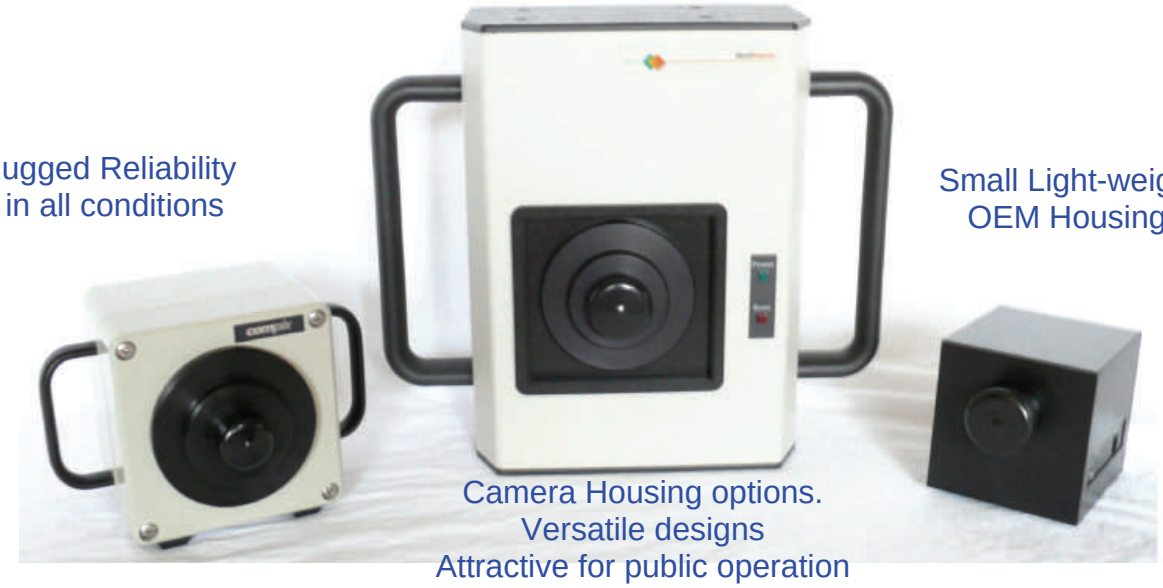
The Meditherm 520 Fever Screen Range of Systems

Rugged Reliability
in all conditions

Small Light-weight
OEM Housings

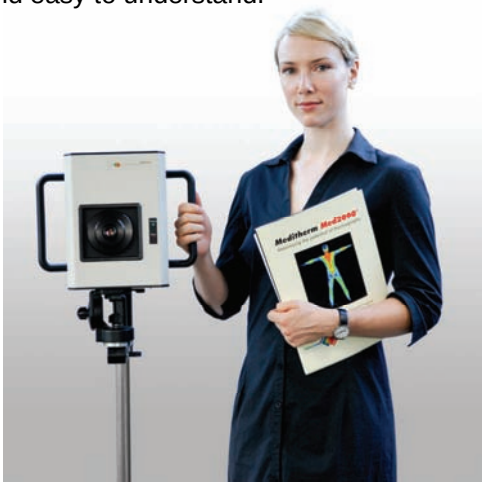


Camera Housing options.
Versatile designs
Attractive for public operation

Meditherm cameras are designed and built exclusively for medical / clinical applications including mass fever screening. Meditherm has over 17 years experience in this specialized industry.

Meditherm's advantage is our experience in physiological testing. The depth of research that has gone into the development of our cameras and the design criteria specific to human testing cannot be matched by any other manufacturer. Our system is easier to use with minimal training. We also provide superior customer support and the operating manual is simple and easy to understand.

- Optimized 11° field of view giving accuracy from 18 m down to 2 m. Allows for rapid movement of multiple people though a large area. Additional FOV available. 17°. 25°. 32°. 50°.
- Optimized frame rate of 7.5 fps giving temperature sensitivity of 0.01°c and increased acuracy
  Additional Frame rates available: 30 frames per second.
  60 frames per second (special quote).
- Easy to use software with Auto ambient correction and Auto averaging of individual persons gives better acuracy with less false positives and false negatives while proprietary threshhold fever alarm (audio and visual) reduces the operator training time to one hour.

