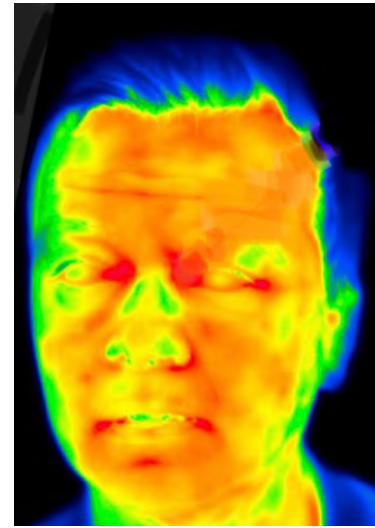
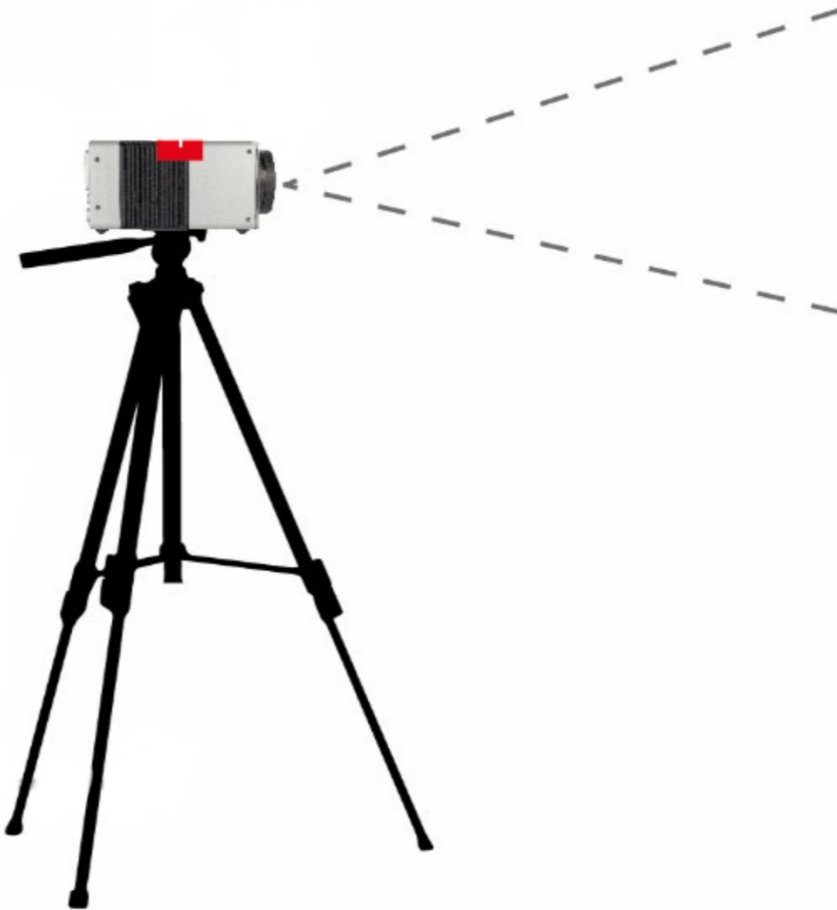


High accuracy body temperature scan

(Lowest false negative, lowest false positive ratio)



OK or
Alarm.
False or
Accurate?

The problem

Elevated body temperature is one of the symptoms of Covid-19 virus infection. Therefore body temperatures are scanned on airports, at (production) companies, government offices, public places and events where a large number of people gather or pass. These scanners can measure body temperature from a distance by using infrared thermal imaging techniques. The quality of these scanners varies a lot though. **Most temperature-scan-systems have a failure/tolerance-window of 1.0 (+/- 0.5) to 1.6 (+/- 0.8) degree Celsius or even higher.** The average body temperature of a person is around 37 degrees Celsius, people are said to have fever when their temperature is 38 degrees C. or higher.

A reliable system (with low false positive / false negative outcomes) is determined by 3 factors:

1. **The place on a body/face where the temperature is measured**
2. **The quality of the camera that is used**
3. **The quality and reliability of the applied hardware and software**

When scanning-systems are not providing reliable measurements a large percentage of false negative and false positive warnings are the result. This makes the entire system (and risk prevention) virtually useless.

