SimTab PED Simulator
64000-001

User Manual P/N: 53064-00

TULMAR

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Revision History

This revision history is to serve as a record of the changes to this manual. The record includes the revision letter, the date of the revision, the page(s) affected, and a brief description of the change.

Revision	Date	Pages Affected	Description Summary
A	2024-05-10	All	Initial Publication

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A. SimTab simulated Personal Electronic Device

This manual provides instructions and guidelines for safely using and maintaining the SimTab simulated Personal Electronic Device (PED). The SimTab was developed from over 15 plus years' experience in the cabin crew training market.

Designed with the needs of airlines to train their cabin crew through realistic experience, the SimTab provides a true to real situation experience simulating a standard tablet beginning to smoke, to train on the protocols for handling fire hazards with Personal Electronic Devices (PED). The SimTab quickly starts to smoke on a simple toggle and is stopped through various modes, permitting the training facility to configure the device to their own protocols.

The SimTab is robust to allow multiple uses in each training session and is easy to refill and reset by a single person. It is a dual compartment system, thus extending training time.

This user manual is applicable to the 64000-001 SimTab, including all optional accessories.

A.1 Product Overview

The SimTab is a training, simulation device for fire safety training in the aviation market. It serves to simulate fire, smoking and / or overheating of tablets, cell phones and other personal electronic devices. The Bluetooth puck provided with the device allow to integrate it within various extinguishing systems.

