



## Connected Safety

*User Instructions* for 3M™ Connected Safety Peripheral

**IMPORTANT:** Before use, the wearer must read and understand these *User Instructions*. Keep these *User Instructions* for reference.

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# 1 Foreword

Please read, understand, and follow all safety information contained in these instructions prior to the use of the Safety Hub and Headtop Peripheral system. If you have questions regarding these products, contact 3M Technical Service. Retain these *User Instructions* for future reference.

Explanation of Signal Words
<b>CAUTION:</b> Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury and/or property damage.
<b>NOTE:</b> Indicates important information a system user should be aware of.
<b>NOTICE:</b> Indicates a situation which, if not avoided, could result in property damage.
<b>WARNING:</b> Indicates a hazardous situation which, if not avoided, could result in serious injury or death.

## 1.1 List of Warnings within These *User Instructions*

<b>! WARNING</b>
<ol style="list-style-type: none"><li>1. The 3M™ Connected PPE system components are not intrinsically safe. <b>Do not use in flammable or explosive atmospheres. Doing so may result in serious injury or death.</b></li><li>2. <b>To reduce the risks associated with fire and explosion:</b><ol style="list-style-type: none"><li>a. Always replace the battery with the correct type as identified by in these <i>User Instructions</i> or by 3M personnel</li><li>b. Do not open, crush, incinerate, or heat the battery above 100°C (212°F)</li></ol></li><li>3. <b>To reduce the risks associated with inhalation of contaminants:</b><ol style="list-style-type: none"><li>a. Proper selection, training, use, and appropriate maintenance are essential in order for the product to help protect the wearer from certain airborne contaminants. Failure to follow all instructions on the use of these respiratory protection products and/or failure to properly wear the complete product during all periods of exposure may adversely affect the wearer's health, lead to sever or life-threatening illness or permanent disability. For suitability and proper use follow local regulations, refer to all information supplied, contact a safety professional, or 3M representative – 1-800-243-4630.</li></ol></li><li>4. <b>To reduce the risks associated with exposure to workplace hazards:</b><ol style="list-style-type: none"><li>a. Always inspect the Headtop Peripheral, including carrier, for damage before each use. If any part of the system is damaged, replace damaged components before use. Consult Headtop User Instructions for more information on proper inspection of Headtop.</li><li>b. Always clean the peripheral before each use. Wipe exposed surfaces with a damp cloth.</li><li>c. Follow all Safety Supervisor policies regarding Universal Headtop alerts.</li></ol></li><li>5. The Safety Hub and Headtop Peripheral are used for supplemental alerting of a potentially unsafe condition based on Safety Rules configured by Employer's Industrial Hygienist or other Safety Professional, and does not substitute for any integrated TR-600 alarms. Follow all Safety Supervisor policies regarding Safety Hub alerts. Leave the contaminated area immediately if any of the following conditions occur:<ol style="list-style-type: none"><li>a. Any part of the system becomes damaged.</li></ol></li></ol>

- b. Airflow into the respirator decreases or stops.
  - c. The low airflow or low battery alarms trigger. In the event of an audible, visual, or vibratory alarm triggers, the user should immediately leave the contaminated area.
  - d. Breathing becomes difficult.
  - e. You feel dizzy or your vision is impaired.
  - f. You taste or smell contaminants.
  - g. Your face, eyes, nose or mouth become(s) irritated.
  - h. You suspect that the concentration of contaminants may have reached levels at which this respirator may no longer provide adequate protection.
  - i. User must immediately leave the work area and the filter should be changed when the audible alarm or red LED activates, or when the chemical service life is exceeded - whichever comes first.
6. To reduce the risks associated with exposure to workplace hazards which, if not avoided, could result in serious injury or death:
    - a. Always inspect Headtop Peripheral for damage before each use. If any part of the system is damaged, replace damaged components before use. Consult Headtop User Instructions for more information on proper inspection of Headtop.
  7. To reduce the risks associated with fire and explosion which, if not avoided, could result in serious injury or death:
    - a. Always replace the battery with the correct type as identified in this User Manual.
    - b. Always dispose of used batteries according to the instructions identified in this User Manual.
  8. To reduce the risks associated with inhalation of contaminants which, if not avoided, could result in serious injury or death:
    - a. Always clean the peripheral before each use. Wipe exposed surfaces with a damp cloth.
  9. Keep out of reach of Children. Never put batteries in mouth. If ingested, immediately seek medical attention.
  10. To reduce the risks associated with exposure to workplace hazards which, if not avoided, could result in serious injury or death:
    - a. Follow all Safety Supervisor policies regarding Headtop Peripheral alerts

