Honeywell
G E N T

S-Quad

The S-Quad System
Put an end to false alarms

The S-Quad System

With extensively patented technology S-QUAD improves both the speed and integrity of fire detection whilst reducing false alarms. This advanced sensing technology is integrated in one device with certified voice enhanced alarm sounder and EN54-23 visual alarms making S-Quad a truly unique device.

The S-Quad sensors inherit all the advantages of Vigilon's powered loop combined with extra features, making Vigilon and S-Quad an industry leading combination for fire detection and alarm signalling.
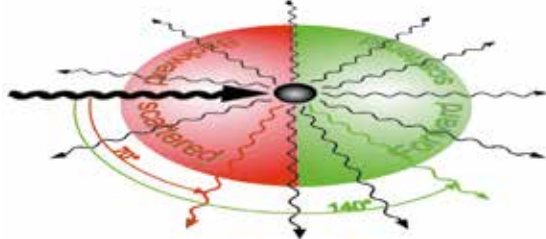
Life Safety First

- Intelligent sensing technology for early detection of fires and combinations of smoke, heat and carbon monoxide

- Stored voice messages ensure a controlled, quick and safe evacuation in the event of a fire

- Complies fully with the EN54-23 standard for Visual Alarm Devices (VADs)

Backward Scatter   *Forward Scatter*

Optical Scatter

An infra red beam is deflected by the particles in the chamber and results in rays scattered in many directions. The ratio of forward and backward scatter indicates the type of particles present.

Put an end to false alarms

- The combined power of the multi-sensor S-Quad and the Vigilon panel promotes quick, intelligent decision making, thus minimising false alarms

- The patented dual angle optical (forward and backward scatter) chamber within the S-Quad sensor clearly distinguishes between smoke, steam and dust particles

- S-Quad's carbon monoxide sensor employs technology to detect smouldering fires while remaining immune to false alarms caused by dust, steam and insects

- Programmable sensor 'states' for different times during the day and night improves response to real fires and reduces instances of false alarms

THE S-QUAD SYSTEM
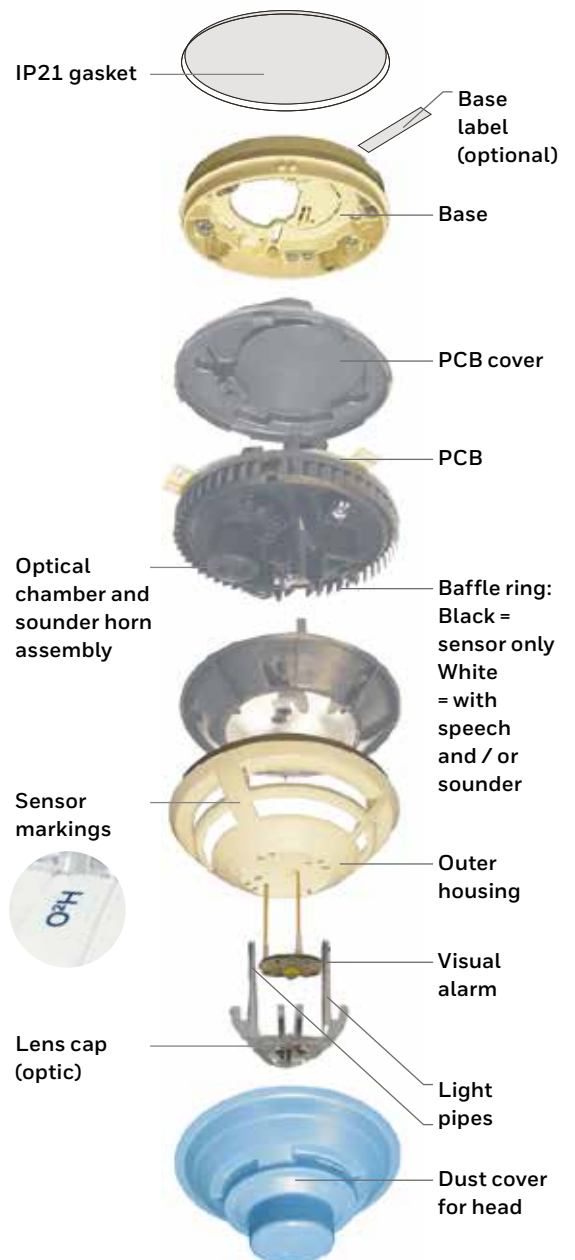Intelligent multi-sensing technology for the early detection of fires

