Remotes in pockets or swinging Reset Remotes on a lanyard.)

6.2.1 PRIMARY FUNCTION – NORMAL MODE – PAIRED

The Reset Remote continuously monitors staff elevation through an Elevation Detector and broadcasts Safe Level to all paired Height Sensors.

CAUTION

Staff must not climb while carrying a Reset Remote as this will adversely affect Safe Level.

The Reset Remote is intended to be carried or worn by facility staff who are working in the climbing area. Pressing the blue Reset Button within 20cm of a Height Sensor cancels any active alerts.

NOTICE

Reset Remotes will continue to broadcast Safe Level while plugged in for charging. Ensure that devices are charged at Safe Level.

6.2.2 PRIMARY FUNCTION – NORMAL MODE – UNPAIRED

The Reset Remote is carried or worn by facility staff who are working in the climbing area. Pressing the blue Reset Button within 20cm of a Height Sensor cancels any active alerts.

6.2.3 SECONDARY FUNCTION

The Reset Remote is used to change the Mode of the Height Sensor and the Reset Remote. Reference the Modes section of this manual for more information.

6.3 Powering On/Off

- Powering On from Inventory Mode: Press and Release the physical reset button using the Physical Reset Pin or a large paper clip.
- Power On from Shipping Mode: Connect and disconnect the device from the charger.
- Power On from Sleep Mode: Move the device.

CAUTION

If the Height Sensor has been in Sleep Mode for a long period of time, it may be necessary to charge the device for proper function. Reset Remotes do not Sleep.

- Power Off: The device cannot be manually powered off. Shipping Mode and Sleep Mode reduce battery consumption and disable Height Warning and Safety Alarm. See the Modes section for more details.

7.0 MODES

The Height Sensor and Reset Remote are equipped with various modes to accommodate unique features of facilities such as multiple levels and elevated features where climbers are not connected to Auto Belays but are otherwise safe.

7.1 Modes — TRU-ALERT Height Sensor

Reference this table for quick information on the various modes of the Height Sensor. Detailed descriptions of each mode may be found later in this section.

TRU-ALERT Height Sensor			
Mode Name	**Mode Activation**	**Mode Deactivation**	**Mode Function**
Normal Mode	Press the blue Reset Button on the Reset Remote within 20cm of a Height Sensor - OR - Press the physical Reset Button on the device using the Physical Reset Pin	Activate a different Mode	▪ Elevation Detector and Orientation Detector function is active ▪ Height Warning and Safety Alarm is active ▪ See Primary Function section for details
Sleep Mode	Device not moved for 5 minutes	Move Device	▪ Extends Battery Life by disabling Elevation Detector and Orientation Detector ▪ Electronics enter low-power state but monitor motion
Suspend Mode	Pass within 1m of a Reset Remote which is broadcasting in Suspend Mode - On	Pass within 1m of a Reset Remote which is broadcasting in Suspend Mode - Off - OR - Automatically deactivated after 20 minutes	▪ Height Warning and Safety Alarm disabled ▪ Elevation Detector and Orientation Detector function remains active ▪ The 20 minute timer may be reset by passing within 1m of a Reset Remote which is broadcasting in Suspend Mode - On

Pause Mode	Double-Click the blue Reset Button on the Reset Remote within 20cm of a Height Sensor	Click the blue Reset Button on the Reset Remote within 20cm of the Height Sensor - OR - Ascend 1.5m or more then return to Safe Level	▪ Height Warning and Safety Alarm disabled ▪ Elevation Detector and Orientation Detector function remains active
Shipping Mode	With Height Sensor plugged into charger – Press the blue Reset Button on the Reset Remote within 20cm of the Height Sensor	Plug into charger	▪ Elevation Detector and Orientation Detector disabled ▪ Electronics enter low-power state ▪ Use this mode when moving devices to a new facility or shipping devices
Bootloader Mode	Press the physical Reset Button on the device using the Physical Reset Pin or a large paper clip	Automatically deactivated after 10s	Allows Bluetooth connection to a remote device for firmware updates
Low Battery Mode	Automatically activated when the battery charge level is low	Charge the device	▪ Indicates that the battery level is low ▪ Normal function is retained although accurate function may be reduced
Critically Low Battery Mode	Automatically activated when the battery charge level is critically low	Charge the device	Normal function is unavailable until the device is re-charged

7.1.1 NORMAL MODE

This is the default mode of the Height Sensor. Details of function in Normal Mode are described in the "How It Works" section.