## 1.2 Limitations of Use

### **! WARNING**

1. The 3M™ Connected PPE system components are not intrinsically safe. **Do not use in flammable or explosive atmospheres. Doing so may result in serious injury or death.**

Do not wear this system to enter areas where:

- a. Atmospheres are oxygen deficient.
- b. Contaminant concentrations are unknown.
- c. Contaminant concentrations are Immediately Dangerous to Life or Health (IDLH).
- d. Contaminant concentrations exceed the maximum use concentration (MUC) as determined using the Assigned Protection Factor (APF) for the specific respirator system or the APF mandated by specific government standards, whichever is lower. See APF section of the 3M™ Versaflo™ Powered Air Purifying Respirator (PAPR) *User Instructions*.

Immediately exit the contaminated area if any of the TR-600 alarms activate.

The 3M™ Connected Safety Peripheral can only be used with approved 3M™ Personal Protective Equipment (PPE) headgear. Refer to the *User Instructions* provided with the 3M™ Versaflo™ M-Series headgear and TR-600 PAPR for all appropriate PPE usage, operation and maintenance instructions of those devices.

**NOTE:** This device is not hardened against Ionizing Radiation, which could cause the device's firmware to become corrupt.

### 1.3 Contact Information

Read all instructions and warnings before using. Keep these *User Instructions* for reference. If you have questions regarding these products, contact 3M Technical Service.

In United States:

Website: [www.3M.com/WorkerSafety](http://www.3M.com/WorkerSafety)

Technical Service: 1-800-243-4630

### 1.4 System Description

3M™ Connected Safety is an Internet-of-Things (IoT) platform designed to connect workers, places, and equipment to promote worker health and safety, compliance workflow, and process automation. A network of connected PPE creates an ecosystem that may help organizations drive worker health and safety, as well as compliance in occupational environments where hazards exist. A connected variation of PPE allows for rules to be configured in a given workplace based on employer-specified conditions. As personal health and safety is critical, a system that can provide proactive alerts to users of potential risks is a tool which may be used to complement or enhance existing health and safety program policies, practices and procedures.

3M™ Headtop Peripheral HTP-1-CX, 1 EA/Case

The 3M™ Connected Safety Headtop Peripheral can be used on approved 3M™ Versaflo™ is intended to be mounted on approved 3M™ helmets and hoods as part of a Connected PPE system for reporting sensor and system-state data streams to the Safety Hub. It will immediately alert a Worker in real-time with haptic vibration feedback and visual LED indicators if there is a potentially unsafe condition based on Safety Rules specified by an authorized Safety Professional. It is intended to be used in Occupational Health and Environmental Safety industrial applications where PAPR respiratory protection or other head protection PPE is required. Use in any other application has not been evaluated by 3M and may lead to an unsafe condition.

## 2 Installation

### 2.1 Unpacking

Inspect the package contents for shipping damage and ensure all components are present. The product should be inspected before each use following the procedures in the *Inspection* section of these *User Instructions*.

### 2.2 Battery

#### ! WARNING

1. To reduce the risks associated with fire and explosion which, if not avoided, could result in serious injury or death:
  - a. Always dispose of used batteries according to the instructions identified in this User Manual.
  - b. Always replace the battery with the correct type as identified by in these *User Instructions*.
  - c. Do not open, crush, incinerate, or heat the battery above 100°C (212°F)
2. Keep out of reach of Children. Never put batteries in mouth. If ingested, immediately seek medical attention.

The Headtop Peripheral uses a non-rechargeable CR2450 Lithium/Manganese Dioxide (Li/MnO<sub>2</sub>) coin cell battery. The battery cover can be removed using a screwdriver, coin, or flat washer by turning it counter-clockwise.