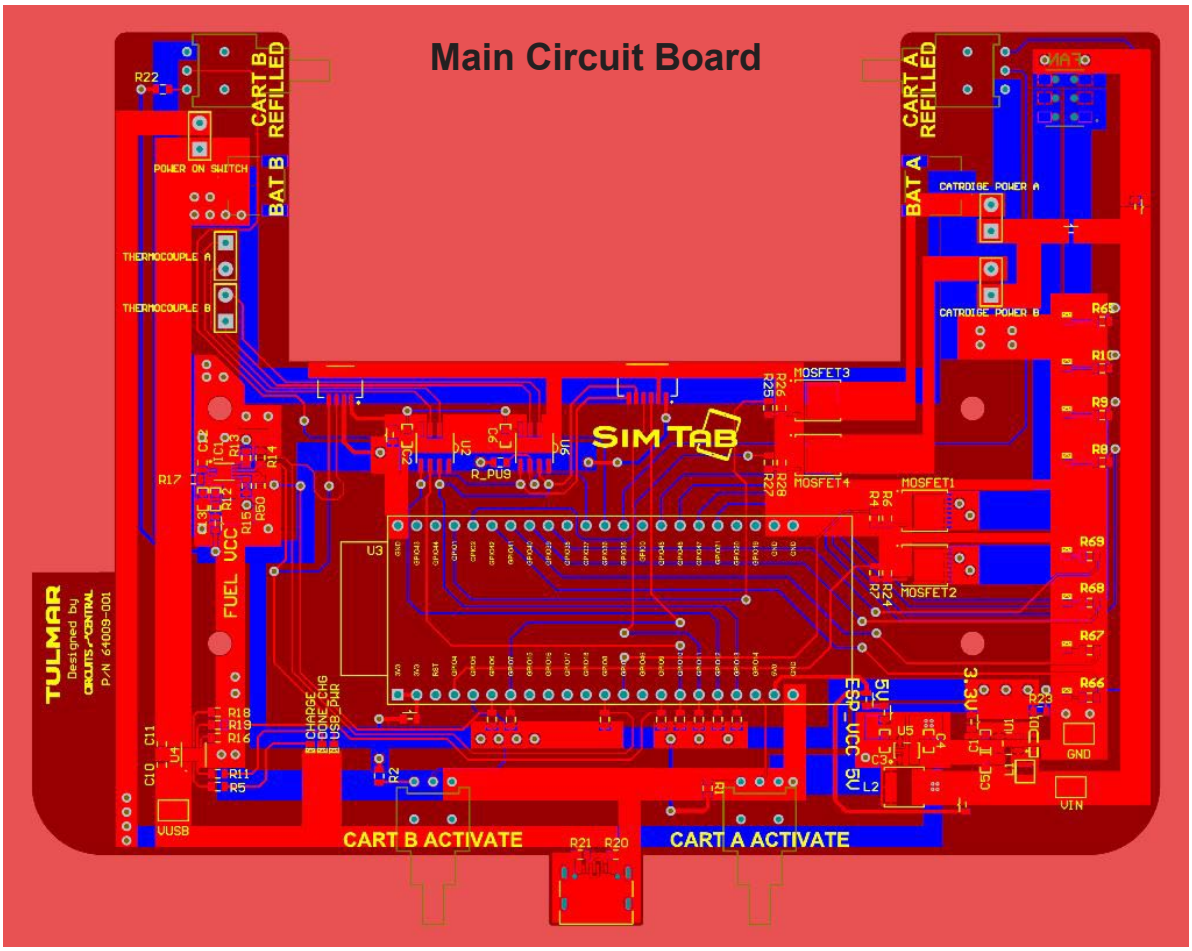
Technical Data

Size	Universal	Activation count	25-30 per cartridge
Weight	1.25 lbs. / 0.57 kg	Power System	Lithium Battery
Charging System	USB-C	Time-Out Duration*	30 seconds

**Time-out duration could be impacted if the unit is overheated. Refer to section A.2 for Warnings and Precautions for such instances.*

Visual Overview

Folded / Closed **Open**



A.2 Warnings and Precautions

- The SimTab should always be used in reasonably or well-ventilated areas (avoid fully closed in spaces without air flow).
    - If you can visually note a buildup of smoke in the area, pause training until air flow or ventilation clears the smoke to avoid potential breathing issues of people in that area. You can disregard this caution if everyone in the area is wearing activated protective breathing equipment, such as oxygen equipped smokedhoods used in fire training.
- If the unit overheats at any point (feels hot, not warm, to the touch); use another unit or pause its usage until the unit cools back down.
    - Keep the hot unit in a place with good airflow. We recommend leaving the top flap open to let the heat escape more easily. Should the unit be very hot, remove the simulated screen to help cooling.
- Do not submerge or expose to heavy moisture (spray, dripping water, etc.). This could cause the device to become non-functional and irreparable.
- Do not place near a heat source (heater, hot surfaces, sunlit window) for extended periods of time. This could overheat the device and its battery.
- Do not store the device in an area where it could be exposed to high heat or abnormal levels of moisture.

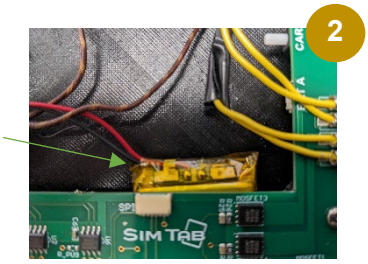
- If the casing of the device should become cracked for any reason, handle with caution. The printed material used to fabricate the SimTab could present sharp edges when cracked.
- Do not pull directly on any wire to undo a connection. This could sever the wire from its connector, causing the SimTab to then malfunction.
- If you ship the unit, first, disconnect the battery to meet shipping regulations for lithium battery operated devices.
- Do not use the SimTab near fire or gas safety sensors (such as a standard smoke detector). There is a risk that the smoke will accidentally activate the safety alarm.
- Do not re-use damaged, overheated, or faulty cartridges (pods). Always replace them with new cartridges.
- Always store the SimTab with the toggle switch set to the **OFF** position.

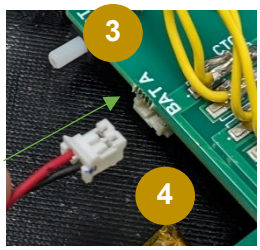
B. Initial Setup (Upon reception of a new unit)