Saves time and money

- Four functionalities – sensor, sounder, speech, strobe (visual alarm) – all in ONE device

- Supported on the same two wires (loop) within the Vigilon system thereby reducing installation cost – only one set of terminations and one cable required

- Increased loop alarm load capable of powering 200 sensor-sounders or 100 sensor-sounder VADs

- S-Quad's intelligent design ensures quick and simple installation with more wiring space within the base

- Built-in short circuit isolators in every device

- 'SAFE' (Soft Addressed Firmware Encoded) addressing and 'soft' addressing does not require manual setting of switches in either the head or base

- Monitored repeat LED output

- Monitored input facility – fire, fault, non-fire – reduces the installed cost of the system and reduces the need for separate interfaces

Sets new industry standards

- Cutting edge technology building on the reliable analogue addressable Vigilon platform

- S-Quad is an EN54-23 VAD and conforms to the Equality Act 2010 with configurable intensity settings

- Aesthetically pleasing, low profile with semi-flush mounting option

IP21 gasket

Base label (optional)

Base

PCB cover

PCB

Optical chamber and sounder horn assembly

Baffle ring: Black = sensor only White = with speech and / or sounder

Sensor markings

Outer housing

Visual alarm

Lens cap (optic)

Light pipes

Dust cover for head

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S-Quad – four functions in ONE device
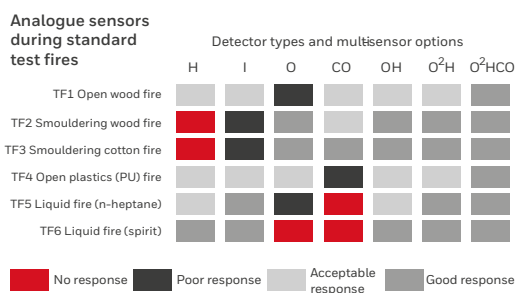
Multi-sensor, Speech, Sounder and Strobe (visual alarm) in one intelligent, discreet device provides a safe and cost effective solution for most applications.

Effectiveness in reducing False Alarms

Time comparison analogue sensors tested with...

Detector types and multisensor options

	H	I	O	CO	OH	O^{2}H	O^{2}HCO
Dust	Unlikely	Possible	Probable	Unlikely	Probable	Possible	Unlikely
Aerosol	Unlikely	Probable	Possible	Possible	Unlikely	Possible	Unlikely
Steam	Possible	Possible	Probable	Unlikely	Probable	Unlikely	Unlikely
Insects	Unlikely	Probable	Probable	Possible	Probable	Possible	Unlikely
Cigarette smoke	Unlikely	Possible	Possible	Possible	Unlikely	Possible	Unlikely
Cooking fumes	Possible	Probable	Probable	Possible	Probable	Probable	Unlikely
Other Gas leakages	Unlikely	Unlikely	Unlikely	Probable	Unlikely	Unlikely	Unlikely

Legend: ■ Probable Alarm (red) ■ Possible Alarm (light) ■ Unlikely Alarm (dark)

Effectiveness of Sensors to Detect Test Fires

Analogue sensors during standard test fires

Detector types and multisensor options

	H	I	O	CO	OH	O^{2}H	O^{2}HCO
TF1 Open wood fire	Acceptable	Acceptable	Poor	Good	Acceptable	Good	Good
TF2 Smouldering wood fire	No response	Poor	Good	Acceptable	Good	Good	Good
TF3 Smouldering cotton fire	No response	Poor	Good	Good	Good	Good	Good
TF4 Open plastics (PU) fire	Acceptable	Acceptable	Acceptable	Poor	Acceptable	Good	Good
TF5 Liquid fire (n-heptane)	Acceptable	Acceptable	Poor	No response	Good	Good	Good
TF6 Liquid fire (spirit)	Good	Acceptable	No response	No response	Acceptable	Acceptable	Good

