



C-THRU Navigator User Manual

Version 3.2

Table of Contents

1. [Introduction](#)
 - 1.1 Product Description
 - 1.2 Overview
 - 1.3 Hardware Features
2. **Precautions**
 - 2.1 Storing Conditions
 - 2.2 Charging Accessories
 - 2.3 Battery Protection
 - 2.4 Maximum Voltage
 - 2.5 Thermal Profile
 - 2.6 Data Storage
 - 2.7 Error Logs
 - 2.8 Regulatory Compliance
 - 2.9 Hazard Warnings
3. **Device Specifications**
 - 3.1 Physical Dimensions and Weight
 - 3.2 Environmental Operating Conditions
 - 3.3 Waterproofing and Water Resistance
 - 3.4 Battery Life and Charging
4. **Getting Started**
 - 4.1 Unpacking and Initial Setup
 - 4.2 Attaching the Modules to Your Helmet
 - 4.3 Getting Familiar with the Buttons
 - 4.4 Adjusting the Display Lens
 - 4.5 Powering On
 - 4.6 Tail Light Indicators
 - 4.7 Pairing with Compatible Apps or Platforms
5. **Helmet Mounts**
 - 5.1 Assembling the Power Module Mount
 - 5.2 Assembling the Vision Module Mount
6. **Device Operations**
 - 6.1 Core Features Overview
 - 6.2 Heads-up Display Overview
 - 6.3 Vision Modes
 - 6.4 Navigation Tools
 - 6.5 Replacing the Power Module
 - 6.6 Charging the Power Module
 - 6.7 Power OFF Modes / Reset
 - 6.8 Troubleshooting Common Issues
7. [Maintenance & Care](#)
 - 7.1 Replacing the Display Lens
 - 7.2 Decontamination
 - 7.3 Storage and Transportation

8. **Regulatory, Compliance & Warranty**
 - [8.1 Legal & Warranty](#)
 - [8.2 FCC Compliance & Regulations](#)
9. **Customer Care & Support**

1. Introduction

The **C-THRU Navigator** offers vision in dark, smoke-filled environments through a heads-up display with EdgeTech vision enhancement. This hands-free device attaches to a fire helmet and features:

- Personal Mayday Alert System
- Video recording
- Live edge detection
- Hot Spot detection

Key Benefits

Visualization using live-edge detection is an essential tool that will benefit firefighters. The C-THRU Navigator is designed to **supplement** existing firefighting tools, to both enhance and evolve traditional firefighting methods. It helps firefighters and incident commanders perceive and make critical decisions faster and more effectively.

Some of the key uses for the C-THRU Navigator include:

- Search and rescue
- Rapid scene assessment
- Locating the seat of the fire
- Determining the spread of the fire
- Identifying hot spots
- Identifying and locating entry and exit points
- Incident investigation
- Training

Warning

Read all instructions and warnings before using this product.

Your Navigator is like any other tool: it must be used **properly and safely**.

All users should be trained on the proper and safe use of the C-THRU platform before use.

This is especially important for users in **hazardous or IDLH** (Immediately Dangerous to Life and Health) environments.

NOTICE: Changes or modifications made to this equipment not expressly approved by Qwake Technologies, Inc may void the FCC authorization to operate this equipment.

Failure to follow this information could result in death or serious injury.

(Insert image of firefighter using the C-THRU Navigator)

1.2 Overview

The C-THRU Navigator consists of:

1. **Vision Module (VM)**
2. **Power Module (PM)**
3. **Two lightweight mounting plates**, which are designed to be semi-permanently attached to the user's helmet

Vision Module (VM)

- **Function:**
The VM houses a high-speed thermal camera, heads-up display (HUD), feature control buttons, and sits at the front of the helmet.
 - It enables tactical functions such as:
 - Seeing through zero visibility
 - Tracking entry points
 - Receiving messages from the Incident Commander (IC)

Power Module (PM)

- **Function:**
The PM serves as the **power source** for the device and contains the battery.

Helmet Mounts

- **Vision Module Mount:**
Semi-permanent attachment point that secures the VM to the helmet.

- **Power Module Mount:**
Semi-permanent attachment point for securing the PM to the helmet.
-

Tail Lights

- **Function:**
Provides tactical visual communication in zero-visibility environments.
-

(Insert labeled image showing the helmet with Vision and Power Modules attached, along with close-up details of each component)

1.3 Hardware Features

The C-THRU Navigator is designed with high-grade components tested for extreme environments.