1. With the battery cover removed, insert coin cell battery with the positive (+) polarity symbol facing upward (Figures 1 & 1.1). Three brief amber LED flashes in succession will occur indicating the peripheral device has powered on. If red LED flashes are observed, remove the battery and re-attempt. [Contact PSD Technical Service if only red LED's are seen when placing the battery.](#)
2. Insert and lock battery cover in place by turning clockwise.
3. [When replacing the battery, always inspect the O-ring for cracks, abrasions, deformations, and general wear. Replace O-ring as needed to maintain Ingress Protection \(IP\) 67 rating.](#)



Figure 1

Figure 1.1

Figure 1.2

**NOTE:** To maintain the safety of the device, it is recommended to replace the battery with a UL or ETL marked / listed CR2450 Lithium Manganese Dioxide coin cell battery.

### 2.3 M-Series Mounting

Refer to the 3M™ Versaflo™ M-Series Headgear User Instructions for proper use, operation, care, inspection and maintenance of your M-Series helmet, as well as all other headgear accessory installation and replacement instructions not included in these *User Instructions*.

The 3M™ Headtop Peripheral Carrier HTP-1-HC-CX is field replaceable and can be added to any existing M-Series headgear that does not already have one installed. Components such as the headtop visor and pivot may need to be replaced as a result of wear or sensor mounting requirements. Carrier and magnetic components must be mounted on the headtop's right pivot for proper operation of the Headtop Peripheral's visor positioning sensor.

**NOTE:** For M-100, M-200 & M-300 Series users, you must first detach the faceseal from the suspension headband. Re-attach faceseal before use. See *M-935, M-936, & M-937 Faceseals* in this section for additional information.

Figure 2 shows key components. From the top down, the part marked “3M” is the post (1), the next part is the “carrier” (2), and the bottom part is the “metal spring clip” (3).

1. With the headgear upside down and the visor frame in the up (open) position, pull down on metal spring clip (towards inside of headgear) until it touches the backplate. Pull out to remove (Figure 2.1). Gently use a tool if necessary (i.e., flat-head screwdriver).
2. Push backplate out from shell slightly (towards outside of headgear) and slide out from slot on headgear shell to remove (Figure 2.2).
3. To re-install the visor frame, insert “3M” post into visor frame. Ensure “3M” is positioned such that it is right side up when worn and not upside down.
4. Install carrier into the headgear shell. When installing, the “windmill” pattern should be facing outwards. Insert the rounded edge first and slide completely into the slot (Figure). Gently push down on carrier to ensure it is flush to bottom of slot.
5. Line up visor frame over attachment slots and slide spring clip into place. With the post and carrier back plate engaged, the visor frame should be in the **fully open** or **fully closed** position before the spring is installed (Figure).
6. Verify the visor frame and carrier is correctly installed by raising and lowering the visor several times. Ensure the visor stays firmly in the up (open) and down (closed) positions.

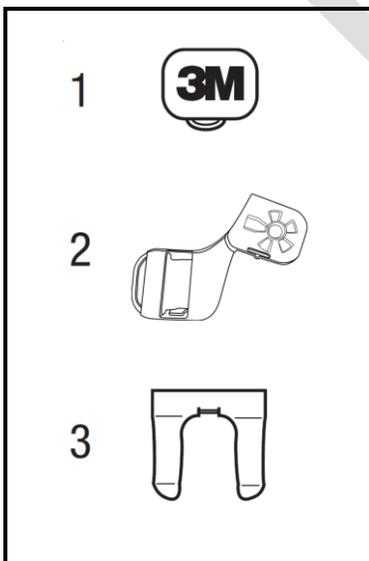


Figure 2

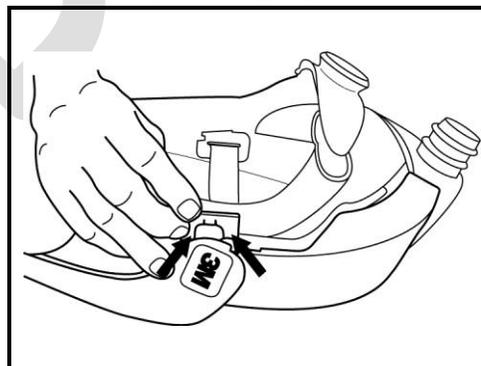


Figure 2.1

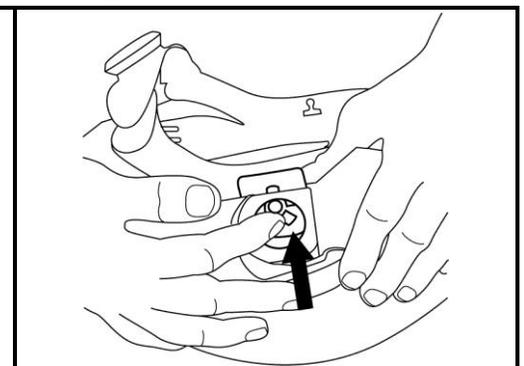


Figure 2.2

The magnetic component is required to determine visor position being in an open or closed state. It is mounted using the right-side visor frame button to secure in place.