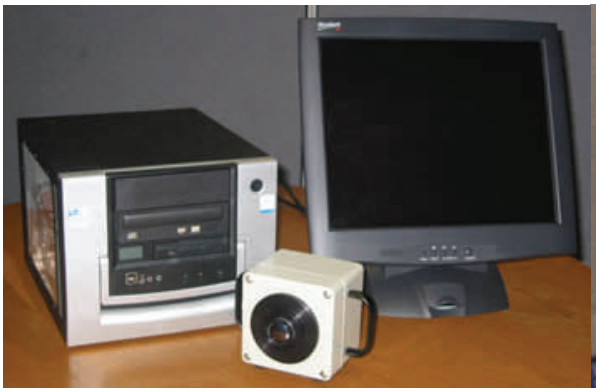


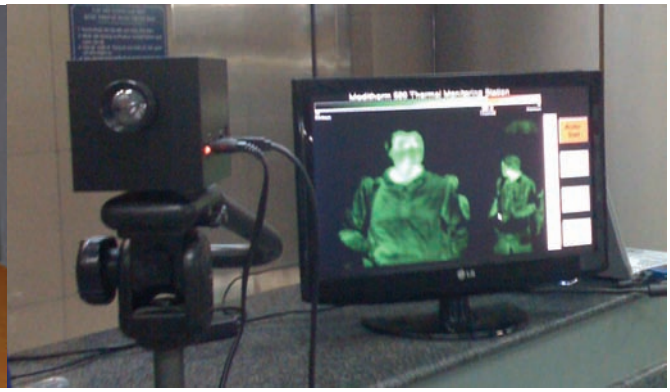
Meditherm cameras have internal temperature reference for self calibration (no outside calibration source needed)

The system is sold in a mobile configuration. To become totally stand alone mobile and independent an optional battery pack gives 13 hours continuous operation.
(no requirement for main power).

The system can also be sold as work station or with a wall or ceiling mounting.

Meditherm is an FDA registered medical device manufacturer and the Meditherm 520 Fever screen system is listed as a class I medical device. (FDA Certificate to Foreign Government is available on request). The systems also carry the CE mark as a class I medical device and comply with the European MDD conformity.





Choosing the Right System

Industrial cameras have a wide range of temperature measurement and as a consequence the sensitivity and accuracy is also spread over a wide range. A medical camera like the Meditherm system has a very narrow range of detection (within the range of human physiology) and so our sensitivity and accuracy is concentrated in this narrow range of IR emissivity and temperature..... which provides higher sensitivity and easier protocols which are not as affected by the outside environmental factors as an industrial camera will be (because of the wide range detected in all industrial applications, emissivity from electrical equipment, lighting, reflective surfaces, sunlight, and other IR sources in the immediate area will affect the results and require the operator to be very skilled as a thermography technician).

Our system is designed and built specifically for clinical use and the detection of physiological IR.

Industrial cameras have many features and functions that are irrelevant to medical applications and actually work against the sensitivity and objectivity of results. Many of these features like edge enhancement, auto averaging and emissivity correction have to be disabled before the camera can be used for applications like fever screening.
Many industrial cameras without internal temperature reference calibration require an additional external black body calibration unit (at extra cost).

All industrial cameras have a 'lens correction' built in. This is because they use actual lenses (just like normal cameras) to focus and zoom. (in industrial applications they have to look at objects at all distances from very close to very far away) the industrial camera lens will absorb about 17% of the emitted radiation (IR) so this needs to be corrected for by the software. The Meditherm camera does not use standard camera lens, so there is no loss of signal from the object emitting the radiation. We use a small germanium window which does not absorb measurable amounts of the emitted radiation, so we are detecting close to 100% of the IR being emitted from the human body. (no lens correction = better accuracy)

Industrial cameras all have a % of thermal drift. Which they use software 'averaging' to compensate for. This does not make much difference to most industrial applications but it is very important when using thermography for clinical applications.

The only way to counter the problems of thermal drift is to have a reference temperature. Industrial cameras do not have a stable reference temperature point. All industrial cameras being used in airports

for fever screening should have an outside temperature reference source (black body emitter or calibration emitter) that is seen within each view. (basically an accurate temperature that can be seen by the camera and used to calibrate each frame)
Meditherm has proprietary technology which gives us an internal reference temperature accurate to 1/100th deg c. This handles any thermal drift and calibrates the results on a frame by frame basis
End result: more stable results, repeatability, better accuracy and less need to continually alter the range and scale of detection like the industrial cameras which give higher percentages of false positive and false negative results and demand a higher level of training to be operated efficiently.

Our med520 software has developed from over 20 years of medical research and is specific to the application of mass screening for physiological abnormality.
Industrial camera software has been adapted (at best) for fever screening from the industrial application software which is in most instances not suitable or easy to use by untrained operators.
Meditherm operating guidelines are available at : http://www.compix.com/TemperatureMonitoringHelp
Meditherm technical support is available world wide.