Key Features:

- **Tactical Grade System Cable**
 - Ruggedized, high-speed cable that provides seamless data and power flow between modules.
- **Feature Buttons**
 - Allow users to activate various tactical functions.
- **High-Speed Thermal Sensor**
 - Provides infrared readings to maintain visibility under zero-visibility conditions.
- **Display Lens**
 - Replaceable heads-up display (HUD) lens that allows users to see through smoke and view tactical messaging.
- **Laser**
 - Functions include:
 1. Acting as a **visual beacon** when the Mayday system is activated.
 2. Short-range rangefinder.
 3. Pointing out tactical details during structural operations.
- **Power Button**
 - Powers the C-THRU Navigator on and off.
- **VM Release Latch**
 - Allows for detachment of the Vision Module when needed.

2. Precautions

Storing Conditions:

- If your C-THRU device has been stored in **extremely cold temperatures** (below 0°C) with a depleted battery, allow it to warm up before use.
 - Starting up may take **over 1 hour** if not warmed properly.
 - To prevent delays, **Qwake recommends keeping the device attached to a charging system** when not in use.
 - **Charging Temperature Range:** 32°F (0°C) to 113°F (45°C).
-

Charging Accessories:

- Use only the **supplied wall charger**.
 - The **right tail light** will blink **green** until fully charged.
-

Battery System Protection:

- The Navigator includes a **safety feature** to prevent damage from excessive heat.
 - If overheating occurs, the system will **automatically shut off**.
 - To reset:
 1. Place the **Power Module (PM)** in a cool environment for **1 hour**.
 2. Connect the PM to the **Navigator USB Power Supply**.
 3. Press the **power button** to turn it back on.
-

Maximum Voltage:

- Input voltage: **5V**
 - Maximum current: **3A**
-

Thermal Profile:

- The device follows a **master thermal profile** with the following ramp rates:
 - 30°C for 10 minutes
 - 95°C for 15 minutes
 - 65°C for 10 minutes
 - 45°C for 10 minutes
 - Ramp rates should **not exceed 2.5 minutes** between temperature bands.
-

Data Storage:

- The C-THRU uses a **secure AWS cloud system** to store and upload videos captured during firefighting operations.
 - **Recording time is unlimited**, and incidents are accessible through the **VCA iPad app**.
-

Error Logs:

- The device logs errors and sends them to **Qwake Tech IT teams** for further evaluation.

Hazard Warnings

General Warnings:

1. **Do not charge in a hazardous location.**
 2. **Do not short circuit, crush, incinerate, or disassemble the device.**
 3. **Improper use may lead to risk of fire, explosion, or burns.**
 4. **Battery Charging Temperature Range: 0°C to 45°C**
 5. **Only charge using the Qwake-supplied wall adapter.**
 - Power source: **3.2V, 3300 mAh LiFePO4**, internally housed, not field replaceable.
-

Device Handling:

1. **Do not disassemble** the C-THRU Navigator. If the unit malfunctions, return it to the Qwake service center for evaluation.
 2. The Navigator is **sensitive to intense radiant heat sources**. Do not expose it to direct sunlight or extreme heat, as this may cause severe damage.
 3. Do not attempt to replace the internal battery pack. **Return the unit to Qwake's service center** for proper recycling or disposal.
-

Usage Instructions:

1. The Navigator is **not a replacement for basic firefighting tactics**.
 - It is a **tool to enhance firefighter effectiveness** and aid in decision-making.
 - **Proper training** on the device's use, limitations, and safety considerations is required.
 2. Firefighters must continue following all basic firefighting safety protocols.
-

Cleaning and Maintenance:

1. **Do not use solvents or paint thinners** to clean the C-THRU Navigator.
 - These substances may permanently damage the surface or degrade protective properties.
 2. **Do not submerge the device** in water or expose it to high-pressure water.
 3. Follow all care instructions provided in the manual.
-

Charging Precautions:

1. Always use the **correct charger** and follow the manufacturer's instructions.
 2. **Do not connect the USB cable** from the CM to any other device. This will **damage both devices** and void the warranty.
-

California Proposition 65 Warning:

Cancer and Reproductive Harm – Visit www.P65Warnings.ca.gov.

Laser Safety Warning:

- This product contains a **laser pointer**. Misuse can be dangerous.
 - Never point the laser at your eyes or anyone else's eyes.
 - Avoid direct exposure to the laser beam.
 - Do not use the device near flammable materials.
 - Keep the device out of reach of children.
 - Failure to follow these precautions may **result in serious injury**.