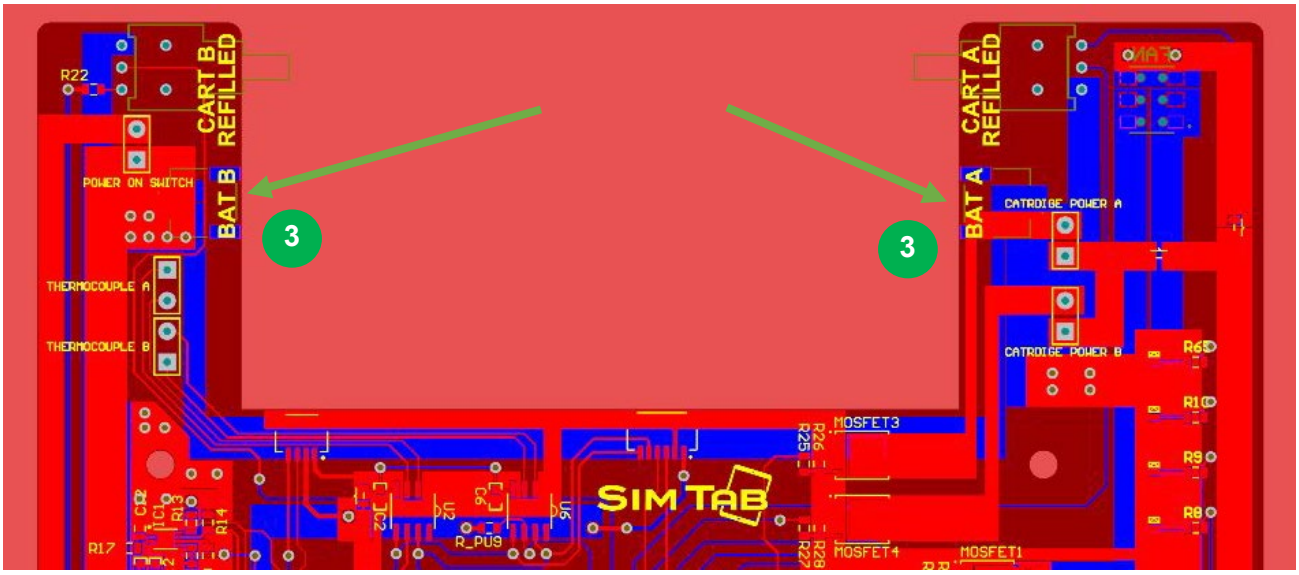
When you receive a new unit, you will find that it does not initially turn on when you toggle the switch. For reasons related to safe shipping practices, the SimTab ships with the battery(ies) disconnected.

For initial start-up:

1. Remove the simulated screen by pressing and sliding down, toward the slit at the bottom of the device.
2. Once the circuitry is exposed, locate the battery(ies). You will see a set of wires coming from the battery, ending with a small white block. Hold this battery with the connectors (metal part) facing up. NOTE: If you find the part small and difficult to hold, use tweezers or narrow pliers to grasp the connector.
3. On each side of the circuitry, you will see in white marking, the work BAT A (Right) or BAT B (Left). The outlet is beneath.
4. Push the connector in the outlet nearest the battery. Repeat for all batteries.
5. Test by pressing the toggle switch to the ON position. The lights should flicker should the battery be successfully connected. If no light turns on, push the connector a little deeper in the outlet.
6. Place the simulated screen back by sliding it through the bottom slit.
7. Plug in a USB-C charger (not included) to ensure the device is fully charged prior to first use.
8. The device is ready to use!





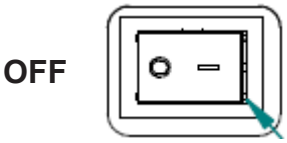


C. General Usage

Please note that the instructions below are for technical use of the device only. This document is not to provide application or training guidelines to the airlines. Please refer to your training manuals, protocols and procedures for such instructions.

The SimTab is a simulated personal electronic device (PED) that replicates a fire hazard with any PED such as tablets, phones and laptops. It is meant to emit smoke, as would a PED that is overheating and near combustion.

In order to start smoke emission of the device, please turn the toggle switch (located at the top of the device) to the **ON** position. The – symbol, when pushed in, indicates that the device is activated. The **O** symbol being pushed in means it is not activated (as per image below).



Note that when you activate the SimTab, you should see LED lights turn on and set to ACTIVE on one of the compartments and you should initially hear the hum of the fan. See section D. for the details regarding compartments.

The device should begin to emit smoke a few seconds after being activated. Underneath and on the sides, you will see small grates in the case. These are the key areas where smoke will be escaping to create the simulation of a burning device.

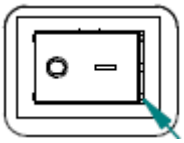
Note: If there is no smoke coming out, try to blow into the grates closest to the cover (to assist the fan push out the smoke), blow in the air intakes gate on the back or give the device a gentle shake. If this doesn't work, refer to the troubleshooting section.