Q. What is Interpolation and how does this relate to definition?
A. Interpolation is when you process the number of available pixels with the software. You can increase the number or decrease the number with software. It can be very confusing to the layman in terms of real definition, resolution and thermography images. The pixel count in normal photographic cameras (mega pixel) tells you how smooth the picture is .... more pixels are generally better (higher definition). This is not the case with thermography.
When talking about thermal definition we need to know not only how many individual temperature measurements have been taken in an image but are they all individually accurate and sensitive to the claimed specifications.
You can have a single temperature measurement (one pixel) which is split into 4 by the software, this affectively increases the definition x4 but you still only have the same amount of temperature data, it just looks smoother visibly.
If a camera is claiming 76,800 pixels (320x240) ..... are all of those pixels individual temperature measurements that are accurate and sensitive to the claimed specifications ? Meditherms are.
Industrial camera definition is also prone to averaging bad pixels (which have no temperature), and thermal drift, which again averages temperature range pixel to pixel but most significantly there is a trade off between the speed of temperature measurement and the accuracy of measurement of each pixel.

Interpolation can be done in both directions..... making more pixels by splitting them into multiples to show the appearance of higher definition or combining multiple pixels into a single temperature measurement (pixel) with better accuracy.

Q. Why is imaging frame rate important?
A. The longer you leave the detector looking at each pixel the better the accuracy. The faster you run the detector (to take more pixels) the lower the accuracy.
Industrial cameras scan at 30 + frames per second so the accuracy of each pixel is low.....(in medical terms) which is why they have the software perform averaging and edge enhancement.
We have slowed our frame rate down to 7.5 frames per second for the specific reason that this is the speed that we can measure each individual pixel (temperature measurement) to the required accuracy ..... so every one of our pixels is a real temperature (and can be counted).
There is a 'trade-off' between 'speed' and 'sensitivity'.
Faster is not always better !

Q. What is the difference between high definition thermography and other types ?

A. Just about all modern cameras provide high-definition images. The 'definition' of a thermogram relates to how many individual temperature measurements are taken to build the image. The actual definition is not as important as how accurate and sensitive those temperature measurements are. The higher the definition, the better the picture will look but this does not mean that the accuracy is any better. Describing a thermogram as 'high definition' maybe confusing and misleading as most so-called high-definition images are produced by software manipulation of the data.
Low definition would be considered below 160 x 120 pixels. Industry standard is between 160 x 120 up to 320 x 240 pixels. High-definition would be considered above this and can be as high as 640 x 512 pixels.

Q. What is resolution? Is resolution important?

A. First, there are a couple of resolutions that apply to IR cameras. There's spatial resolution and there's thermal resolution. Spatial resolution is related to the number of pixels in an image. This is analogous to today's digital cameras and their number of pixels/picture, e.g. 2 megapixel vs. 3 megapixel vs. 4 megapixel, etc. For many or most applications 2 megapixels will provide excellent pictures for most settings in fact unless you try to zoom in you would be hard pressed to tell the difference between 2, 3 or 4 megapixels. However, you will find a significant difference in image file sizes and camera costs. The point here is that the 2 megapixel camera will work perfectly well for routine picture taking. Using IR cameras for scanning humans works much the same. (you cant tell the visible difference)

Q. What Field of View (FOV) is best?

A. The focal length of industrial cameras is generally short and using optical lens (25 degrees is common) to zoom in for distance reduces the accuracy by simply making the pixels bigger and reducing the field of view.
For fever screening we recommend the med520 using an 11 degree field of view which make the temperature measurements more accurate at distance. We do not use an optical or digital zoom lens.
We can supply the med520 with optional field of view, 11 degree, 17 degree, 25 degree, 32, degree. 50 degree and are happy to advise on the best options for specific requirements

The focal ability of the Meditherm 520 with an 11 degree FOV is 1 meter (39 inches) to infinity. The optimum focal length for fever screening is 7.3 meters (24 foot). The focal length to stay within specification for fever screening is 6 foot to 35 foot. (accurate measurements can still be made up to 70 feet but the area of the face will be so small that sensitivity will be low due to the number of pixels, *'individual temperature measurements'* on the face.