3. Device Specifications

Physical

- **Weight (with battery):** 4 lbs
 - **Housing Colors:** Black
-

Adjustable Display

- **Viewing Angle:** 30-45 degrees (typical)

IP Performance

- **Water Resistance:** IP67

Electrical

- **Battery Type:** LiFePO4 (Intrinsically Safe)
- **Operating Time:** 1 hour with base features

Maximum Voltage

- **Input Voltage:** 5V
- **Maximum Current:** 3A

Master Thermal Profile

- 100°C for 30 minutes
- 150°C for 10 minutes
- 250°C for 5 minutes
- **60°C** maximum runtime

Certifications

- **FCC Certified**

(Insert image of the C-THRU device mounted on a firefighter's helmet in action.)

4. Getting Started

Overview

This section provides step-by-step instructions for setting up your C-THRU Navigator, including:

- **Unpacking and initial setup**

- **Powering on the device and connecting to a power source**
- **Pairing the device with a compatible app or platform (if applicable)**

The **C-THRU Navigator** is a powerful tool designed to enhance situational awareness in fire-ground environments. Follow this guide to set up, test, and familiarize yourself with your device before deployment.

What You'll Need

Before starting, ensure you have the following:

1. **A fully charged Power Module**
 - Ensures uninterrupted operation during use.
 2. **A Vision Module with a clean lens**
 - Provides clear visibility and optimal performance.
 3. **The Navigator helmet mounts installed on your helmet**
 - Properly secured mounts are essential for stability and safety.
 4. **The Wall Charger to charge your Navigator**
 - Use only the supplied charger to maintain battery health.
-

(Insert labeled images of each required component.)

4.1 Attaching the Modules to the Helmet Mounts

Properly attaching the **Vision Module (VM)** and **Power Module (PM)** ensures secure operation and optimal performance. Follow these steps carefully.

Vision Module Installation

1. Align and Position

- Align the **leftmost green peg** on the **Vision Module** with the **leftmost slot** on the **Vision Module Mount**.

2. Twist and Click

- Align the **frontmost peg** with the **groove on the rail** at the **front attachment**.
 - Twist the **Vision Module** until it **clicks into place**.
-

Power Module Installation

3. Attach the Power Module

- Align the **Power Module pegs** with the **back mount's keyhole slots**.
 - **Twist and press** to secure it.
-

4. Align the System Cable

- A **high-speed data cable** allows the **Vision Module (VM)** and **Power Module (PM)** to communicate.
 - Ensure the cable is **properly connected** to avoid system errors.
-

(Insert step-by-step images illustrating the process, emphasizing the "Click!" confirmation points.)

4.2 Connecting the System Cable

To ensure proper communication between the **Vision Module (VM)** and the **Power Module (PM)**, follow these steps to connect the **System Cable** securely.

Step-by-Step Instructions

1. Identify the Connection Points

- Locate the **USB-C end** of the **System Cable**.
- Find the corresponding **USB-C port** on the **Power Module**.

2. Align the Registration Keys

- The **System Cable** has **three grooves** on the outside—these must **slide into the matching slots** on the Power Module.

3. Insert the System Cable

- Align the **USB-C connector** with the **USB-C port** on the **Power Module**.
- Insert it at a **slight angle** to ensure a proper fit.

4. Twist to Lock

- Rotate the **cable lock clockwise** until it **clicks into place**.

Pro Tip:

- If you **can't twist the lock** or don't feel the **"snap"** when inserting the cable:
 - Remove the **System Cable**
 - Flip it over
 - Try again
-

(Insert sequential images showing alignment, insertion, and locking of the System Cable.)

4.3 Getting Familiar with the Buttons

The **Vision Module** has three buttons that control essential navigation, communication, and vision functions.

Button Functions

A – Navigation

- **Quick Press:** Toggle Path Tracking / Exit Compass
- **Press & Hold:** Set Entry Compass
 - (Re-press & hold resets tracking)

B – Communication

- **Quick Press:** Acknowledge Messages
- **Press & Hold:** Activate MAYDAY
 - (Re-press to cancel MAYDAY)

C – Vision

- **Quick Press:** Toggle Vision Modes
 - **Press & Hold:** Laser ON/OFF
-

How to Locate the Buttons

1. **Place your hand on the Vision Module** with your thumb towards the back of your head.
2. **Use your fingers to identify the buttons:**
 - **Ring Finger → Button A (Front - Navigation)**

- **Middle Finger** → **Button B (Middle - Communication)**
 - **Index Finger** → **Button C (Back - Vision)**
-

(Insert labeled images showing button placement and firefighter using the laser pointer in action.)