Legend: ■ No response (red) ■ Poor response (dark) ■ Acceptable response (light) ■ Good response (grey)

Research shows only 13% of people react to bells, whilst 70% react to a voice message

Sources: Brian Piggott (The Fire Research Station) and David Canter (Surrey University)

Sensor

A truly intelligent analogue sensor incorporating exceptional computing power in the sensor as well as the panel to achieve an extremely fast response to a real fire whilst minimising the risk of false alarms.

- The patented dual angle optical scatter technology allows identification of the particle source filtering potential false alarms due to steam and dust

- The gas sensing element within the chamber monitors the build up of Carbon Monoxide in smouldering fires allowing early detection where standard smoke detectors would not operate

- Combined CO gas sensing with dual angle optical and heat allows a higher level of false alarm immunity whilst still improving the detection speed of certain types of fire

- Each sensor element has sensitivity settings which can be adjusted to suit the environment / application and can be programmed for different time periods during the day or night

- Optional intermittent flash to confirm operation and output for remote indicator as standard on each sensor

Speech

Sensor sounder functionality capable of delivering synchronised messages throughout the building.

- Voice messages stored on a memory chip in the sensor can be triggered to give clearly understood messages leading to quicker and safer evacuation in an emergency

- Up to four different messages stored in each device allow different messages to be played in each area for phased evacuation

- Custom message option to cater for the specific needs of a building

- Up to 20 seconds of message can be stored in place of standard messages

- Voice messages are synchronised across loops to ensure clear instructions throughout the building

- Complex sounds such as a bell tone can be reproduced to deliver alternative sound signals

- Sound levels can be set for each device and a special turbo mode is available boosting sounder level in difficult areas

Sounder

Combined sensor sounder technology provides a cost effective solution for alarm signalling saving on installation costs as there is no need for additional power supplies. Synchronised messages are transmitted through the same sensor that detects the fire.

- The sensor sounder device allows an even distribution of sound with only one device to install

- Sounder tones can be programmed to avoid confusion with other alarm tones in a building

- Low current consumption allows up to 200 sensor sounder devices per loop

- Sound patterns are synchronised across the loop to avoid risk of confusion where two or more sounders are heard

- Sound levels are adjustable for each device and the soft start option avoids the unnecessary creation of panic in an emergency

- Patented design delivers 85dBA @ 1m

- Rich harmonic sound output using patented techniques

- Volume control allows optimum sound pressure levels

- Turbo option delivers enhanced sound pressure (88dBA @1m)

Strobe (visual alarm)

The S-Quad Multi-sensor is a fully integrated Visual Alarm Device (VAD), the only practical solution meeting the demands of detection and the performance needed to meet the EN54-23 standard.

- Sensor and alarm in one device reduces installation time and cost. Built-in high intensity flashing strobe helps alert occupants in noisy environments as well the hard of hearing

- Meets all the requirements of the Equality Act 2010

- Compatible with the S-Cubed wall mounted VAD

- State of the art LED visual alarm technology

- Advanced power management that ensures the loop will always operate even in a fault condition

- Range of devices and power settings to suit widest range of building applications

- Light output that allows devices to be sited at standard smoke and heat detector spacings

- Synchronised flash rate across the whole control panel avoiding risk of induced seizures

- Strobe can operate independently of the sounder if required

Why a Dual Optical Heat Co Multisensor?

Combining the CO technology into the O2H sensor gives this multisensor the benefits of both high false alarm rejection and fast detection of a wide range of fire types.