7.1.2 SLEEP MODE

Sleep Mode extends battery life by disabling the Elevation Detector and Orientation Detector after the device has not moved for 5 minutes. Device motion sensing remains active. Move the device to deactivate Sleep Mode. Deactivation of Sleep Mode automatically activates Pause Mode. Activation of Pause Mode is indicated by a purple pulsing LED.

In Sleep Mode the LED and Speaker are disabled.

7.1.3 SUSPEND MODE

Suspend Mode allows climbers who are not connected to an Auto Belay – but who are otherwise safe – to gain elevation without activating the alerts for unsafe climbing activity. Suspend Mode should only be used for facility elements which allow climbers to remain at elevated heights for extended periods of time such as stairs or ropes courses.

CAUTION

Staff members must check to ensure that Suspend Mode is OFF in normal conditions.

Suspend Mode is activated by passing a Height Sensor which is in Normal Mode by a Reset Remote that is broadcasting a Suspend Mode – On signal. Reference section TRU-ALERT Reset Remote Suspend Mode - On details for more information. Activation of Suspend Mode is indicated by a pulsing yellow LED and a Suspend Mode audio sequence.

Suspend Mode is deactivated by passing a Height Sensor which is in Suspend Mode by a Reset Remote that is broadcasting a Suspend Mode – Off signal -OR- by waiting 20 minutes. Reference section TRU-ALERT Reset Remote Suspend Mode - Off details for more information. Deactivation of Suspend Mode will automatically reactivate Normal Mode. Activation of Normal Mode is indicated by a green flashing LED and a single beep.

Suspend Mode disables the Height Warning and Safety Alarm but the Elevation Detector and Orientation Detector remain active. Reference the table below for details on activating and deactivating Suspend Mode.

TRU-ALERT Height Sensor Beginning Mode	→	Event	→	TRU-ALERT Height Sensor Ending Mode
Normal Mode	→	Suspend Mode - On signal received by TRU-ALERT Height Sensor	→	Suspend Mode
Suspend Mode	→	Suspend Mode - Off signal received by TRU-ALERT Height Sensor	→	Normal Mode
Suspend Mode	→	20 minutes elapses	→	Normal Mode

NOTICE

Passing a Height Sensor which is in Suspend Mode by a Reset Remote that is broadcasting a Suspend Mode - On signal will restart the 20 minute timer.

Example Scenario Using Suspend Mode:

A facility has a ropes course with one entrance and one exit which allows climbers to gain more than 1.5m of elevation safely without the use of an Auto Belay. At the entrance to the ropes course, the facility has installed a Reset Remote which is set to broadcast a Suspend Mode – On signal. At the exit of the ropes course, the facility has installed a Reset Remote which is set to broadcast a Suspend Mode – Off signal.

When climbers enter the ropes course, the climber passes by the Reset Remote which is broadcasting a Suspend Mode - On signal. The Height Sensor installed on the climber's harness receives the Suspend Mode – On signal which activates Suspend Mode. When climbers exit the ropes course, the climber passes by the Reset Remote which is broadcasting a Suspend Mode - Off signal. The Height Sensor installed on the climber's harness receives the Suspend Mode – Off signal which deactivates Suspend Mode and reactivates Normal Mode. Activation of Normal Mode is indicated by a green flashing LED and a single beep.

7.1.4 PAUSE MODE

Pause Mode allows climbers who are not connected to an Auto Belay – but who are otherwise safe – to gain elevation without activating the alerts for unsafe climbing activity. Pause Mode should only be used for facility elements which allow climbers to remain at elevated heights for short periods of time such as slides.

Pause Mode disables the Height Warning and Safety Alarm but the Elevation Detector and Orientation Detector remain active.

To activate Pause Mode, double click the blue Reset Button of a Reset Remote within 20cm of a Height Sensor. Activation of Pause Mode is indicated by a pulsing purple LED and two beeps.

To deactivate Pause Mode, single click the blue Reset Button of the Reset Remote within 20cm of a Height Sensor which is in Pause Mode -OR- gain 1.5m of elevation, then return to Safe Level. Deactivation of Pause Mode will automatically reactivate Normal Mode. Activation of Normal Mode is indicated by a green flashing LED and a single beep.