4.4 Putting on the Helmet & Adjusting the Lens

4) Put the Helmet On

- Place the helmet with the **C-THRU modules attached** over your head.
 - Secure the **suspension harness** of the helmet to ensure a **comfortable and stable fit**.
 - Adjust the **Lens Angle** to ensure **full visibility** of the display screen.
-

5) Set the Lens Angle

- **Pull down** the lens to activate the display.
- **Push it back up** when not in use.

Lens Positioning Guidelines:

1. Rotate the lens to **approximately 45 degrees** (not 90 degrees) relative to the **Vision Module**.
 2. Ensure the lens is positioned **within your line of sight** but does **not obstruct** your view.
-

(Insert images demonstrating proper helmet fit and correct lens positioning at 45°.)

4.5 Powering On the Navigator

Steps to Power On:

1. **Press the Power Button** on the Navigator once.
 2. **Observe the Tail Lights:**
 - The **left tail light** will flash **white** for **5 seconds**.
 - Both tail lights will turn off during boot-up (**may take up to 15 seconds**).
 3. When both **tail lights turn solid green**, the **Navigator is powered on and ready** for use.
-

Confirming System Readiness

- Once the device is on and worn, you will see a **splash screen on the HUD**.
 - The **Edge Detection mode** will activate automatically.
 - **Thermal imagery** will appear on-screen, and both tail lights will turn **bright green**.
-

4.6 Checking the Battery & Signal Status

How to Check:

1. Press **Buttons B + C together** to activate the **dropdown banner** displaying **battery and cellular signal levels**.
 2. Check the battery indicator:
 - A **full green battery icon** confirms a complete charge.
 3. The **banner will disappear automatically after 4 seconds**.
 4. To recheck battery/signal status, repeat the process.
-

Quick System Check:

- Press **B + C (Quick Press)** → Activates the **System Status Banner** for battery and signal strength.
-

(Insert images showing the power-up process, tail light indicators, and battery check interface on HUD.)

4.7 System LED Indicators (Tail Lights)

The **tail lights** provide **critical system status updates**. When the system is charging, the **tail lights will pulse green**, with **blink frequency indicating charge levels**.

Power On Indicators

- **Step 1:** Press the **power button** to turn on your Navigator.
- **Step 2:** The **left tail light** turns **on for five (5) seconds**.
- **Step 3:** **Both tail lights turn off** during boot-up.
- **Step 4:** Once boot-up is complete, **both tail lights turn solid GREEN** (device is successfully powered on).

- If the **LTE network is connected**, the **tail lights will turn GREEN**.
-

Charging Indicators

- **Right tail light blinks GREEN** → Device is charging.
 - **Solid GREEN** → Compute module is fully charged.
 - **Pulsing GREEN** → Compute module's battery is charging.
-

Low Battery Warning

- **Right tail light blinks YELLOW** → Low battery warning.
 - **Solution:** Charge the device **immediately** to avoid interruptions.
-

MAYDAY Alert

- When **MAYDAY is activated**, tail lights turn **RED** and flash.
 - **Three WHITE blinks** indicate the **message is being received**.
 - When **MAYDAY is canceled**, tail lights **return to normal**.
-

Evacuation Order

- When a **Broadcast EVACUATION** is initiated, tail lights enter **alert mode**.
 - **Tail lights rapidly blink and alternate from Left to Right**.
-

Broadcast PAR (Personnel Accountability Report)

- When **Broadcast PAR is initiated**, tail lights of all devices on the fireground turn **YELLOW**.
 - Once **PAR is canceled**, tail lights return to **GREEN**.
-

Diagnostic / Update Mode

- If **tail lights display PURPLE**, the device is performing an **Over-the-Air (OTA) Update** or running **diagnostics**.
 - **DO NOT** power off or unplug the device during this process.
-

(Insert images showing each LED status with corresponding descriptions.)

5. Setting Up the Helmet Mounts

The **C-THRU Navigator** consists of two key components:

- **Vision Module**
- **Compute (Power) Module**

To assemble the **helmet mounts**, follow the steps below.

Helmet Mount Components

1. Vision Module Mount

- **Purpose:** Fireproof helmet attachment for the **Vision Module**.