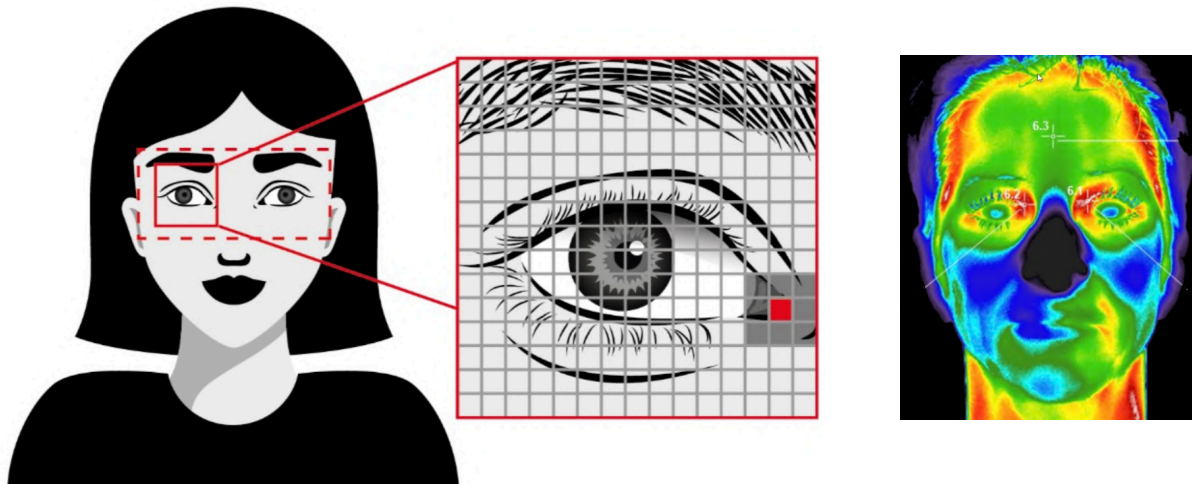
What to consider and look for

The solution is to use a system that offers the best solution for all 3 mentioned factors:

1. The place on a body/face where the temperature is measured

The best place to measure body temperature in the head is in the ear, explains Mr. Hein Daanen, professor Thermo Physiology. But you really have to enter the ear to be able to measure. He warns that temperature measurements at the forehead are influenced by ambient temperature but also by sweat, causing temperature at that part of the body to differentiate from core body temperature.

The most accurate position to measure inner core temperature on the face is exactly at the tear-duct. Measuring at this very small spot gives the most accurate result.



Punctual measurement at the inner corner of the eye

2. The quality of the camera that is used

To be able to measure the temperature in the corner of the person's eye (dimension of approximately $3 \times 3 \text{ mm}^2$ (0.014 square inches) from a 1.5 meter distance requires a high resolution camera. It takes a 640×480 IR (InfraRed) pixel format to do so. Smaller formats cannot measure accurately or increase the temperature tolerance (more false negative/false positive alarms). With special $1,024 \times 768$ pixel IR camera's you can measure multiple persons at the same time.

3. The quality and reliability of the applied software

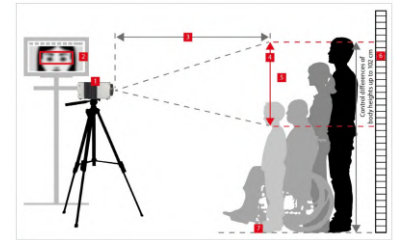
Only using a high quality camera and measure in the corner of the eye is not enough. You need state-of-the-art hardware and software to convert the measurements into reliable alarms:

- High quality cables that connect the camera to the laptop (without the risk of losing connection)
- High quality lenses that can measure both in width and depth in the same way (to avoid mis-measurements and differences when people are taller or smaller or are a little closer or further away from the camera).
- Software which enables you to choose your own detection/measurement program, that has no safety issues with possible data-sharing and is reliable (made by established companies).

The solution

The latest state-of-the-art elevated body temperature scan offers:

1. Only a 0.4 or 0.6 degree C temperature failure range (instead of common 1.0 - 1.6 degree with available systems) depending on the choice of the camera/system.
2. European software (no Chinese or US) with the possibility to choose different detection methods and configure alarm set-points.
3. European hardware, European detectors.
4. Connect & Direct-Start modus (no long set-up calibration procedure required that is normal for existing systems in the market).
5. With 1 setup, a variety of heights and depths can be measured with the same accuracy, no adjustments required.
6. Complete package in hard-top transport case: lightweight tripod Manfrotto, Thermal Camera with special IR lens, special face-scan software, low noise detector, special plugs and cables (LEMO GigE), laptop (CPU Intel Core i5, 14" full HD display, 256GB incl USB-GigE converter) etc: Plug&Play.
7. Produced by a European company with more than 200 InfraRed temperature specialist and over 25 years experience.



Legend
1 Thermal camera on tripod
2 Monitor with result display
3 Distance from the camera to the person
4 Field of view of the camera (VGA: up to 64 cm (25 inches), XGA: up to 102 cm (45 inches))
5 Position of the person
6 Background (matt) optimal to prevent interference radiation from the environment
7 Control plane with fixed distance to the camera lens