Reference section TRU-ALERT Reset Remote – Pause Mode for more information.

Example Scenario using Pause Mode:

A facility has a slide element which allows climbers to gain more than 1.5m of elevation safely without the use of an Auto Belay. The slide element requires operation by facility staff.

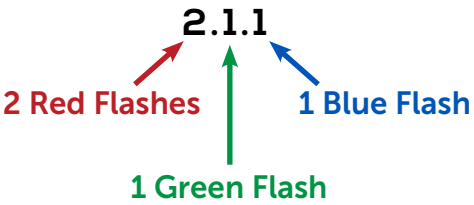
A climber enters the slide element. The facility staff member double clicks their Reset Remote within 20 cm of the Height Sensor installed on the climber's harness which activates Pause Mode. The climber gains more than 1.5m of elevation to the top of the slide element. While sliding down the element the climber returns to Safe Level which automatically deactivates Pause Mode and reactivates Normal Mode.

7.1.5 SHIPPING MODE

Shipping Mode is used for device transportation outside of the climbing facility or storage. The Elevation Detector and Orientation Detector are disabled and the electronics enter low-power state.

To activate Shipping Mode, press the blue Reset Button of the Reset Remote within 20cm of a Height Sensor which is plugged in to a charger.

Activation of Shipping Mode displays the Firmware (FW) version. Firmware versions are formatted as three digits in the following format “2.1.1”. The values of each number are indicated by flashes of the LED.



To deactivate Shipping Mode, connect, then disconnect the Height Sensor from a charger. Deactivation of Shipping Mode will automatically reactivate Normal Mode. Activation of Normal Mode is indicated by a green flashing LED and a single beep.

7.1.6 BOOTLOADER MODE

Bootloader Mode facilitates firmware updates by allowing the device to connect via Bluetooth to a remote device such as a cell phone or computer.

To activate Bootloader Mode, momentarily press and release the Physical Reset Button using the Physical Reset Pin or a large paper clip. Bootloader Mode is indicated by a solid green LED.

Bootloader Mode deactivates automatically after 10 seconds. Deactivation of Bootloader Mode automatically reactivates Normal Mode. Activation of Normal Mode is indicated by a green flashing LED and a single beep.

Firmware update instructions are located on the TRU-ALERT Resources page of the Head Rush Technologies website.

7.1.7 LOW BATTERY MODE

Low Battery Mode alerts facility staff that the device will soon need charging. Normal device function is retained however accuracy may be affected by low battery level. Low Battery Mode is indicated by a yellow flashing LED in place of the green flashing LED of Normal Mode.

To deactivate Low Battery Mode, charge the device. Deactivation of Low Battery Mode will automatically reactivate Normal Mode. Activation of Normal Mode is indicated by a green flashing LED and a single beep.

7.1.8 CRITICALLY LOW BATTERY MODE

Critically Low Battery Mode alerts facility staff that the device requires immediate charging. Critically Low Battery Mode is indicated by a red flashing LED and 6 beeps.

CAUTION

Critically Low Battery Mode disables normal function.

To deactivate Critically Low Battery Mode, charge the device. Deactivation of Critically Low Battery Mode will automatically reactivate Normal Mode. Activation of Normal Mode is indicated by a green flashing LED and a single beep.

NOTICE

The device is electronically protected to prevent full battery depletion.

7.2 Modes — TRU-ALERT Reset Remote

Reference this table for quick information on the various modes of the Reset Remote. Detailed descriptions of each mode may be found later in this section.

TRU-ALERT Reset Remote			
Mode Name	**Mode Activation**	**Mode Deactivation**	**Mode Function**
Normal Mode	Default Mode - No Activation Required	Enter a different Mode	See Primary Function section for details.
Pairing Mode	While holding the blue Reset Button, press and release the physical Reset Button on the device using the Physical Reset Pin or a large paper clip. Continue holding the blue Reset Button until LED flashes Blue-to-Green, then release the blue Reset Button.	Automatically deactivated after 10s	Pairs to all active TRU-ALERT Height Sensors within approximately 1m.