2. Compute Module Mount

- **Purpose:** Fireproof helmet attachment for the **Compute Module**.

3. RFID Token

- A **spring-loaded latch** for **individual firefighter identification**.

4. CM Release Latch

- **Function:** Allows users to **detach the Compute Module** when needed.
-

Assembly Overview

- The **Vision and Compute Modules** attach to the **pre-installed helmet mounts**.
 - The **fully assembled helmet** includes both modules securely **locked in place**.
-

(Insert images showing the disassembled and fully assembled helmet with properly mounted modules.)

5.1 Helmet Mounts Overview

The **C-THRU Navigator helmet mount system** ensures a **secure and stable attachment** for both the **Vision Module (VM)** and **Compute Module (CM)**. The mount is designed to withstand firefighting conditions while allowing for **easy detachment when necessary**.

Helmet Mount Components & Functions

Structural Components

- **Vision Module Mount Clip**
 - Clamps over the **front brim** of the helmet.
 - Secures the **Vision Module** when attached.
 - **CM Mount Frame**
 - Used for mounting the **Compute Module**.
 - **Mount Retainers**
 - Provides a **secure grip** for the **Vision Module Mount**.
 - **Side Retainer Clips**
 - Reinforces the **Compute Module Mount** in case of an **impact**.
 - **Mount Screws**
 - Secures the **Vision Module Mount Retainers**.
 - **CM Mount Screws**
 - Used to secure the **CM Retainer Clips**.
 - **Mount Plate & Nuts**
 - Stabilizes the **Vision Module Mount Clip**.
-

Installation & Secure Fit

- **High-Bond Mounting Adhesive**
 - Adheres the **mounting system to the helmet** for maximum stability.
 - **RFID-User Recognition**
 - The Navigator **recognizes different helmets** for different firefighters during shift changes.
 - Automatically **associates a specific user** when a firefighter **attaches the Navigator** to their helmet.
-

(Insert images showing the mount assembly process and fully assembled helmets.)

5.2 Setting Up the Power Module Mount

The **Power Module Mount** secures the **Compute Module (CM)** to the helmet, ensuring stability and durability in firefighting conditions. Follow these steps to properly install the mount.

Components Required for Installation

- **Power Module Mount Main Adaptor**
 - **Retainer Clips (x2)** – Provides additional reinforcement
 - **Mount Screws (x4 - 2.4 size)** – Secures the mount to the helmet
 - **Alcohol Pads** – Cleans and preps the helmet surface before adhesion
 - **Allen Key (Size 5)** – Used to tighten the mount screws
 - **Clamps (x2)** – Holds the **helmet mount ends together** during installation
-

Installation Steps

1. **Prepare the helmet surface**
 - Use **alcohol pads** to remove any dirt or residue before mounting.
 2. **Position the Power Module Mount**
 - Align the **Power Module Mount Main Adaptor** with the helmet.
 3. **Secure with Retainer Clips & Screws**
 - Attach the **Retainer Clips** and insert the **Mount Screws**.
 - Tighten the screws using the **Allen Key** for a firm hold.
 4. **Use Clamps for Stability**
 - Use **mechanical clamps** to hold the **helmet mount ends together** while securing the screws.
-

(Insert images demonstrating each step and a final view of the Power Module properly mounted.)

5.3 Installing the Power Module Mount

Follow these steps to properly attach the **Power Module Mount** to the helmet for a secure and stable fit.

Step-by-Step Installation Guide

1. Prepare the Mount

- Peel off the adhesive film while keeping the helmet **dome facing down** on your lap.

2. Align the Mount

- Ensure the mount is **centered with the helmet's hanging loop** for proper positioning.

3. Attach the Mount to the Brim

- Push the mount **hard toward the brim bumper** until it **snaps into place**.

4. Secure the Keyhole End

- Push the **keyhole end** down until the **mount adheres to the brim** completely.

5. Add Retainer Clips & Tighten Screws

- Attach the **retainer clips** on the sides.
- **Tighten the screws** to ensure a **secure connection**.

(Insert labeled images showing each step, from peeling the adhesive to securing the final screws.)

5.4 Setting Up the Vision Module Mount

The **Vision Module Mount** ensures the **Vision Module (VM)** is securely attached to the helmet for optimal performance. Follow these steps to properly install the mount.

