

Gas Detection

GasCam[®] SG

Smaller, handier and highly specialised in the detection of methane



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Visualization of Methane

The new GasCam[®] SG model offers you a significantly lighter and more compact system. As a highly specialised system for the detection of methane, it is the ideal choice for the detection of leaks in biogas and natural gas systems. Methane can be detected reliably even from distances of up to 100 metres, and is displayed against the background as a coloured gas cloud in real time.

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Inspect natural gas and biogas plants for tightness and methane emissions more quickly

The question of whether natural gas or biogas plants are safe or not largely depends on whether they are leakproof. Unknown and undiscovered gas escapes in natural gas and biogas plants thus pose a great danger. The methane contained in these gases can not only turn into an ignition hazardous mixture with the ambient air, but is also a greenhouse gas which is 22 times stronger than CO₂. Therefore, leaks in gas containing plants must be determined quickly and precisely in order to ensure the plant's safe operation.



Up to now, it has been very troublesome and above all time-consuming and cost-intensive to down gas escapes by using conventional flame ionisation or semiconductor gas detectors. The search for leaks can now be conducted much more quickly. This is enabled by the GasCam® SG from Esders, a mobile infrared detector measuring unit, which diagnoses gas clouds at gas containing plants in real time and immediately provides the user with a colour moving images of the escaping methane cloud. GasCam® SG can be up to 100 metres away from the object being measured. The measurement system's big benefit: leaks are discovered immediately and the point of escape is located.

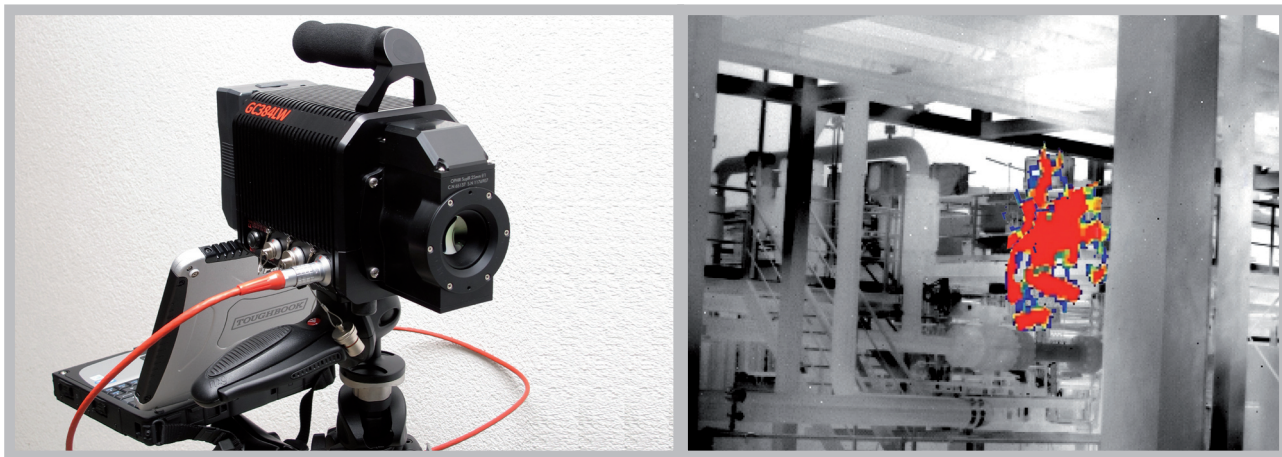
GasCam SG

1. Infrared Lens
2. Detector unit
3. Lithium-ion rechargeable battery packs
4. Tripod with swivel/tilt head
5. High performance Notebook
6. On/Off-button
7. Jack for external power supply
8. Gigabit-LAN connection to the Notebook



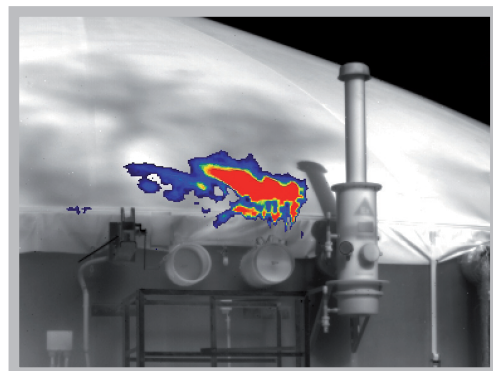
Moving images bring clarity

With the Esders GasCam® SG, the measurement result is a infrared image which is superimposed with a false colour image of the detected gas cloud. The cloud can thus be represented against different backgrounds. Even not reflecting backgrounds, like the sky, are usable. The detection limit depends on the type of gas emanation and the temperature difference between the gas and the background.



A gas outlet in a freestanding line or storage system can be discovered at a great distance just as quickly as a leakage in the fermenter of a biogas plant. A great number of trials have now clearly proven that very small gas releases can be discovered reliable, even at unexpected locations. This can now be done even at locations where it was previously very difficult to determine methane emissions.

Experience gained in practice with biogas systems shows that gas leaks often pulse at intervals, which means that short-term measurements taken using standard devices are extremely haphazard. The GasCam®, on the other hand, provides a visual illustration of the gas leaks, which allows a reliable assessment to be made.



If a gas escape is discovered in an especially complex plant, its exact position can be determined by conducting a measurement from a second location. The time-consuming, successive point-by-point scanning and measuring of complex plants is thus a thing of the past. It is now possible to inspect great areas while simultaneously interpreting and documenting the measurement results within a few hours. Realtime moving images of the escaping gas cloud can be created by means of repeated measurements during the course of one second.

Quantifying gas leak flows

It is often desirable to be able to assess how much gas is escaping – to quantify the detected leak. Although this is not easy even with the GasCam®, the visual representation of the gas emissions has the advantage of providing an immediate estimate of the amount of gas released. Concentration measurements made using suitable measurement devices can be taken to provide further information regarding the magnitude of the gas leaks.

Parameter	GasCam® SG
Spectral range	LWIR
Detection limit for Methane (NECL, typical)	< 50 ppm · m
Noise equivalent temperature difference (NETD) in high performance mode	12 mK typical
Visualisation	Overlay of gas image on infrared image
Image rate	> 5 Hz
Image format (pixels)	384×288 max. (192×144, high performance mode)
Focal length	25 mm
Field of view (in gas detection mode)	360 mrad × 280 mrad (180 mrad × 140 mrad)
GPS	Internal
Focus	Motorised
Operating temperature	-10 – 40 °C
Power supply	Li-ion Battery
Power (excluding PC)	< 30 W
Autonomy with compact battery (included)	ca. 3 h
Autonomy with high-capacity battery (opt.)	> 5 h
Dimensions (incl. battery, approx.)	220×120×310 mm ³
Mass (without PC and battery, approx.)	3.8 kg, including battery 4.6 kg
Control and display	Ruggedised notebook PC with outdoor readable display
Additional documentation of scene (opt.)	Digital photo camera incl. wireless data transfer to notebook PC
Data recorded	All images of IR videos, calibration data, position, photos (opt.), user notes. Complete re-analysis possible
Reporting	Reporting function for documentation of complete measurement included in software. Report includes all relevant measurement data (gas images, position, time, user-defined experiment description). Direct printing of report possible.

Subject to technical modifications! Status 09/2016



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