1. With the visor frame in the down position (M-100, M-200 & M-300), release the visor frame right-side button by pushing it outward from inside the visor frame, one “click” (Figure 3). Move the visor frame to the up (open) position to seat the magnet housing (Fig. 5b). If using the M-400, it may be easier if the visor frame is in the up (open) position to release the button and seat the magnet housing.

**NOTE:** The visor itself does not need to be removed in order to place the magnetic component.

2. With the visor in the up (open) position, install the magnet by inserting between the visor frame and button snapping it in place. The magnet should make an audible “click” when fully seated in the frame. (figure).
3. Push visor frame button closed to lock visor back in place. The button should make an audible “click” when fully seated in the frame (Fig. 5c). Ensure visor buttons are firmly secured and **flush** to the visor frame (Fig. 5d). If the buttons do not seat flush to frame, remove and reinsert.
4. Ensure the visor gasket is present and securely inserted into the groove in the top of the visor frame (See M-921 in this section).

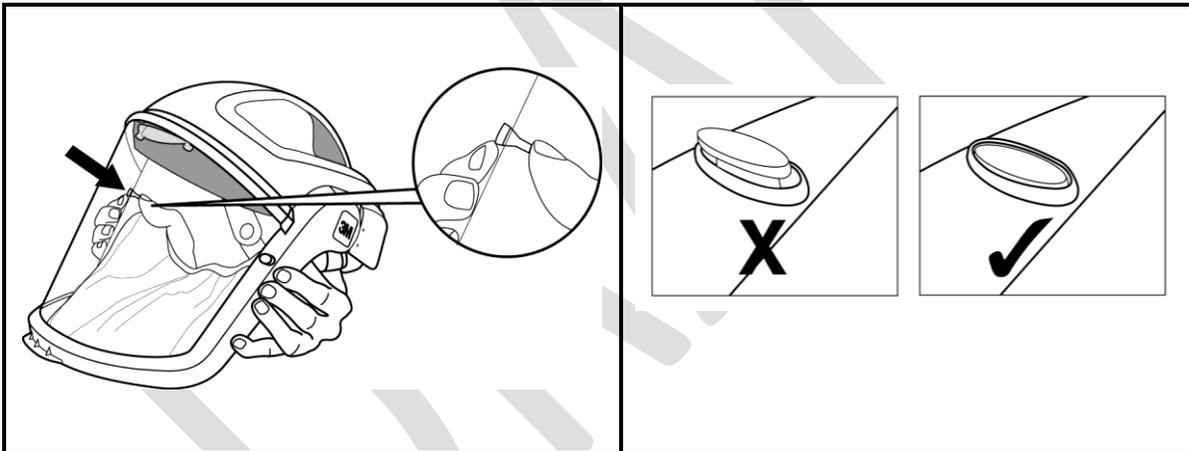


Figure 3

Figure 3.1

The Headtop Peripheral can be inserted once the carrier has been installed (Figure 4.1). With the headgear upside down, position the Headtop Peripheral behind the suspension and insert into the carrier with the battery cover and LED side facing inward to the helmet until it is fully seated (Figures 5.1 & 5.2).

