

THERMAL IMAGING CAMERA

Purpose:

This guideline is created to facilitate the most effective method for deploying the thermal imaging camera in a way that provides the most protection to fire department personnel and the general public.

Policy:

It shall be the policy of the Kemah Fire Department to utilize the thermal image camera in every structure fire and any other situations as identified where it will enhance the safety of department personnel and the general public.

Guidelines:

A thermal imaging camera (*TIC*) shall be carried on the first arriving Kemah Fire Department engine unless otherwise directed by the Officer in Charge. Personnel shall become familiar with the location of the TIC on the apparatus. The engine officer shall determine who will operate the TIC. When the TIC is sent in with the attack crew the typical operator shall be the company officer.

It is the incident commander or officer of the engine responsibility to scan the fire structure using the TIC to facilitate deciding what type of fire attack is required.

Exposures shall also be scanned to determine thermal load and probability of risk to adjacent exposures.

Once the incident commander or officer of the engine has completed the above scans and a decision has been made for an aggressive interior attack the TIC shall be taken to the primary entrance for the fire attack crew.

Any door with more than a 40% thermal load is an indicator of possible backdraft or flashover. This door shall not be entered until ventilation and an adequately sized hose line is in place.

The TIC shall go in with the attack crew on all calls. The safest and most efficient operation of the TIC occurs when its operator's view is not obscured by other firefighters. Camera operators must be aware that they have a tendency to move faster than the rest of the team who are possibly operating in zero visibility. Search and suppression activities should occur in compliance with Kemah Fire Department SOG's and standard fire fighting practices. The thermal imaging camera should be viewed as a tool to assist in accomplishing the tactical priorities of the fire department.

In moderate to heavy smoke conditions the TIC allows a crew to quickly check a smoke filled area to determine whether or not there is fire present. Firefighters should remember that they must stay low even if the majority of the heat is at the ceiling. The possibility of a flashover in the dynamic atmosphere of a structure fire is higher than ever before because of new materials, construction methods and rapid responses.

The thermal imager has the potential to greatly speed the fire scene primary search operations. It is essential the primary search be carried out as quickly and thoroughly as possible. Firefighters inside the structure whether they are using the TIC to assist in fire attack or primary search must remember to not become overconfident because this tool allows them to see in virtual zero visibility.

The Kemah Fire Department shall attempt to place TIC with the Rapid Intervention Team as early as possible in the incident. This may necessitate the call for mutual aid to accomplish this guideline.

The TIC shall be used before and after knockdown to check for fire extension. The imager shall be taken throughout the complete structure to check for extension.

The imager shall also be used on odor investigations inside a structure.

THERMAL IMAGE CAMERA USES:

1. Provides safer navigation in a space where there is zero visibility due to smoke.
2. Allows personnel to 'see' in a zero visibility environment, which is a very useful addition to traditional search and rescue techniques. The time necessary for completing a primary search can be cut significantly by utilizing the Thermal Imaging Camera.
3. Enables suppression crews to execute a faster, more effective interior attack. The shortest route to the fire, holes in the floor and obstacles in the structure can be determined and located efficiently.
4. Reduces fatigue of interior crews because efficiency in performing searches and suppression is increased.
5. Allows Rapid Intervention Teams to quickly and efficiently locate downed firefighters.
6. May be used to determine fluid level within a container or temperature differences in fluids, which may be useful during an incident involving hazardous material.
7. May be used as a search tool to locate lost persons in open wilderness areas.

THERMAL IMAGING CAMERA LIMITATIONS:

1. The thermal imaging camera allows a two dimensional view of a smoke filled environment. Depth perception is limited. Firefighters operating the camera should remain low to the ground/floor, scanning the entire area before them. When scanning an area with the TIC begin at the ceiling and conclude at the floor area immediately in front of them. Walking with the TIC is discouraged as trip hazards may be overlooked.
2. Thermal energy does not travel directly through walls. A TIC does not allow an area to be viewed, which is behind a wall. If fire is present inside a wall, the camera will only be able to 'see' if the fire has increased the temperature of the wall itself. Fire inside wooden clad walls will be picked up much faster than fire on the other side of more significant barrier such as concrete.

3. A human being will not provide sufficient thermal energy to penetrate most standard construction materials or solid items such as furniture. Therefore, it is essential that while conducting a search, rescuers must look under/around beds, sofas and other objects where victims may have hidden to escape fire.
4. The Thermal Imaging Camera must be used with the understanding that it is only a mechanical device and it can fail. Firefighters must plan for this possibility by carrying flashlights, maintaining contact with the wall, a hose line, or other routine methods for remaining oriented to location and the position of exits in a zero visibility environment. Crews should continue to employ standard fire fighting practices.