To stop the smoke, there are three (3) possible methods:

- Switch toggle.
- Bluetooth Puck.
- Timeout.

C.1 Switch toggle – Deactivation

One way to stop the smoke is simple to push in the toggle switch at the top of the device back to OFF mode.

OFF  ON

The smoke will stop within a few seconds. LED lights will turn off and you will no longer hear the hum of the fan at this point.

Note: This mode is the only time the unit is fully deactivated. Even if you use the Bluetooth puck or the timeout methods, you will need to set the toggle switch back to **OFF** prior to another use or storage.

C.2 Bluetooth Puck

Each SimTab comes with a Bluetooth puck, which is a small grey puck with a simple proximity signal. To turn on the puck, press the flat ends of the puck together (you will hear a click). The puck is now ready to use.

While the SimTab is smoking, pass the puck in front of the center of the SimTab (flat side) or pass the SimTab in front of the puck (this permits securing the puck in a specific location, such as the inside of a special bag for fire containment). This will stop the smoke.

To test, you can see a marketing on the SimTab simulated screen, with the words “SCAN HERE”. This is the location of the sensor in the SimTab. Pass (hover) the puck directly over that section while the SimTab is smoking to see it turn off.

The LED light will still be indicating which of the compartments is active, but you will no longer hear the hum of the fan.

Note: If you need to purchase replacement pucks, please contact our sales representatives at aviation@tulmar.com.

C.3 Timeout

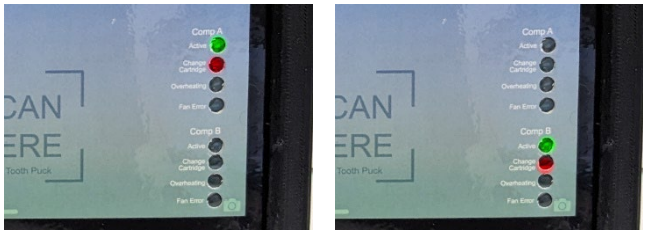
If neither of the previous two (2) methods of stopping the smoke were used, then the device will automatically stop creating smoke after a period of **30 seconds**. At this point, the device will become dormant.

The LED light will still be indicating which of the compartments is active, but you will no longer hear the hum of the fan.

D. Cartridge maintenance

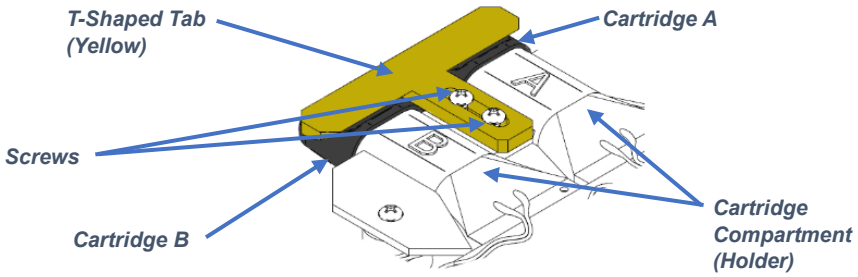
D.1 Replacing

You will be notified of the cartridge status based on the LED lights under COMP A and COMP B on the front cover of the device (screen), at the bottom right (total of 8 lights). If the “Change cartridge” light turns on (red), the cartridge should be changed as it is nearly empty. It is recommended to change it promptly and not wait for the cartridge to fully empty, to avoid overheating.



You will need a Phillips head screwdriver to change the cartridge. To change the cartridge (also known as a pod):

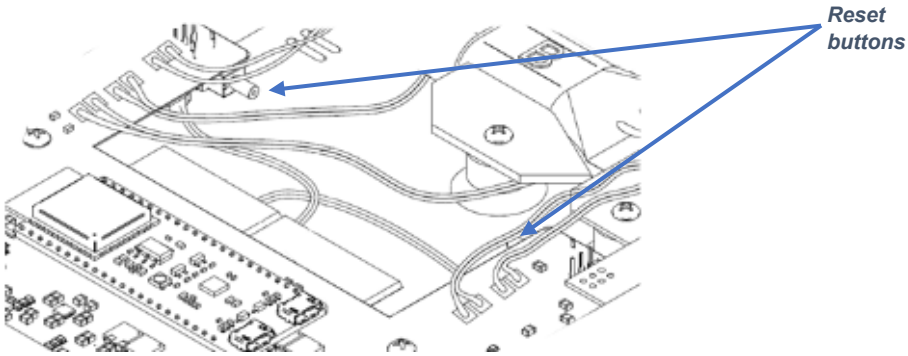
1. Ensure that the device is deactivated (switch toggle position to **OFF**).
2. Remove the simulated screen and set it aside.
3. Over the yellow “T” shaped plastic tab are 2 screws. Loosen the screws (by using the screwdriver and turning the screw counterclockwise) to be able to pull the tab back, giving access to the cartridges.