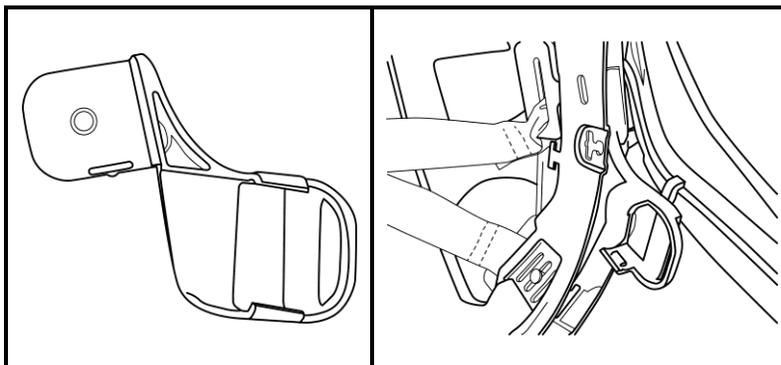


Figure 4

Figure 4.1

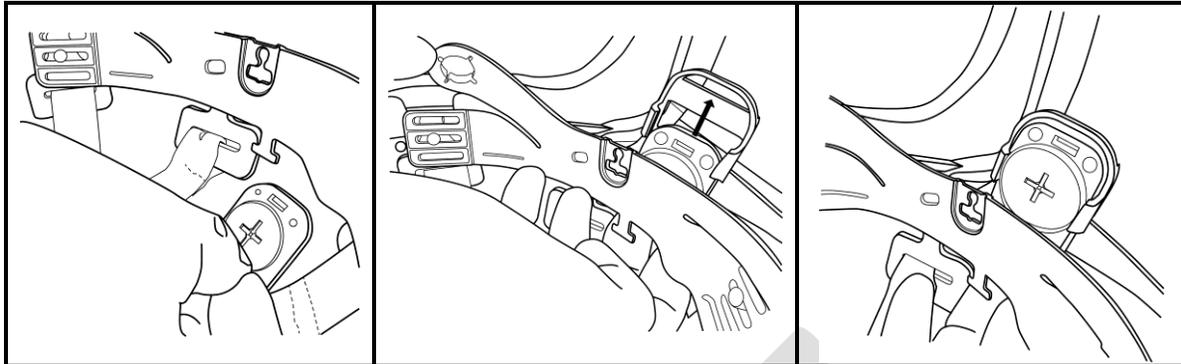


Figure 5

Figure 5.1

Figure 5.2

## 2.4 M-935, M-936, & M-937 Face seals (M-100, M-200 & M-300 Series)

To remove face seal:

1. With the visor frame in the down (closed) position, remove plastic face seal tab from “T” attachment points on headband (Fig. 13a & b).
2. Grasp the black face seal gasket and slowly pull straight out in small sections, working your way around the face seal (Fig. 13c).

**NOTE:** Do not bend gasket over and ‘peel’ off as this may damage the gasket ribs. Do not start in the middle of the gasket. Pull out in small sections starting at one end.

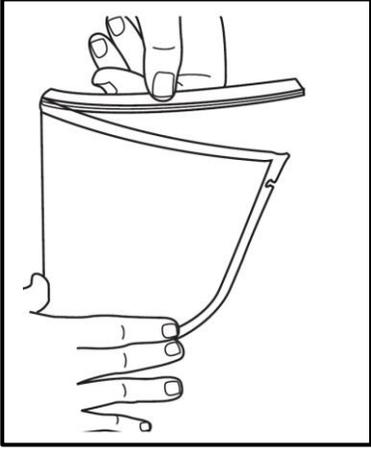
To install face seal:

1. On the face seal, locate the side with the fabric “loop” which is sewn into the elastic. Holding the face seal with this side facing up, grasp the black gasket on the face seal and align with the edge of the groove in the visor frame. Starting with one edge, press the gasket firmly into the groove in small sections, working your way around the face seal (Fig. 13c). Both gasket ribs should be fully inserted into the groove.
2. Locate the “T” hooks on the suspension (Fig. 13d). The plastic tab of the face seal attaches to this hook on the suspension. To attach, slide the tabs in between the suspension and the headgear shell. Attach notch in face seal tabs onto the “T” hooks located on the suspension headband (Fig. 13b).
3. Grasp elastic loop on face seal and pull up over suspension headband and attach to the plastic tab (Fig. 13a).

## 2.5 M-921 Replacement Visor Gasket

To remove gasket (Fig. 8), with the visor frame in the up (open) position, grasp the black gasket and slowly pull straight out in small sections. To install a new gasket, align end with the edge of the groove in the top of the visor. Press the gasket firmly into the groove in small sections. Both gasket ribs should be fully inserted into the groove.

**NOTE:** When properly installed, the visor gasket should make contact with the headgear shell. If it does not, remove and re-install.