Required Components

Mounting Hardware

- **Vision Module Mount Main Adapter**
- **Aluminum Mounting Plate**
- **Mounting Plate Nuts (x2)**
- **Retainer Clips**
- **Mount Screws (x4 - 2.4 size)**

Tools & Accessories

- **Alcohol Pads** → Cleans the helmet surface before applying adhesive

- **Conduit Lockout Wrench** → Hexagon wrench for tightening VMM plate nuts
 - **Allen Key (Size 5)** → Used to tighten mount screws
-

Step-by-Step Installation Guide

1. Prepare the Mounting Plate

- **Peel off the adhesive film** from the **VMM Plate**.

2. Align the Plate

- **Center the plate** with the **center of the helmet's leather shield**.

3. Position the VMM Plate

- **Place the VMM plate over the brim** ensuring alignment.

4. Secure the Mount

- **Option A:** Center the **VMM Plate** and adhere it for a **standard fit**.
 - **Option B:** **Trim the front notch** and align with the **helmet's front rim** before securing the adhesive.
-

(Insert images illustrating each step, from preparing the plate to securing the final assembly.)

5.5 Securing the Vision Module Mount

After positioning the **Vision Module Mount (VMM) Plate**, follow these final steps to securely attach it to the helmet.

Step-by-Step Installation Guide

5. Center and Snap the Mount into Place

- **Ensure the mount is centered** with the **eagle of the helmet**.
- Push the mount **hard toward the brim bumper** until it **snaps into place** securely.

6. Tighten the Nuts

- Use the **Conduit Lockout Wrench** to tighten the **mounting nuts**, securing the **VMM Plate** in place.

7. Install the Retainer Clips and Final Screws

- Attach the **retainer clips** on both sides.
- **Tighten the screws** to fully secure the mount.
- Ensure that the **retainer clips are tucked under the helmet brim bumper** for a flush fit.

(Insert labeled images demonstrating the final tightening process and secured mount.)

6. Device Operations

6.1 Core Features

The **C-THRU Navigator** enhances **firefighter situational awareness** with advanced **thermal vision, communication tools, and feedback mechanisms**.

1. Thermal Vision with Edge Detection

- **Automatically activated** when the device powers on.
- Provides **enhanced visibility** in **zero-visibility environments**.
- Users can **toggle between different vision modes** by quickly pressing **Button C** (tail button).

2. Entry Direction Compass

- Before entering a structure, users can **set an entry direction** by **pressing and holding Button A**.
- The **compass indicator** helps firefighters **track their way back out** safely.

3. Visual Communication Cues (PAR, F2F, EVAC)

- Users can acknowledge **incident commander (IC) signals** such as:
 - **PAR (Personnel Accountability Report)**
 - **F2F (Face-to-Face Communication)**

- **EVAC (Emergency Evacuation)**
 - **Press Button B** to acknowledge and respond.
-

4. MAYDAY Alert

- Firefighters can activate **MAYDAY mode** when in distress by **pressing and holding Button B**.
 - A **timer charge-up banner** will appear on the **Heads-Up Display (HUD)**.
-

5. Laser Pointer

- The **built-in laser pointer** allows users to **mark tactical features** for other crew members.
 - **Press and hold Button C** (rear button) to toggle the laser **ON/OFF**.
-

6. Visual & Tactile Feedback Mechanisms

- The **Heads-Up Display (HUD)** provides **real-time visual indicators** for key interactions.
 - The **buttons feature tactile feedback**, ensuring easy operation with gloves.
 - If the device **overheats** or **battery levels are low**, the **HUD displays warning icons**.
-

(Insert images demonstrating firefighters using the HUD, compass, and laser pointer in action.)

6.2 Heads-Up Display (HUD)

The **HUD delivers situational data** directly in the firefighter's **field of view**.

✓ **Key Features:**

- Displays **navigation, alerts, and tactical visuals**.
- **Adjustable lens** ensures optimal positioning for different users.

6.3 Vision Modes

Vision Mode	Functionality
Edge & Thermal (Default Mode)	Combines Edge Detection (green outlines) with Raw Thermal Imaging .

Edge & Hot-Spot	Similar to Edge & Thermal , but highlights hot zones in red .
Edge Detection	Highlights object edges in the environment for enhanced situational awareness.
Raw Thermal	Traditional high-resolution grayscale thermal imaging .

(Insert images showing HUD display and different vision modes in action.)

Real-Time Communication

The **C-THRU Navigator** provides **visual and LED-based communication cues** to keep firefighters and incident commanders connected during operations.