4. Pull back the yellow plastic tab until you can remove the cartridge (or cartridges).
5. Remove the cartridge (or cartridges) by pulling it out.

6. See if the cartridge is empty or near empty of any fluid. Hold up in a well-lit space to see if there is any liquid. As the Glycol within is transparent, to ensure that it is empty, tilt the cartridge side to side to gain a better view of the content.
    a. If it is empty, you can refill or replace the cartridge and use this one later.
    b. If it is not empty, then the cartridge is faulty and shall be discarded. Dispose of with other household hazardous waste. Do not re-use any faulty cartridge.
7. Refill (as per section D.2 below) or replace the cartridge with a new one.

8. You will note two (2) metal dots at the base of each cartridge: these are the connectors getting power to the cartridge. They are at the bottom of the cartridge. Insert the refilled or new cartridge in by pushing the cartridge, bottom first, into the compartment.
9. Push the holder back until the cartridges are tightly secure.
10. Tighten both screws using the screwdriver and turning the screws clockwise until you can feel resistance.
11. Press the reset button for each affected cartridge (A is to the left, B is to the right).



12. Set the simulated screen back on by sliding it back into the slit at the bottom of the case.
13. The device is now ready to use.

D.2 Refilling

To change the cartridge (also known as a pod), you will need a Phillips head screwdriver to change the cartridge. After executing steps 1 through 6 in the **section D.1** above, and determining that the cartridge is indeed empty and not faulty (do not refill a faulty cartridge), do the following to refill the cartridge (you will need a bottle of Glycol / Glycerin USP and a syringe):

1. Remove the small rubber tab on the side of the cartridge. If you have difficulty, use a pair of tweezers.
2. Fill the syringe with Glycol (dip the tip of the syringe and pull the plunger to create suction).
3. Insert the tip of the filled syringe into the cartridge and push on the plunger, slowly. Avoid pushing too quickly to ensure even distribution of the fluid within the cartridge.
4. Put the rubber tab back into place and press to ensure it is well lodged.
5. Re-insert the cartridge in the SimTab as per steps 8 through 13 of **section D.1** above.

Note: Only use the USP type of Glycerin when refilling cartridges / pods. Other liquid type could lead to a malfunction of the cartridge.

D.3 Cycling

The SimTab is built with redundancies to ensure longer periods of uninterrupted training. For this, it has two (2) cartridges able to create smoke. If one cartridge becomes empty or faulty, the device will automatically cycle to use the next one until both are empty or faulty.

You can manually cycle (change which cartridge is active) by pushing and holding the cartridge buttons at the bottom of the SimTab. You will need an item with a small rigid tip to accomplish this (such as the tip of a pen).

Press and hold the button for the compartment you wish to cycle to (left for compartment A, right for compartment B). Hold until you see the LED lights on the bottom right of the screen simulator alternate to the new compartment.

E. Battery Maintenance

E.1 Charging

At the bottom of the SimTab screen (in the center), you will see the word “Battery” with the battery symbol below. This is the battery LED light to indicate power issues. If the light turns on and is red, then the SimTab needs charging.

You will need a USB-C type of charging cord (not included) to charge the SimTab. This is the same type used with many types of cell phones, laptops, tablets and other electronic devices.

1. Ensure that the USB-C is plugged in a power source.
2. Ensure that the SimTab has its switch toggled to the **OFF** position (i.e. deactivated unit).
3. Push the compatible end of the USB-C cable into the port of the SimTab. The port is located at the bottom of the device, as seen below.

4. Let charge until the LED light turns green, indicating that the power is back to full.
5. Disconnect the USB-C cable from the SimTab, which is now ready to use.