Refer to the 3M™ Versaflo™ S-Series Hoods User Instructions for proper use or operation, care, inspection and maintenance of your S-Series hood.

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### **3 Headtop Peripheral Setup**

#### **3.1 Initial Setup**

The following setup steps are necessary to use your Connected PPE system for the very first time:

- Headtop Peripherals, Safety Hubs, and other equipment must be commissioned into your company inventory
- An initial hub device registration and authentication on the 3M™ Connected Safety Cloud application
- Work areas created and Workers entered in the Cloud application
- Safety Rules must be configured if using more than the default rulesets

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## 4 Operation

### **! WARNING**

1. The Headtop Peripheral and Safety Hub are used for supplemental alerting of a potentially unsafe condition based on Safety Rules configured by Employer's Industrial Hygienist or other authorized Safety Professional, and does not substitute for any integrated TR-600 alarms. Follow all Safety Supervisor policies regarding Headtop Peripheral and Safety Hub alerts. Leave the contaminated area immediately if any of the following conditions occur:
  - a. Any part of the system becomes damaged.
  - b. Airflow into the respirator decreases or stops.
  - c. The low airflow or low battery alarms trigger. In the event of an audible, visual, or vibratory alarm triggers, the user should immediately leave the contaminated area.
  - d. Breathing becomes difficult.
  - e. You feel dizzy or your vision is impaired.
  - f. You taste or smell contaminants.
  - g. Your face, eyes, nose or mouth become(s) irritated.
  - h. You suspect that the concentration of contaminants may have reached levels at which this respirator may no longer provide adequate protection.
  - i. User must immediately leave the work area and the filter should be changed when the audible alarm or red LED activates, or when the chemical service life is exceeded - whichever comes first.
2. To reduce the risks associated with inhalation of contaminants:
  - a. Proper selection, training, use, and appropriate maintenance are essential in order for the product to help protect the wearer from certain airborne contaminants. Failure to follow all instructions on the use of these respiratory protection products and/or failure to properly wear the complete product during all periods of exposure may adversely affect the wearer's health, lead to severe or life threatening illness or permanent disability. For suitability and proper use follow local regulations, refer to all information supplied, contact a safety professional, or 3M representative at 1-800-243-4630.

Before first use and prior to donning, the Headtop Peripheral and Safety Hub must be checked-out or assigned to an operator. If the equipment is a shared asset among multiple employees and will only be used by an individual for a given shift, the Check-out process can be followed. If an employee is to be issued his or her equipment for a more permanent or prolonged usage time period, the Assign process can be followed to leave equipment in their custody until it has been checked back in. During the assign or check-out session, Peripherals and the Safety Hub are linked to one another as a complete system.

### 4.1 Entering and Exiting the Contaminated Area

Prior to entering the contaminated area, complete the inspection procedures listed in *these User Instructions* and ensure the selected PAPR setup is appropriate protection for the given airborne contaminant and concentration.

1. Turn the motor/blower on.

2. It is recommended to check both the airflow with the airflow indicator and low flow alarms.  
**NOTE:** High environmental noise levels or use of hearing protection may interfere with the user's ability to hear audible alarms. Heavy clothing or tasks with high vibration levels may interfere with sensing the TR-600 vibratory alarm, or Safety Hub and Headtop Peripheral vibratory alert. User may need to check for the visual alarms more frequently in high noise, or high vibration environments.
3. Don the 3M™ Versaflo™ Powered Air Purifying Respirator TR-600-CX Assembly and Headgear. Enter the work area.
4. Leave the contaminated area immediately if any of the following conditions occur:
  - a. Any part of the system becomes damaged.
  - b. Airflow into the respirator decreases or stops.
  - c. The low airflow or low battery alarms trigger. In the event of an audible, visual, or vibratory alarm triggers, the user should immediately leave the contaminated area.
  - d. Breathing becomes difficult.
  - e. You feel dizzy or your vision is impaired.
  - f. You taste or smell contaminants.
  - g. Your face, eyes, nose or mouth become(s) irritated.
  - h. You suspect that the concentration of contaminants may have reached levels at which this respirator may no longer provide adequate protection.