Many combinations of the different sensors are used in the multisensor to enable fast and above all, reliable fire detection. The following two cases are an example of this.
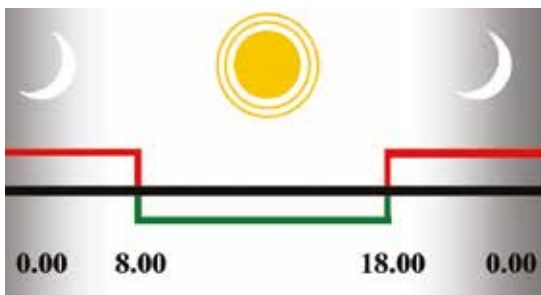
Case 1: Smouldering fires

With smouldering fires, either the CO levels will be sufficient to detect a fire early, or the presence of CO with smoke will enhance the sensitivity of the dual optical and hence the speed of detection. Note that this process is very immune to common false alarm signals, due to the discrimination of the CO cell used in combination with the dual optical sensor.
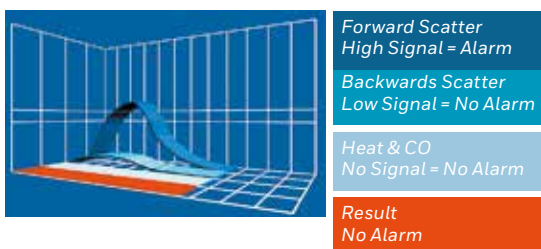
Case 2: Flaming fires

With flaming fires the dual optical sensor becomes more sensitive. Furthermore if a rise in temperature is detected by the heat sensor, a further increase in optical sensitivity occurs, enabling fast and reliable detection of flaming fires.

Once again this process has good immunity to false alarms, due to the discrimination of the heat sensor used in combination with the dual optical sensor.

Flexible sensitivity throughout the day

O2HCO performance examples – steam

Forward Scatter
High Signal = Alarm

Backwards Scatter
Low Signal = No Alarm

Heat & CO
No Signal = No Alarm

Result
No Alarm

Ten reasons to specify S-Quad

1 LPCB Approved

The S-Quad sensors are EN54 compliant and LPCB approved to meet all requirements of the Construction Products Directive.

2 Advanced Sensing Technology

Coupled with integral sounder, speech capability and visual alarm in one intelligent device provides the UK's most innovative solution to the detection and signalling of fires.

3 Rapid Fire Detection

Four separate sensing elements including CO can be set with individual sensitivity levels and sensor 'states' can be programmed for different time periods to suit all applications and environments.

4 Minimal False Alarms

The combined power of S-Quad and Vigilon panel provides quick, intelligible decision making. The S-Quad dual angle optical sensor recognises a clear distinction between smoke and steam.

5 Saves Lives

The S-Quad range incorporates intelligent heat and gas sensing technology to allow the early detection of fires, which are known to be particularly hazardous to building occupants.

6 Safe Evacuation

Voice messaging capability through the sounder functionality ensures quick and safe evacuation in the event of a fire.

7 Cost Savings

S-Quad provides four functionalities within one device supported by 2-wire loop Vigilon system, with built-in isolators in every device.

8 Compliance with the Equality Act 2010

Built-in high intensity EN54-23 VAD warns those with hearing difficulties of a potential fire hazard – now a legal requirement in all public buildings.

9 Monitored Line Input / Output Option

Output can be used for a remote LED. Input can have a separate identity to the sensor although they share the same electronic address.

10 Peace of Mind

All Gent fire products are designed to be compatible with the same successful Vigilon platform and supported by a UK wide network of Approved System Integrators.

The S-Quad System

Honeywell Gent is synonymous with quality and innovation in the fire detection and alarm industry. Gent technology meets rigorous British and European standards for all projects ranging from small installations to complex, multi-site networks.

UK

Gent works in partnership with the Gent 24 Network of Approved System Integrators who supply Gent equipment and carry out design, installation, commissioning and maintenance operations to the highest standards of workmanship.

International

Across the world, Gent works in partnership with approved distributors who supply Gent equipment and carry out design, installation, commissioning, and maintenance operations to the highest standards of workmanship.

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