



FACEBOOK FORUM

THERMAL IMAGING CAMERA AND THE ORIENTED SEARCH

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INSTRUCTOR: Jeff Kraft

SURFACE TEMPERATURES

- Thermal Imagers work by comparing surface temperatures of the objects in front of it.
- The white colors show that an object is only hotter than the object next to it.
- It does not mean that the object is on fire or actually hot.
- Different materials absorb heat at different rates.

IT'S JUST A TOOL

- The TIC tells us nothing, we must interpret what we see. The fundamentals of searching must be used.
 - Stay low and Crawl
 - Get Landmarks
 - Look for secondary means of egress
 - Thermal flow may lead you to the seat of the fire

IMAGE CLARITY IS THE ABILITY TO SEE THE DETAILS.

- 1) Makes the edges POP. It brings out the edges of objects compared to the background of the image.
- 2) Boosts contrast in dull parts of the scene. Even next to raging fire, it isolates the most significant part of the image and applies special image processing to boost contrast in that area.
- 3) Customizes processing. Processes very hot items and cooler items differently within the same scene.

IMAGE REFRESH RATE (IR60)

- The 60 Hertz refresh rate on X Factor
- Thermal Imagers makes the video fluid, not jerky.
- Hertz- is a unit measuring one frame per second.
- 60Hz- 60 images/second which reduces motion blur.
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CONFIRM WHAT YOU SEE

- Basement fires
- Attic/cockloft fires

TIC'S CANNOT BE RELIED ON TO DETERMINE FIRE CONDITIONS BELOW OR ABOVE FIREFIGHTERS INSIDE A STRUCTURE.

LIMITATIONS

- Gloved Hand (hard to turn on and off)
- Depth Perception (Walk off ledge, hole looks same as a puddle of water)
- Not an X-Ray Machine
- Baseboard Heat (false reading)
- Operators Misinterpreting Information
- Must Be Used Early at Fire (water and sprinkler heads)
- Not Intrinsically Safe
- 2-Dimensional View
- Average of Area Surface Temp.
- Older Yellow Cameras (no throttle)
- Carpet, wood floors, roofing
- Green Power Button for basic mode.
- Basic Mode (temperature bar, digital temp readout, and heat indicating color.
- Separate button for special features.
- Minimum 120mins. of continuous operation in the basic mode.
- Must be able to operate and select buttons with a single gloved hand.
- Intrinsically safe.

REFLECTIVE SURFACES

- Paneling (Pledge)
- Plastic Strips (Cold Storage)
- Metal Cover Plates
- Glass (window looks deformed in camera)
- Tile (hinders checking plumbing wall)
- Water (sprinklers)

REFLECTIVE RADIATION

SCREEN VIEW

- White Out (normal camera will reset)
- Black Out (bad battery)
- Screen Freeze (too much info go back)
- Thermal Layers Will Be Disrupted by Water
- Modern vs. Legacy Thicker, Dense Smoke

USES

- Searching for Victims
- Overhaul / Searching for Hidden Fire
- Investigations – Ballast, Electrical
- Size Up
- Haz Mats
- Water Rescues
- RIT
- Wildland Hotspots

SEARCH AND RESCUE

THE MOST EFFECTIVE USE OF THERMAL IMAGING FOR SEARCH AND RESCUE IS ACCOMPLISHED AT THE BEGINNING OF THE INCIDENT.

- As soon as water is introduced to the environment the Thermal Contrast is disrupted and the picture is not as clear, and victims are harder to identify

Z PATTERN

- Scan High for Heat (flow path)
- Medium (6 ft. approx. windows, doorways)
- Ground= Holes, Obstacles, Victims (may not be seen due to time in fire)

ROOM SCAN

IDENTIFYING ROLLOVER

- Search and Rescue

WATER RESCUE

DISTANCE

- About 400 feet
- Each manufacture could be different

HOT VS. COLD

MVA AND CONTAINERS

- TIC can be used to identify if victims were in vehicle.
- Were they ejected, or did they run away.
- Can be used to identify the amount of product in containers, this may change our tactics.
- Can show a product on water from a leak.
- Pinpoint a container or cylinder off gassing, especially if in a bank.
- Range 400 ft.
- Remember not intrinsically safe.

SEARCH AND RESCUE

- Vehicle accidents (heat signatures on empty seats)
- Person/car in the water
(scanning the banks: foot prints, tire track, and floating bodies on the water)

VEHICLE RESCUE

- Determine number of vehicle occupants prior to accidents.
- Have multiple seats in the field of view for comparison.

MOTORCYCLE CRASH

SIZE UP

OVERHAUL

RIT

HAZMAT

- CONTAINER SIZEUP
- Must Be Liquid or Solid
- Must Have a Vapor Space
- Must Be of Different Temperature
- Can Be Delivered to Outside
- Insolated containers won't show

HAZMAT RAILROAD CAR

- **Five Common Mistakes**
 - 1) Straight shot search.
 - 2) Not looking up.
 - 3) Not confirming what we see.
 - 4) Not cooling the main entry (may be useful in large areas with multiple doors).
 - 5) Not staying low (below the thermal layers).
- Straight Shot Search
- Make Sure to Look Up
- Confirm What You See

STAY LOW

TIPS

- If You Must Wipe Your Mask You Need to Wipe the Lens
- Will Show You Convective Currents Which Can Lead You to Seat of Fire
- Size Up Frame Building (pinpoint fire in bay)
- Thermal Throttle Should Never Be Used for Search of Victims in Fire