

Press Release

InfraTec GmbH Infrarotsensorik und Messtechnik

Dresden, 13/02/2020

Simultaneous mapping of wide temperature ranges

The HDR function of the high-end camera series ImageIR® facilitates the analysis of objects with extreme temperature gradients

If you want to measure temperatures in a very wide range with an infrared camera, you normally do this in stages. The neutral density filters are changed gradually from time to time. Adjusted to a specific temperature range, they prevent high-intensity infrared radiation from striking the camera detector and falsifying the measurement result by depolarising the detector pixels. The new High Dynamic Range (HDR) function of the Infrared ImageIR® camera series from InfraTec eliminates the need for such interruptions. It enables measurement scenarios with extremely different temperatures to be recorded continuously.

Capture temperature ranges of over 1,500 K in one image thanks to six positions

The starting point of the HDR function is a fast rotating filter wheel. Designed for such tasks, it rotates at more than 5,000 revolutions per minute. The wheel provides up to six positions ensuring maximum flexibility for demanding measurement tasks. When recording in HDR mode, multiple thermograms with different integration times and different filters are recorded quickly in succession and compiled into an overall image with a high dynamic range.

To activate the HDR function, it is sufficient to select a previously defined calibration range. After that, the rotation of the rotating filter wheel and the composition of the thermogram starts automatically. The measuring range can span up to 1,500 K. In the case of the ImageIR® 8300 hp, this setting can be used to capture full-frame images with (640 × 512) IR pixels. Based on the frame rate synchronization of the camera with the rotational speed of the wheel, it is possible to achieve a temporal resolution of 350 Hz.

Each position of the individual neutral density filters has its own integration time and corresponding temperature calibration. The filters weaken the signal of the measurement objects within the desired temperature range, which reliably prevents interference effects. Users obtain high-contrast images in a wide temperature range characterized by high measurement accuracy.

Solution for measurement tasks with high object temperatures and spectral thermography

The tremendous benefits that come with it become clear as soon as users thermally analyse measurement objects that experience temperature changes over a very wide range within a very short time. The necessary changing of filters with a standard rotating filter wheel would interrupt the measurement for several seconds, rendering the results unusable. The HDR function makes it possible to quickly switch between calibration ranges up to the maximum camera frequency.

In addition to extremely high temperature applications, the fast rotating filter wheel offers a wide range of measurement options, in which different spectral ranges need to be measured. Finally, users can also use up to six spectral filters instead of neutral density filters. Equipped in this way, the ImageIR® infrared camera series supports the professional examination of materials with different radiation properties. Regardless of which components users choose for their desired model, the camera can always be used with a fixed rotating filter wheel.

Information: 3,334 characters (incl. spaces)

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About InfraTec

The InfraTec infrared sensor and measuring technology company was founded in 1991 and has its headquarters in Dresden, Germany. The privately held company employs more than 230 employees and has its own design, manufacturing and distribution capabilities.

With its Infrared Measurement business unit, InfraTec is one of the leading suppliers of commercial thermal imaging technology. In addition to the high-end camera series ImageIR® and the VarioCAM® High Definition series, InfraTec offers turnkey thermographic automation solutions.

Spectrally single and multi channel infrared detectors, next to infrared sensors with electrically tunable filters based on MOEMS, count among the products of the infrared sensor division. These detectors can be used in gas analysis, fire and flame sensor technology and spectroscopy.

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Image



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