## 4.2 Alerts and Notifications

### **! WARNING**

1. To reduce the risks associated with exposure to workplace hazards which, if not avoided, could result in serious injury or death:
  - a. Follow all Safety Supervisor policies regarding Safety Hub and Headtop Peripheral alerts

There are two types of events that will occur on an actively running and configured Safety Hub when connected with one or more peripheral devices – Alerts and Notifications.

Safety Rules configured for a work area will trigger an alert in a hazard zone if there is a condition that violates the ruleset parameters; i.e., incorrect PPE is being used in the designated work area.

Alerts consist of two severity levels – Attention and Critical. Notifications are general system-state data reported as informational only, such battery levels. Default values for haptic vibration intensity, whether an alert can be silenced or not, how often an alert repeats, etc., can be adjusted on the Cloud application for some alert types. Please refer to the 3M™ Connected PPE Cloud application *User Instructions* for detailed steps on how to add, edit, and manage your ruleset or other hub system settings that can be changed.

1. Attention Alerts:
  - a. A condition has occurred which requires an operator's attention
  - b. Safety Hub haptic vibration will assert at 50% strength
  - c. **Vibration cadence**
  - d. **Active time**

- e. Headtop Peripheral vibration will assert and Amber LED visual indicator flashes
2. Critical Alerts:
  - a. A condition has occurred which requires an operator to leave the area immediately
  - b. Safety Hub haptic vibration will assert at a higher intensity of 75% strength
  - c. **Vibration cadence**
  - d. **Active time**
  - e. Headtop Peripheral vibration will assert and Red LED visual indicator flashes
3. Notifications:
  - a. A system event or state has occurred and is recorded as informational
  - b. No user feedback will be observed

Only one alert can be active on a hub at any time, however, an event record is created in memory for all alerts that have occurred if there happens to be a sequence of alerts. Alerts defined as critical will always take precedence over attention-level alerts and override any active attention alerts that may be present. Device alerting will remain active until the condition which triggered the alert has been resolved or a designated safe area has been entered.

Alerts that can be configured for a Headtop Peripheral include the following:

- Battery state-of-health
- Headtop presence detected\*
- Impact
- Motion
- Posture
- Temperature (upper and lower limits)
- Visor position (open or closed)\*

**NOTE:** Alert types denoted with an asterisk (\*) are default rules that cannot be removed, but will have some configurability available on the Cloud application. Visor position alert type will only apply to M-Series headtops being used in a work area.

## 5 Inspection and Maintenance

### **! WARNING**

1. To reduce the risks associated with exposure to workplace hazards which, if not avoided, could result in serious injury or death:
  - a.

### NOTE

Always inspect Headtop Peripheral for damage before each use. If any part of the system is damaged, replace damaged components before use. Consult *Headtop Peripheral User Instructions* for more information on proper inspection of Headtop Peripheral.

Always clean the peripheral before each use. Wipe exposed surfaces with a damp cloth.

Follow all Safety Supervisor policies regarding Headtop Peripheral alerts.

### NOTICE

Do not disassemble, modify or service this device. The unit contains no user serviceable parts, except for the battery and battery cover.

Refer to the 3M Versaflo™ M-Series Headgear *User Instructions* for proper use or operation, care, inspection and maintenance of your M-Series headtop.

Before and after each use, inspect Headtop Peripheral for signs of damage or wear including dents, rips, cracks, color changes, chalking, fading, flaking and penetration.

If you discover any signs of wear and/or damage, remove Headtop Peripheral from use and service or replace as appropriate.

## 6 Replacement Parts and Accessories

### **! CAUTION**

1. To reduce the risk associated with impact:
  - a. Do not disassemble, modify, or service this device. The unit contains no user-serviceable parts.

### LISTING OF COMPONENTS, ACCESSORIES, AND REPLACEMENT PARTS

HTP-1-CX	3M™ Headtop Peripheral HTP-1-CX, 1 EA/Case
HTP-1-BAT-CX	3M™ Headtop Peripheral Battery HTP-1-BAT-CX, 1 EA/Case
HTP-1-HC-CX	3M™ Headtop Peripheral Carrier HTP-1-HC-CX, 1 EA/Case
HTP-1-SC-CX	3M™ Headtop Peripheral Carrier on Suspension HTP-1-SC-CX, 1 EA/Case
HUB-1-CX	3M™ Safety Hub HUB-1-CX, 1 EA/Case
HUB-1-HLST-CX	3M™ Safety Hub Holster HUB-1-HLST-CX, 1 EA/Case
BAT-1-CX	3M™ Safety Hub Battery BAT-1-CX, 1 EA/Case
DS-1-CX	3M™ Safety Hub Docking Station DS-1-CX, 1 EA/Case
TR-602N-CX	3M™ Versaflo™ Connected Powered Air Purifying Respirator Unit TR-602N-CX 1 EA/Case
BEACON-1-CX	3M™ Proximity Beacon BEACON-1-CX, 1 EA/Case

