

MAKES  
GASES  
VISIBLE



# Turning the invisible into color images

## GVS<sup>®</sup> Gas Vision System – developed by Gas Optics AS

- Pioneering real time quantification and visualization of gas leakages
- Automatic shut-down of system when leakage is detected
- Cost-effective and risk reducing detection
- Unique patented gas-correlation imaging technology
- Only visualization system that is EX-certified for continuous wide-area monitoring
- Robust scanning GVS<sup>®</sup> units, specially designed for use in tough environments
- Explosion protection certificates for GVS<sup>®</sup> units and pan/tilt modules
- Video clips saved for later evaluation
- Proven technology by Statoil (TRL 6)

GVS<sup>®</sup> makes it possible to visualize several gases. The system is based on infrared cameras that immediately detect an invisible gas-leakage and present, in real time, the flow and concentration of the gas as a coloured plume on computer screens. Relevant thermographic video clips can be recorded and saved for later evaluation.

One or more GVS<sup>®</sup> cameras can be located at installations such as onshore gas processing plants, offshore producing platforms and LNG ships and terminals.

GVS<sup>®</sup> is invaluable in limiting and managing risk, as a gas leakage is pinpointed and evaluated in real time. The risk of explosion, fire, person injury, production loss and environmental harm are kept to a minimum in a cost-effective and timesaving way.



# GVS-LR (LONG RANGE)

## PRODUCT SPECIFICATION

### GAS VISION SYSTEM

Size (W x H x D)	710 x 490 x 940 mm
Weight	75 kg
Panorama coverage	360°
Tilt coverage	+90° to -90°
Slew rate	6°/sec
Accuracy within position	0.6°
Communication	Optical fibre Multimode ST
Power	75 VDC, 200 W
Environmental	IP 64
EX Certification ATEX	EX II 2 G EEx dIIB T5

### MANUAL DETECTION

Gas	Methane
Noise equivalent concentration length x $\Delta T$	< 1600 ppmxm $\Delta K$ (<0.032 LELxm $\Delta K$ )
$\Delta T = 27, 10, 5, 3 \text{ } ^\circ\text{C}$	NECL(2s) = 40, 150, 300, 500 ppmxm
Field of view	4.8°

### AUTOMATIC DETECTION AND ALARM

Range	10 – 250 m
User defined alarm threshold ( $\Delta T$ dependent)	>10 000 ppmxm (>0.2 LELxm)
Gas resolution	1 m at a range of 150 m
Automatic recording of gas alarms	2 Tb, <100 hours
Automatic tracking	User programmable track

### VISUAL CAMERA

Sensor	Colour CCD with autofocus
Resolution	704 x 576 pixels
Sensitivity	0.13 lux
Field of view	6.3°

### FEATURES

Quantification and visualization of methane	Gas concentration calculation in real time
Panorama assisted positioning	By tilting and panning gas camera units from the graphical user interface
Manual search for small leakages	Preventive maintenance
Manual recording of gas	For analysis and reporting purposes



### FLAME DETECTION

Automatic flame alarm	Live video presented
Advanced detection algorithms	Automatic recording of alarms
False alarm prevention	Arc welding, solar reflectance, hot surfaces
Detects visible flames	Instant detection (< 1 s) of jet flames
Field of view	4.8°

### OPTIONAL FEATURE THERMAL CAMERA

Thermal images	10 – 250 m
Thermal detector, NE $\Delta T$ , F/#2	>10 000 ppmxm (>0.2 LELxm)
Field of view	1 m at a range of 150 m

Vol. 5% methane in air is used in the conversion to LEL, Lower Explosion Limit.

# GVS-WA (WIDE ANGLE)

## PRODUCT SPECIFICATION

### GAS CAMERA UNIT

Size (W x H x D)	400 x 460 x 620 mm
Weight	34 kg
Fixed position	Adjustable mount
Communication	Optical fibre Multimode ST
Power	75 VDC, 150 W
Environment	IP 64
EX Certification ATEX	EX II 2 G Eex d IIB T5

### MANUAL DETECTION

Gas	Methane
NECLxΔT	~ 16 000 ppmxm * ΔK (~0.5 LELxm)
ΔT = 27,10,5,3 °C	NECL(2s) = 400, 1500, 3000, 500 ppmxm
Field of view	11°

### AUTOMATIC GAS DETECTION AND ALARM

Range	5 - 50 m
User defined alarm threshold (ΔT dependent)	1 LELxm
Automatic recording of gas alarms	2 Tb, <100 hours
Vol. 5% methane in air is used in the conversion to LEL, Lower Explosion Limit	

### VISUAL CAMERA

Sensor	Colour CCD with autofocus
Resolution	704 x 576 pixels
Sensitivity	0.13 Lux
Field of view	14°

### FEATURES

Quantification and visualization of methane	Gas concentration calculation in real time
Manual search for small leakages	Preventive maintenance
Manual recoding	For analysis and reporting purposes
Automatic recording of alarms	Hot spot preventive monitoring



### FLAME DETECTION

Automatic flame alarm	Live video presented
Advanced detection algorithms	Automatic recording of alarms
False alarm prevention	Arc welding, solar reflectance, hot surfaces
Detects visible flames	Instant detection (< 1 s) of jet flames
Field of view	11°

### THERMOGRAPHIC MONITORING

Configurable area(s) monitoring	Temperature logging and alarm thresholds
Thermal detector, NEΔT	< 50 mK
Field of view	11°