- ✓ **LED tail lights** indicate **status and alerts**.
- ✓ **Seamless integration** with the **Command App** for incident coordination.

6.4 Emergency Communication

1. Emergency Evacuation (EVAC)

- **EVAC command** facilitates **rapid evacuation orders**.
- Displays **EVAC alert** on the **HUD**.
- Tail lights **flash in evacuation mode** to ensure visibility.

2. MAYDAY Activation

- Firefighter can **activate MAYDAY** by pressing and holding **Button B**.
- Instantly **alerts the Incident Commander** of a firefighter in distress.
- **MAYDAY alert appears on HUD** and **tail lights flash red**.

(Insert images showing HUD communication alerts and the Command App interface.)

6.5 Navigation Tools

Entry Side Compass

The **Entry Compass** helps firefighters maintain orientation by marking their **entry point into a structure**.

How to Set the Entry Compass:

1. **Face the building** at your **entry point**.
2. **Press and hold the Navigation Button (A)** on your Navigator.
3. A **Navigation charger bar** will appear at the **bottom edge** of your HUD.
4. **Hold for three seconds** until the bar is **fully charged**.
5. Once charging is complete, a **blue compass** will appear, pointing to your **entry side of the building**.

✓ **Tip:** The **Laser Pointer** also acts as a **rangefinder** when close to a **vertical surface**, helping gauge depth in low-visibility conditions.

(Insert images showing the HUD's navigation display and building map with entry point tracking.)

6.6 Replacing the Power Module

To ensure **continuous operation** of the **C-THRU Navigator**, follow these steps to safely **replace the Power (Compute) Module (CM)**.

Step-by-Step Replacement Process

1. Power OFF the Navigator

- Ensure the device is **powered off**.
- If the device is still on, **press and hold the power button for 2.5 seconds** to turn it off.

2. Secure the Helmet

- Hold the helmet **firmly** with the **C-THRU Modules still attached** to prevent accidental drops.

3. Dismount the Compute Module

- **Disconnect the system cable** from the Compute Module.
- Press the **Compute Module release latch** and carefully **detach the module** from the helmet mount.

4. Swap the Depleted Module with a Freshly Charged One

- Remove the **depleted Compute Module**.
- Attach a **fully charged Compute Module** to the helmet mount.
- **Reconnect the system cable** securely.
- **Power on the device** by pressing the **power button** once.

Battery Status Indicator

-  **Depleted Compute Module** → Needs replacement
 -  **Freshly Charged Compute Module** → Ready for use
-

(Insert images demonstrating each step, including battery status indicators.)

6.7 Charging the Power Module

The **Power Module** must be fully charged to ensure **optimal performance** of the **C-THRU Navigator**. Follow these steps to properly charge the module.

Step-by-Step Charging Process

1. Connect the Charging Cable

- Pick up the **Power Module** and locate the **USB-C port**.
- Plug one end of the **charging cable** into the **Power Adapter** and the other into the **USB-C port** on the **Power Module**.

2. Plug Into a Power Source

- Insert the **Power Adapter** into a **wall outlet** or a **vehicle USB power hub**.

3. Monitor the LED Tail Light Indicators

- The **Right LED Tail Light** on the **Power Module** will:
 - **Flash green** → Charging in progress
 - **Turn solid green** → Fully charged

4. Charging Time

- The **Power Module** charges fully in approximately two hours.
-

Battery Level Indicators (Tail Lights)

Tail Light Status

Battery Level

 Blinking Green	Charging in progress
 Solid Green	Fully charged
 Blinking Orange	Low battery – needs charging

Ensure Safe Charging Conditions

✓ Do:

- Place the **Power Module on a flat, stable surface** while charging.

✗ Avoid:

- **Extreme heat or moisture exposure** during charging.
-

(Insert labeled images showing the charging cable connection, power adapter, and tail light indicators.)

6.8 Power Off & Reset Procedures

To ensure **safe shutdown and troubleshooting**, follow these steps for **powering off, force shutdown, and hardware reset**.

Powering Off the Navigator

1. **Press the Power Button once** to turn off the Navigator.
2. **Wait up to 10 seconds** for the display and tail lights to shut down.