Unpairing Mode	While holding the blue Reset Button, press and release the physical Reset Button on the device using the Physical Reset Pin or a large paper clip. Continue holding the blue Reset Button until LED flashes Blue-to-Red. Then release the blue Reset Button.	Automatically de-activated after 10s	Unpairs all active TRU-ALERT Height Sensors within approximately 1m.
Suspend Mode - ON	Press and Hold the blue Reset Button on the Reset Remote for 5s	Press and Hold the blue Reset Button on the Reset Remote for 5s. This will activate Suspend Mode - Off.	Broadcasts Suspend Mode – On signal to Height Sensors that pass within ~1m.
Suspend Mode - OFF	From Suspend Mode – On, Press and Hold the blue Reset Button on the Reset Remote for 5s	Press and Hold the blue Reset Button on the Reset Remote for 5s	Broadcasts Suspend Mode – Off signal to Height Sensors that pass within ~1m.
Pause Mode	Double-Click the Reset Button on the Reset Remote	Automatically de-activated after 5s	Broadcasts Pause Mode signal to Height Sensors that are within 20cm.
Shipping Mode	With Reset Remote plugged into charger – Press and Hold the Reset Button on the Reset Remote for 2s	Plug into charger	Elevation Detector disabled. Electronics enter low-power state. Use this mode when moving devices to a new facility or shipping devices.
Bootloader Mode and Identification of Paired Devices	Press the physical Reset Button on the device using the Physical Reset Pin or a large paper clip	Automatically de-activated after 10s	Allows BLE connection to a remote device for firmware updates and identifies all paired Height Sensors.
Low Battery Mode	Automatically activated when the battery charge level is low	Charge the device	▪ Indicates that the battery level is low ▪ Normal function is retained although accurate function may be reduced
Critically Low Battery Mode	Automatically activated when the battery charge level is critically low	Charge the device	Normal function is unavailable until the device is re-charged.

7.2.1 NORMAL MODE

This is the default mode of the Reset Remote. Details of function in Normal Mode are described in the "How It Works" section.

7.2.2 PAIRING MODE

Pairing Mode pairs all Height Sensors within ~1m to a Reset Remote. Devices need only be paired on initial set-up. Once paired, the connection is automatically maintained. Reference the "Device Pairing" section for details.

NOTICE

Each Reset Remote in use at a facility must be individually paired to all Height Sensors in use at the facility.

7.2.3 UNPAIRING MODE

Unpairing Mode unpairs all Height Sensors within ~1m from a Reset Remote. Unpairing is useful when moving Reset Remotes to a new facility or a new location in a climbing facility.

NOTICE

The visual and audible notifications will emit from the newly unpaired Height Sensor(s). The Reset Remote will not emit sound during unpairing.

To begin, arrange all Height Sensors within approximately 1m of the Reset Remote to be unpaired

Press and Hold the Blue Reset Button

While holding the Blue Reset Button, Press and Release the physical Reset Button using the Physical Reset Pin or a large paper clip

Continue holding the Blue Reset Button until the LEDs flash Blue-to-Red, then release the Blue Reset Button

The Reset Remote will begin searching for and unpairing from all Height Sensors within approximately 1m. Successful unpairing is indicated by a Blue-to-Red flashing LED and an unpaired audio sequence.

7.2.4 SUSPEND MODE – ON

Reset Remotes in Suspend Mode – On continuously broadcast a signal which activates Suspend Mode for any Height Sensor that passes within ~1m of the Reset Remote.

NOTICE

Reset Remotes in Suspend Mode – On will not broadcast Safe Level to any paired Height Sensors.

To activate Suspend Mode – On, press and hold the blue Reset Button on a Reset Remote for 5 seconds. Activation of Suspend Mode – On is indicated by a yellow pulsing LED.

To deactivate Suspend Mode – On, press and hold the blue Reset Button on a Reset Remote for 5 seconds. Deactivation of Suspend Mode – On will automatically activate Suspend Mode – Off.

TRU-ALERT Reset Remote Beginning Mode	→	Event	→	TRU-ALERT Reset Remote Ending Mode
Normal Mode	→	Press and Hold the blue Reset Button for 5 seconds	→	Suspend Mode – On
Suspend Mode – On	→	Press and Hold the blue Reset Button for 5 seconds	→	Suspend Mode – Off
Suspend Mode – Off	→	Press and Hold the blue Reset Button for 5 seconds	→	Normal Mode

Choosing a Location

Reset Remotes in Suspend Mode – On should be mounted near the entrance to an element which allows climbers to gain altitude safely (e.g. a ropes course or stairway). For ideal function, the Reset Remote should be mounted in a location that provides line-of-sight connection to any Height Sensor that will pass by. It may be necessary to install two Reset Remotes in Suspend Mode – On to ensure line-of-sight connection, for example on the left and right side of a staircase.