Q. Do people have to stand still in front of the camera?

A. Not with the Meditherm 520. People should walk at normal speed and the camera should be facing the people or at most be at 20 degrees angle to the people being scanned.
The frame rate will detect anyone within 1/7th of a second who is moving in the field of view. The alarm will continue the whole time that a person with fever is in the view of the camera, (average time it takes for people to pass by the camera is 15 to 30 seconds).
**If someone runs quickly across the camera it is very possible that the threshold alarm will not go off .....*

Q. How do we identify which person is causing the alarm so he or she can be stopped?

A. The time a person is being imaged as they walk towards the camera depends on how far away they are when we start imaging.... the optimum distance of 7.3 meters (24 feet) can be used as the target area and imaging can begin at 21 meters (70 feet), the time it takes a person to walk from 21 Meters to 2 meters from the camera is the time we have to detect fever.
There is plenty of time to identify a target person, the image on the screen will set off an alarm and circle the person as he or she walks towards the camera. They can be identified and stopped by the time they reach the fever screening station. This works well in practice and has been found to be affective.
The software also has a 'freeze frame' mode which saves the image for replay if there is any question about who set off the alarm.

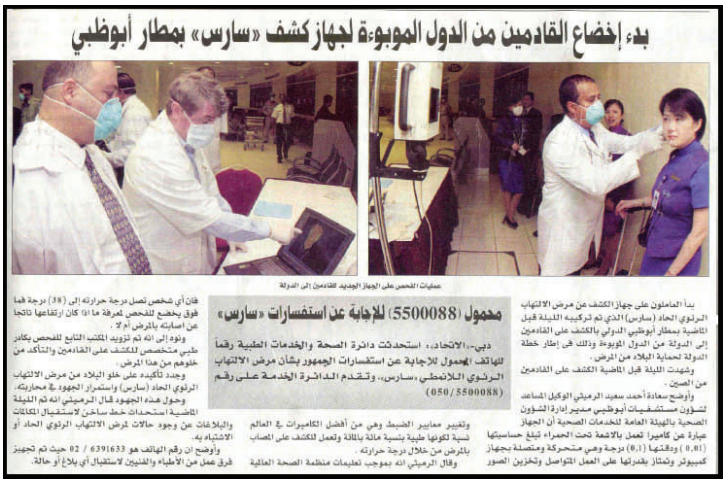
The Meditherm 520 is the most economic system available today. The price includes all system componants : Camera, Heavy duty stand, Laptop or PC, with all operating software.

The system can be operated by a non-technical person and with the auto averaging function engaged, can run unattended. The threshold alarm can be heard by attendants within a wide proximity range.

The camera is supplied with a universal adapter for mains power in any country and uses very little power (5v) and can also be run from a re-chargeable power pack with 13 hour continuous operating.

Each camera is calibrated before it leaves the factory and a calibration certificate accompanies each unit to certify that it meets or exceeds its published specifications.

Any future software upgrades are provided free of charge for the life of the camera and can be downloaded from : http://www.compix.com/TemperatureMonitoringHelp/


بدء إخضاع القادمين من الدول الموبوءة لجهاز كشف «سارس» بمطار أبوظبي

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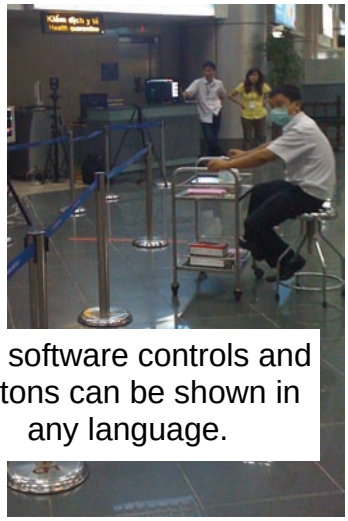


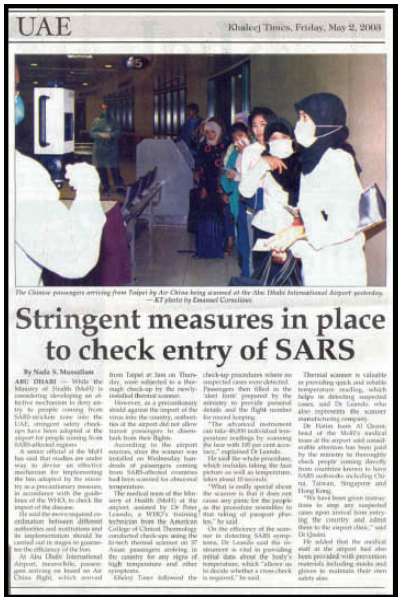
The software controls and buttons can be shown in any language.

The software can be easily loaded onto any laptop or PC and will run on any MS windows operating system.

Meditherm is the world leader in physiological testing and leads the field in fever screening applications.

With experience spanning over 17 years and 43 countries Meditherm is best placed to supply and support your screening equipment requirements.

www.meditherm.com


UAE

Khaleej Times, Friday, May 2, 2003

Stringent measures in place to check entry of SARS