



FLIR GASFINDER 320 INFRARED CAMERA

EARTHWORKS FACT SHEET

THE FLIR (Forward Looking InfraRed) GF320 CAMERA uses state-of-the-art, independently verified technology capable of detecting volatile organic compounds (VOCs), including known carcinogens, and greenhouse gases. The FLIR GF320¹ is the industry standard in identifying emissions, leaks, and events that occur during routine oil and gas operations, or because of faulty equipment, accidents, and intentional releases by operators.

The GF320 is marketed as a tool for oil and gas operators and government regulators to maintain equipment and observe emissions. Its steep price tag and technical requirements would ordinarily prevent communities living with oil and gas development from benefiting from this technology.

Earthworks has invested over \$100,000 in two FLIR GF320 cameras with telephoto lens in order to document the pollution that may be linked to health and environmental impacts reported by communities, and to ensure that officials and regulators know when oil and gas facilities cause pollution. FLIR video makes visible air quality problems that warrant air monitoring, operational changes, new emission control technologies, and regulatory action.

FLIR GF 320 Gas Detection Specifications

The FLIR GF320 has been specifically calibrated and independently tested to detect and visualize the presence least 20 gases that may be in the air.

The emissions that are detected with a FLIR camera may include gases such as methane², a potent greenhouse gas; benzene³, a known carcinogen; and a number of other VOCs that are scientifically established to cause a range of health problems (such as respiratory difficulties, nosebleeds, headaches and nausea).

Gases Detected and Minimum Detected Leak Rate (MDLR)
Independent laboratory (third party) testing confirms that the GasFindIR cameras can see the following gases at the minimum detected leak rate:

- 1-Pentene - 5.6g/hr
- Benzene - 3.5g/hr
- Butane - 0.4g/hr
- Ethane - 0.6g/hr
- Ethanol - 0.7g/hr
- Ethylbenzene - 1.5g/hr
- Ethylene - 4.4g/hr
- Heptane - 1.8g/hr
- Hexane - 1.7g/hr
- Isoprene - 8.1g/hr
- MEK - 3.5g/hr
- Methane - 0.8g/hr
- Methanol - 3.8g/hr
- MIBK - 2.1g/hr
- Octane - 1.2g/hr
- Pentane - 3.0g/hr
- Propane - 0.4g/hr
- Propylene - 2.9g/hr
- Toluene - 3.8g/hr
- Xylene - 1.9g/hr



Infrared Training Center – Training and Certification



Earthworks staff who use the FLIR GF320 camera have completed courses at the Infrared Training Center (ITC) and are certified Level 1 Infrared Thermographers. ITC trainings are the gold-standard qualification⁴ within the thermography industry and are the same certification required by many industry operators and regulatory agencies for FLIR camera use.

To achieve ITC certification, thermographers must attend a three-day course, pass closed-book examinations and quizzes, and submit a field assignment demonstrating understanding of their application and proper use of the camera. Thermographers must also be able to distinguish between heat from equipment and the emissions that the camera is designed to detect.

The Power of FLIR in Greeley, Colorado



A visible plume of emissions rising over the Northridge High School athletic fields



Synergy Northridge Well Site and drilling rig directly adjacent to school and fields

Photo and FLIR footage taken by Earthworks on October 3, 2014

For more information please visit cep.earthworksaction.org

¹ FLIR. *FLIR GF300/320 Infrared Cameras*. <http://www.flir.com/ogi/display/?id=55671>

² Earthworks. *Fracking, methane and climate*. http://www.earthworksaction.org/issues/detail/fracking_methane_and_climate

³ Earthworks. *Air Contaminants*. [http://www.earthworksaction.org/issues/detail/air_contaminants# BTEX](http://www.earthworksaction.org/issues/detail/air_contaminants#BTEX)

⁴ Infrared Training Center. *Infrared Thermography Certification*. <http://www.infraredtraining.com/view/?id=40026>