NOTICE

After installation it is important to test function to ensure Height Sensors can reliably receive the Suspend Mode – On signal. It is equally important to ensure the Height Sensors passing by, but which are not entering the element do not unintentionally receive the Suspend Mode – On signal.

7.2.5 SUSPEND MODE – OFF

Reset Remotes in Suspend Mode – Off, continuously broadcast a signal which deactivates Suspend Mode on any Height Sensor that passes within ~1m of the Reset Remote.

To activate Suspend Mode – Off, press and hold the blue Reset Button on a Reset Remote which is in Suspend Mode – On for 5s. Activation of Suspend Mode – Off is indicated by an orange pulsing LED.

To deactivate Suspend Mode – Off, press and hold the blue Reset Button on a Reset Remote for 5s. Deactivation of Suspend Mode – Off automatically re-activates Normal Mode. Re-activation of Normal Mode is indicated by a blue flash of the LED.

TRU-ALERT Reset Remote Beginning Mode	→	Event	→	TRU-ALERT Reset Remote Ending Mode
Normal Mode	→	Press and Hold the blue Reset Button for 5 seconds	→	Suspend Mode – On
Suspend Mode – On	→	Press and Hold the blue Reset Button for 5 seconds	→	Suspend Mode – Off
Suspend Mode – Off	→	Press and Hold the blue Reset Button for 5 seconds	→	Normal Mode

Choosing a Location

Reset Remotes in Suspend Mode – Off should be mounted near the exit of an element which allows climbers to gain altitude safely (e.g. a ropes course or stairway). For ideal function, the Reset Remote should be mounted in a location that provides line-of-sight connection to any Height Sensor that will pass by. It may be necessary to install two Reset Remotes in Suspend Mode – Off to ensure line-of-sight connection, for example on the left and right side of a staircase.

7.2.6 PAUSE MODE

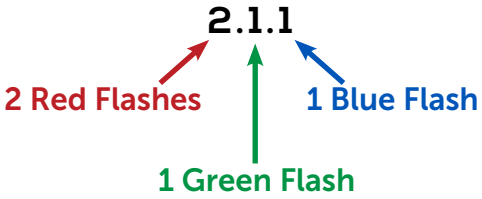
To activate Pause Mode, double click the blue Reset Button of the Reset Remote. Pause Mode will broadcast a Pause Mode signal to all Height Sensors within ~20cm for 5 seconds.

After 5 seconds, broadcasting of the Pause Mode signal stops and the Reset Remote automatically re-activates Normal Mode.

7.2.7 SHIPPING MODE

To activate Shipping Mode, press and hold the blue Reset Button of the Reset Remote for 2 seconds while the Reset Remote is plugged in to a charger.

Activation of Shipping Mode displays the Firmware (FW) version. Firmware versions are formatted as three digits in the following format "2.1.1". The values of each number and are indicated by flashes of the LED.



To deactivate Shipping Mode, connect, then disconnect the Reset Remote from a charger. Deactivation of Shipping Mode automatically activates Normal Mode.

7.2.8 BOOTLOADER MODE / IDENTIFICATION OF PAIRED DEVICES

Bootloader Mode facilitates firmware updates by allowing the device to connect via Bluetooth to a remote device such as a cell phone or computer.

Identification of Paired Devices sends an identification signal to all paired Height Sensors which are within range. The identification signal is indicated by a flashing purple LED. All Height Sensors which are paired to and within range of the Reset Remote will indicate that they are paired by a flashing purple LED.

To activate Bootloader Mode, press the physical Reset Button using the Physical Reset Pin or a large paper clip. Bootloader Mode is indicated by a solid green LED.

Bootloader Mode deactivates automatically after 10 seconds.

Firmware update instructions are located on the TRU-ALERT Resources page of the Head Rush Technologies website.

Deactivation of Bootloader Mode automatically activates Identification of Paired Devices.

Identification of Paired Devices deactivates automatically after 5 seconds.