Hard Reset (Manual Restart)

- If the device is unresponsive, **hold the Power Button for 5 seconds** to reset it.
-

Force Shutdown (If Device Doesn't Turn Off Normally)

If the Navigator remains powered on or becomes unresponsive:

1. **Wait for the tail lights to turn off** before disconnecting any cables.
 2. **Unplug the data cable:**
 - **Twist the cable seal collar** and pull the cable out.
 - You should feel a **slight resistance** as the cable disconnects from its **IP-sealed socket**.
 3. **Remove the Compute Module (CM):**
 - Press the **metal latch** underneath the **C-THRU logo** on the CM mount.
 - Carefully **pull the CM out** of its mount.
 4. **Swap the CM:**
 - Remove the **depleted CM** and mount a **fully charged replacement**.
 5. **Reconnect the System Cable:**
 - Insert the cable into the **sealed socket** and **lock the collar** securely.
 6. **Recharge the CM:**
 - Plug the **depleted CM** into a **wall or vehicle charger**.
 - The **right tail light should blink** to indicate charging is in progress.
-

Hardware Reset (Full Reboot)

- If the **imager or display becomes unresponsive**, the **C-THRU Navigator** has a built-in **hardware reset** function.
 - To force a reset, **press and hold the Power Button for 5 seconds**.
-

(Insert labeled images demonstrating the shutdown sequence and force restart process.)

7. Maintenance & Care

Proper maintenance of the **C-THRU Navigator** ensures **optimal performance, longevity, and safety**. This section covers **cleaning, decontamination, and storage best practices**.

7.1 Replacing the Display Lens

The **display lens (Combiner)** on your **C-THRU Navigator** may need replacement due to **scratches, wear, or contamination**. Follow these steps to safely remove the damaged lens and install a new one.

Step-by-Step Lens Replacement

1. **Remove the Vision Module (VM)** from your helmet.
2. **Open the display outward** until it reaches its **stopping point**.
3. Locate the **two screws** securing the **Combiner (display lens)**.
4. Use a **screwdriver** to **remove the screws**.
5. **Take out the damaged Combiner**.
6. **Unpack the replacement Combiner** from its protective case.
7. **Align the new Combiner's middle hinge** with the **Navigator's screw holes**, ensuring it **faces outward**.
8. **Secure the new Combiner** using the screws.
9. **Push the Combiner back** into its **stowed position**.

✓ **Tip:** Always keep spare lenses available for quick replacement in the field.

7.2 Decontaminating the Navigator

To maintain **optimal visibility and performance**, regularly clean and disinfect the **C-THRU Navigator**.

✓ **Cleaning Guidelines:**

- Use a **soft cloth** with **mild soap or detergent** to clean the **exterior of the unit**.
- **Wipe the display lens gently** with a **soft, dry cloth**.
- **Check screw tightness** on the **Combiner** to ensure a secure fit.

✓ **Storage Recommendation:**

- Store your **C-THRU Navigator** in a **vehicle mount charger** when not in use.
 - **Leave the unit to charge** while stored for **best performance**.
-

(Insert labeled images demonstrating the replacement process and proper cleaning techniques.)

8. Regulatory, Compliance & Warranty

8.1 Legal & Warranty

End User License Standard Conditions

- Users must maintain the item in their possession and protect it from theft, unauthorized access, or loss.
- Sale, resale, loan, or surrender of the item is strictly prohibited.
- Disassembly or repair of electrical/mechanical assemblies must be performed by Qwake Technologies authorized personnel only.
- If the item is lost, stolen, destroyed, or accessed by unauthorized personnel, users must report the incident to Qwake Technologies within 21 days.

Incident Report Requirements

The report must include:

- ✓ Who had physical possession of the item.
- ✓ What was being done to recover it.
- ✓ Police incident report number (if applicable).
- ✓ Steps taken to prevent future incidents.

Export Compliance & Licensing

- The C-THRU Navigator may be subject to export control regulations in the USA and other regions.
- When an export license applies, the customer must comply with all related terms and conditions.
- A copy of the export license will be provided when required, and users must follow all usage restrictions.

Disclaimer

- Specifications are subject to change without notice.
- Models and accessories may be restricted based on regional market conditions.
- License procedures apply, and additional regulations may be enforced.

8.2 FCC Compliance & Regulations

NOTICE: This device complies with Part 15 of the FCC Rules
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.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable

protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

9. Customer Care & Support

For support or warranty claims, contact Qwake Customer Service:

 Phone: +1 (866) 606-3676 (Qwake Care subscribers only)

 Email: support@qwake.tech

 Website: qwake.tech/support

✓ If the device does not perform as expected, reach out for assistance, replacement, or repairs.