Note: Do not cover the SimTab while it is charging. Charge in a well aerated space and avoid leaving on charging for extended periods of times (i.e. overnight or multiple days).

E.2 Replacing

You can purchase a standard 2100hz lithium battery from any vendor to replace the battery. Ensure that the battery is certified. The use of uncertified lithium batteries has a higher risk of malfunction, including dangerous malfunction such as overheating or fire.

Also, prior to opting to replace the battery, ensure that the battery is well plugged in (see **troubleshooting section F.1** for more details).

To replace the battery:

1. Ensure that the device is deactivated (switch toggle position to **OFF**).
2. Remove the simulated screen and set it aside.
3. Unplug the battery by grasping the white charging block and pulling. If you have difficulty, use tweezers or long nose pliers.
4. Gently pull on the battery to dislodge it from under the circuit board.
5. Put in the new battery. TIP: To ensure that the battery is secure, affix a small square of electric tape to the battery to secure it by making it more snug between the case and the PCB.
6. Plug in the battery by inserting the charging block (metal pins facing up) to the outlet, just under the markings “**BAT A**” and “**BAT B**” on each side of the circuit board.

9. Test by pressing the toggle switch to the ON position. The lights should flicker should the battery be successfully connected. If no light turns on, push the connector a little deeper in the outlet.
10. Place the simulated screen back by sliding it through the bottom slit.
11. Plug in a USB-C charger (not included) to ensure the device is fully charged prior to first use.

The device is ready to use!

Multiple Batteries

If your SimTab is a model with 2 batteries, note that you need to replace both batteries when changing one.

Battery Purchase Guidelines

To ensure you purchase the correct replacement battery, ensure that the 2100hx lithium battery is a male JST-PHR-2P plug type (this pertains to the connector part of the battery that is plugged in). You can look in the description of the vendor for this information.

F. Troubleshooting and Storage

F.1 Troubleshooting

- If at any point, the device overheats, you will see a red LED light on the SimTab Screen indicating so.

In that event, deactivate the unit by toggling the switch to the OFF position and by letting it rest until it cools down.

NOTE: The device should be able to activate 15-20 times without overheating. If the device is overheating at a much higher frequency, consider replacing the cartridge, the battery or getting a new SimTab device.

- If the device is no longer turning on and no warning light is on (all lights are off) – or if the LED lights work at first and then stop abruptly, it is likely that the battery is no longer functional. Replace the battery in the unit as per **section E.2** above.

Multiple Batteries

If your SimTab is a model with 2 batteries, note when a battery is out of charge or no longer functional, the SimTab will default to using the second battery. If the device is no longer powered, then both batteries are likely in need of replacement.

- If the Fan Error LED light is red, then the device needs replacement. Note that the SimTab remains functional and usable as long as one of the fans is functional. Just cycle to the correct compartment as needed (see **section D.3**).

- If you turn on the SimTab and you do not see smoke start, and that none of the LED lights are red, use the following potential solutions:
    - Blow in the grate near the fan to help get it started.
    - If the above does not work, remove the SimTab screen and inspect the cartridge.
        - If you see liquid and signs that it is leaking, inspect the cartridge (ensure to turn the device off first). It is possible the Glycol tab on the cartridge is not closed properly.
        - Ensure the yellow T-bar is secure so that the cartridge is pushed in fully. It will not make the connection otherwise.
        - If all those fail, try replacing the cartridge.

F.2 Storage

Always store each unit of the SimTab in a temperature-controlled environment, away from moisture and heat source(s) and direct sunlight. Follow the safety guidelines for handling lithium batteries.

Do not stow the SimTab while charging (plugged in) for overnight storage or longer.

G. Component Parts List

The following table lists components available for The SimTab. If you are looking to replace a part that is not listed below, please contact Tulmar Safety Systems Inc.

Part's Description	Part Number
Pod Atomizer / Cartridge (set of 3)	64001-001
Glycerin / Glycol - USP (bottle of 100-150ml)	64002-001
Simulated Screen	64008-001
Bluetooth Puck	64014-001

***Note**: Cartridges are available at your local VAPE store or through digital VAPE stores / major resellers. Glycol (USP) bottles are available at most pharmacies.

Please note that most of the listed parts are also available via our online store at www.tulmarstore.com.

For bulk orders, pricing, and availability, contact Tulmar Safety Systems Inc.

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