Deactivation of Identification of Paired Devices automatically activates Normal Mode.

7.2.9 LOW BATTERY MODE

Low Battery Mode alerts facility staff that the device will soon need charging. Normal device function is retained however accuracy may be affected by low battery level. Low Battery Mode is indicated by a solid yellow LED.

To deactivate Low Battery Mode, charge the device. Deactivation of Low Battery Mode will automatically reactivate Normal Mode.

7.2.10 CRITICALLY LOW BATTERY MODE

Critically Low Battery Mode alerts facility staff that the device requires immediate charging and disables normal function. Critically Low Battery Mode is indicated by a solid red LED.

To deactivate Critically Low Battery Mode, charge the device. Deactivation of Critically Low Battery Mode will automatically reactivate Normal Mode.

NOTICE

The device is electronically protected to prevent full battery depletion.

8.0 MAINTENANCE AND CARE

Reference Section 5.4 Test Proper Function for regular verification of device function. Reference Section 9.0 Troubleshooting for corrective actions of abnormal function. Clean the device regularly with a soft, dry cloth. Store the device in a cool, dry place when not in use.

CAUTION

Avoid using liquids, chemicals, or abrasive materials.

PRODUCT END OF LIFE DISPOSAL INSTRUCTIONS

This electronic product is subject to disposal and recycling regulations that vary by country and region. It is your responsibility to recycle your electronic equipment per your local environmental laws and regulations to ensure that it will be recycled in a manner that protects human health and the environment. To find out where you can drop off your waste equipment for recycling, please contact your local waste recycle/disposal service.

BATTERY DISPOSAL INSTRUCTIONS

Batteries contain chemicals that, if released, may affect the environment and human health. Batteries should be collected separately for recycling, and recycled at a local hazardous material disposal location adhering to your country and local government regulations. To find out where you can drop off your waste battery for recycling, please contact your local waste disposal service. The Lithium Polymer (Li-Poly) rechargeable battery used in this product is removable. For removal instructions, visit headrushtech.com/climb/tru-alert-height-sensor.

9.0 TROUBLESHOOTING

NOTICE

Plugging Height Sensors into a battery charger will silence persistent alarms.

Reference the Modes section above to better understand what Mode the device is operating in. Understanding the modes will ease troubleshooting. For mode identification see the Quick Reference Charts below.

Internal errors are indicated by a Red-to-Yellow continuously flashing LED. Internal errors may indicate an electronic problem with the device.

Most errors, including internal errors, may be corrected by one of the following steps:

1. Reset the device
    a. Press the physical Reset Button with the Physical Reset Pin or a large paper clip.
2. Confirm that the battery is fully charged
3. Inspect for damage such as:
    a. Broken or damaged wire, especially near the case or near the Orientation Detector
    b. Cracks or severe damage to the case
    c. Water damage
4. Confirm proper installation to the climbing harness and climber-to-Auto Belay connection point. (e.g. TRU-CLIP Key Link)

For additional support, visit our website at www.headrushtech.com or contact customer service at 720-565-6885.

TRU-ALERT Height Sensor Quick Reference Chart			
LED Color	LED State	Speaker State	Height Sensor State
Green	Slow Flash	Single Beep, then none	Normal Mode - Paired
Green	Quick Flash	Single Beep, then none	Normal Mode - Unpaired
Green	Solid	none	Bootloader Mode
Blue	Pulsing	none	Charging
Blue	Solid	none	Fully Charged
Purple	Pulsing	Two Beeps, then none	Pause Mode
Purple	Flashing	none	Paired Device Identification
Yellow	Pulsing	4x Chimes, then none	Suspend Mode
Yellow	Slow Flash	Single Beep, then none	Low Battery - Normal Mode - Paired
Yellow	Quick Flash	Single Beep, then none	Low Battery - Normal Mode - Unpaired
Red	Slow Flash	Slow Chirp	Height Warning
Red	Quick Flash	Continuous Chirp	Safety Alarm
Red	Slow Flash	6 Beeps, then none	Critically Low Battery
Red / Yellow	Slow Flash	none	Internal Error
Blue / Green	Quick Flash	Paired Audio	Pair Complete
Blue / Red	Quick Flash	Unpaired Audio	Unpair Complete