## 7 Cleaning, Storage, and Disposal

### 7.1 Cleaning

#### ! WARNING

1. To reduce the risks associated with inhalation of contaminants which, if not avoided, could result in serious injury or death:
  - a. Always clean the peripheral before each use. Wipe exposed surfaces with a damp cloth.

Refer to the 3M Versaflo™ M-Series Headgear *User Instructions* for proper cleaning of your M-Series headtop.

The Headtop Peripheral should be regularly cleaned. Follow the hygiene practices established by your employer for specific contaminants to which the Connected PPE system has been exposed. A clean cloth, sponge or soft brush dampened with a mild solution of soapy water may be used to wipe down the peripheral housing when the battery cover including its O-ring is secured in place and fully closed.

\*\*add statement about fully cleaning the HTP (to ensure the IR sensor is functional)

### 7.2 Disposal

The Headtop Peripheral device contains no serviceable parts and needs to be disposed of at end-of-life. Dispose of product according to local regulations.



Do not throw battery in trash. Dispose of product as directed by local regulations.



Do not throw electronic waste in trash. Dispose of product as directed by local regulations.

### 7.3 Storage

Store product in a clean area that is protected from contamination, damage, dirt, debris, product distortion, and direct sunlight. Do not store next to furnaces, ovens, or other sources of high heat. Do not store outside the recommended storage temperature conditions (see *Specifications* Section) or above 90% humidity.

## 8 Specifications

Contact 3M Technical Service for additional technical specifications (i.e., materials of construction, etc.).

### 8.1 Bluetooth Low Energy (BLE)

Bluetooth Low Energy (BLE) version 4.2 specification is supported.

### 8.2 Environmental

The Headtop Peripheral is an IP67 rated device when used with the included O-ring on its battery cover.

Operational Temperature	-20 to 55 °C
Storage Temperature	-20 to 70 °C
Relative Humidity	0 – 100% RH
Ingress Protection	IP67

### 8.3 Dimensions and Weight

### 8.4 Battery

Non-rechargeable 3V Lithium Manganese Dioxide coin cell battery. Battery replacement

Classification	Lithium Coin
Chemical System	Lithium / Manganese Dioxide (Li/MnO <sub>2</sub> )
Designation	ANSI / NEDA-5029LC; IEC-CR2450
Nominal Voltage	3.0 Volts
Typical Capacity	620 mAh
Typical Weight	6.8 grams (0.22oz)
Typical Discharge	~1% / year
Estimated Battery Life	9 - 12 months -*update after testing
Standards	UL1624; IEC-62133

## 9 Regulatory

FCC ID: DGFPSDHTP1CX

IC: 458A-PSDHTP1CX

### FCC/ISED Compliance

This device complies with Part 15 of the FCC Rules and with ISED's license-exempt RSS's standards. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

(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.

Modifications to this device shall not be made without the written consent of 3M, Company. Unauthorized modifications may void the authority granted under Federal Communication Rules permitting the operation of this device.

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## 10 Troubleshooting

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## 11 Warranty

3M warrants the Connected PPE system devices, and their component parts will be free from defective materials and workmanship at the time of purchase and will cover the parts listed below for the time period of 1 year, provided they are maintained and used in accordance with the product's *User Instructions* and/or recommendations. 3M's only obligation under this Warranty will be, at 3M's option, to repair or replace without charge any defective parts of the Connected PPE product returned to 3M in accordance with the instructions below and found by 3M to have been defective at the time of purchase or during the warranty period as applicable. This Warranty does not apply to any parts that have been misused, altered or had repair attempted, or have been subjected to abuse, accidental or otherwise. The extended Warranty does not apply to expendable consumables, accessories, or fabric components such as but not limited to: filters/cartridges, face seals, shrouds, hoods and head covers, and visors.

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