



Security applications using thermal imaging systems

Today, security is an expression that is very sensitively used in all areas of our lives. Security measures, security risks, security cameras, etc. ensuring the security of loved ones, staff, the city's population, animals and objects is a priority for most of us. It is not easy task and, unfortunately, is not something that can be resolved forever. We will always have to resolve it again and again, because new security risks will always arise. The most frequent source of fear is the risk of entry by undesirable people (or animals) into buildings and onto land. An analogical problem is the search for missing persons in particular areas. Searching from missing persons in an open area during the day is not usually problematic although conditions are not always ideal — fog may appear or the area may be intentionally smoked out. The cycle of the time and day play against us and intruders usually operate under the cover of darkness.



Car engines are kept ticking over meaning they can be quickly started in a short time.

Fortunately, there is a simple and effective way to see through fog, smoke and even through undergrowth and to "see" at night. All objects warmer than absolute zero emit infra-red radiation that can be detected by thermal imaging systems separately from the mentioned interference conditions. As living creatures (human, animal) almost always have different body temperatures than the surroundings, thermal cameras are good to use to safely guard buildings at night and in bad weather, such as rain, snow, and fog. Thermal cameras provide a high-quality contrasting image under daytime and night time conditions.

By correctly setting the reading parameters and using a suitable device, an object with different temperature can be detected within a distance of several kilometres. It should be noted that a potentially dangerous “object” may not just be a living creature and can also be a car or other form of transport or perhaps the centre of fire. It is a high-security risk that poses a risk every day to humans and property. By using infra-red radiation and thermal cameras, safely guarding of objects, people and property becomes easier and more reliable. An observer can view the screen in a safe place and in the case of any threat can, due to the various alarm settings, see with one look if there is a risk. Warm objects are usually highlighted in thermograms by contrasting colours - the surrounding may be a shade of grey and everything with a higher temperature than say 35°C is displayed in red. It is then quite obvious of where and what are the risks and quick action can be taken.

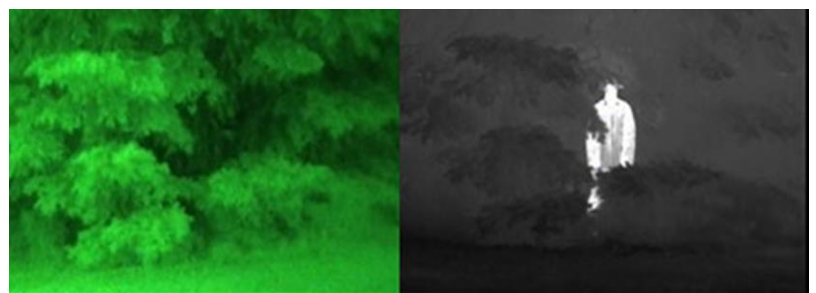


A manually adjustable thermal alarm (interval, above or below) helps when localizing missing persons or intruders. They can be easily identified during day and night and clearly distinguished from the surroundings.



The infra-red radiation can also penetrate through smoke. The thermal cameras enable to detect people through smoke or fog.

For such cases, Workswell offers an elegant and precise solution – the Workswell WIRIS infra-red thermal imaging system for drones. It is a light, compact set with a camera in the visible spectrum and a thermal camera which allows the user to quickly check any space within a large area. The system can detect people crossing land borders or to search for people missing in a large area. The Workswell WIRIS system can help to find drowning man in water just as well as a person trapped in by fire and smoke because they cannot be seen.



A relatively less well-known fact is that infra-red radiation partially penetrates through undergrowth. Here is a comparison of the image intensifier (left) and the thermal camera (right) You can check the differences for yourself.

During the flight, the Workswell WIRIS system can monitor a live image from both cameras and quickly react to any security threat. The whole flight can be recorded and analysed later to identify any risk phenomena. An advantageous feature offered by Workswell WIRIS

system is the option to manually set the temperature scale within a very small temperature range. For example, within the range 10 °C to 35 °C when searching for missing persons. Moreover, the range can also be changed during the flight. **Sensitivity can be set that other**

systems do not have resulting in a significant increase of the probability that the intruder or missing will be found. This feature makes Workswell WIRIS the best tool for this application.



This image was produced at night. The intruder approaches the guarded object and was discovered in time due to the night vision provided by thermal cameras.

Without the option to manually set the temperature range, there is a large risk of not seeing live objects due to insufficient system sensitivity!

Another great help is setting of **the temperature alarms** as these aid with the identification of live items by highlighting in clear colours. Moreover, these alarms are fully adjustable during the flight from your RC controller and the alarm settings can be adjusted to the actual conditions without having to land.

Handy or “flying” thermal camera inspections can be recommended for any safe inspection, for localizing the centre of fires, checking objects and areas and for searching for missing persons. Checking by drone is fast and undemanding and reduces the time required for intervention while increasing the probability of rescuing people and saving property.