TRU-ALERT Reset Remote Quick Reference Chart			
LED Color	LED State	Speaker State	Height Sensor State
Green	Solid	none	Bootloader Mode
Blue	Solid for 4 sec	none	Broadcasting Reset Signal
Blue	Pulsing	none	Charging
Blue	Solid	none	Fully Charged
Purple	Solid for 4 sec	none	Broadcasting Pause Mode Signal
Yellow	Solid for 4 sec	none	Broadcasting Reset Signal - Low Power
Yellow	Pulsing	none	Broadcasting Suspend Mode - On Signal
Amber	Pulsing	none	Broadcasting Suspend Mode - Off Signal
Red	Slow Flash for 4 sec	6 Beeps, then none	Critically Low Battery
Red / Yellow	Slow Flash	none	Internal Error
Blue / Green	Quick Flash	none	Pairing In-Process
Blue / Red	Quick Flash	none	Unpairing In-Process

10.0 WARRANTY AND SUPPORT

The TRU-ALERT Height Sensor and TRU-ALERT Reset Remote are warrantied against factory defects in materials and workmanship for a period of two (2) years from date of purchase. This warranty applies only to the original purchaser and is contingent upon the owner/operator using and maintaining the device in accordance with these instructions. THIS WARRANTY IS EXPRESSLY IN LIEU OF OTHER WARRANTIES, EXPRESS OR IMPLIED, AND ANY IMPLIED WARRANTY, INCLUDING WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IS HEREBY EXPRESSLY EXCLUDED. The sole remedy for breach of this warranty is the repair or replacement of any defective parts at the discretion of the manufacturer. Such parts claimed to be defective shall be returned to Head Rush Technologies, transportation prepaid, for inspection to determine to its satisfaction that said part(s) are defective. This warranty is null and void if any modifications or services have been carried out on the device by anyone other than an authorized Head Rush Technologies servicing agent. This warranty does NOT cover any damages resulting from the following:

- Normal Wear
- Modifications or alterations
- Failure to properly store the device
- Failure to properly maintain the device
- Damage due to abuse to the device, damage in transit, or any other damage beyond the control of Head Rush Technologies.

Head Rush Technologies makes no warranties in respect to trade accessories or component parts which are not made by Head Rush Technologies. No person, agent, or distributor is authorized to give any warranty, other than the one herein expressed, on behalf of Head Rush Technologies, or to assume for it any liability pertaining to such products. Head Rush Technologies expressly does not warranty merchantability or claim as to whether the device is suited for a particular purpose. Purchaser agrees that Head Rush Technologies shall not be held liable to purchaser/operator for damages of any kind, including but not limited to, lost or projected profits, equipment down time, or any losses considered to be caused by non-operation of the equipment. For full terms, visit headrushtech.com/product-resources/product-warranties.

10.1 Owner/Operator Responsibility for TRU-ALERT Components

The following items are the responsibility of the Owner/Operator and are therefore not covered under the terms of the warranty.

- Product installation
- Normal maintenance, including periodic inspections
- Replacements required because of abuse, misuse, or improper operational habits of the operator
- Normal deterioration due to use and exposure

Adherence to the Operator Manual, manufacturer's instructions, and advice given by authorized Head Rush Technologies service technicians is the responsibility of the buyer, installer, and operator.

11.0 TECHNICAL SPECIFICATIONS

- Enclosure Size: 80 mm x 47 mm x 18 mm
- TRU-ALERT Height Sensor Weight: 71 g (2.5 oz)
- TRU-ALERT Reset Remote Weight: 44.5 g (1.5 oz)
- Orientation Detector Minimum Cable Length (unstretched): 45 cm (17.8 in)
- Orientation Detector Maximum Cable Length (stretched): 65 cm (25 in)
- Battery Life: Up to 4 days on a single charge
- Battery Information: Lithium-Ion 3.7V 350mAh
- Battery Charging Port: USB-C
- Connectivity: Bluetooth Low Energy - BLE
- Sensors: Barometric Altimeter, Accelerometer
- Max Speaker Volume: 96 dB
- Maximum Operating Temperature: 60 degrees C (140 degrees F)
- Minimum Operating Temperature: -4 degrees C (25 degrees F)
- Frequency Bands of Operation: 2.4GHz
- Maximum radio-frequency power transmitted: 5.65 dBm

NOTES


TRUBLUE

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November 2025