



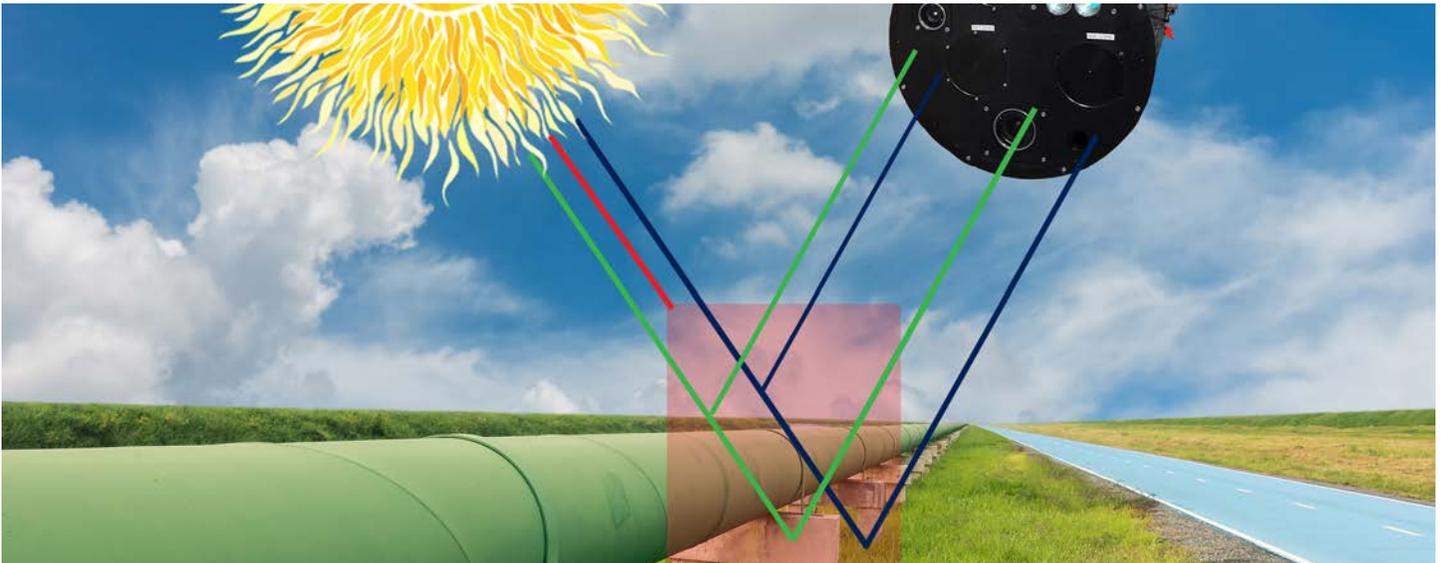
GAS DETECTION SENSOR

Model # 66265A30000

The Gas Detection Sensor (GDS) is an aircraft/helicopter mountable two-phased gas/leak detection sensor. The GDS provides documentation and traceability via the internal Video and HD Cameras. Designed and engineered by Breault Research Organization (BRO), the GDS uses a sample of the gas of interest as a spectral filter.

HOW IT WORKS

Two radiometers -- one with a gas (correlation) cell in its optical path and the other without -- focus on the ground through a narrow spectral absorption band (passband). The radiometer without the correlation cell measures the total incoming radiance/flux within the passband (REF signal).



The radiometer with the correlation cell also measures incoming radiance/flux within the passband at the COR signal. By comparing the REF and COR signals, gas concentrations are retrieved. On-board cameras take pictures of the scene and sensors measure location and flight relevant data.

Designed to operate at 300-meter AGL, the sensor mounts vertically in a standard propeller aircraft and views the scene below. The system passband is between 2-3 microns. Ground resolution is 200 mm.

Each radiometer includes features to optically match magnification and reduce parallax to within a pixel. Data is stored in a Data Power Management system for post analysis.

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APPLICATIONS

- > Pipeline Inspection
- > Leak Detection
- > Ethane and Methane Detection
- > Hydrocarbon Detection



SYSTEM SPECIFICATIONS

- > Detection Method: Gas Filter Correlation Radiometer
- > Gas Detection: Methane and Ethane Gas
- > Radiometer: Reference 1 EA | Gas Cells 2 EA
- > Ground Resolution of Optical System @ 300m: 2 m
- > Geometric Point Source Image Diameter: 300 um
- > Radiometer Alignment / Overlap: +/- 2-Pixel Alignment
- > Gas Cell Pressure: 0 to 1.1 atm
- > Optical f-number: 2
- > EPD: 22.5 m
- > FOV @ 300m AGL: 64m
- > Distortion: < 5%
- > Operating Waveband: 2.22 to 2.41 um
- > Power Voltage: 28 VDC
- > Current: 10 A
- > Environmental Temperature: -20C to 40C
- > Humidity: < 95%

SUBSYSTEMS

- > Infrared Camera: Zephir 2.5
- > Altimeter Assembly: LTI Universal Laser Sensor (0144745)
- > HD Camera: Basler USB3 C-Mount Camera (ACA5472-17UC)
- > Video Camera: Basler Pulse USB3 CS Mount V04 (PUA1920-30UC)
- > Video Camera Lens: Basler Lens (C125-0418-5M)
- > Internal Temperature Monitors: Omega RTD-830
- > Ultra-miniature Pressure Sensors: P-7100
- > Humidity / Temperature Sensor: HC2-xx25
- > Inertial Navigation System: Mti-7 Miniature GNSS/INS Module

DIMENSIONS & WEIGHT

- > Length w/o Handles: 20"
- > Length w/ Handles: 21.5"
- > Mounting Surface Diameter: 18"
- > Body Shape: Octagon
- > Body Width: 16 5/8"
- > Weight: < 100 lbs