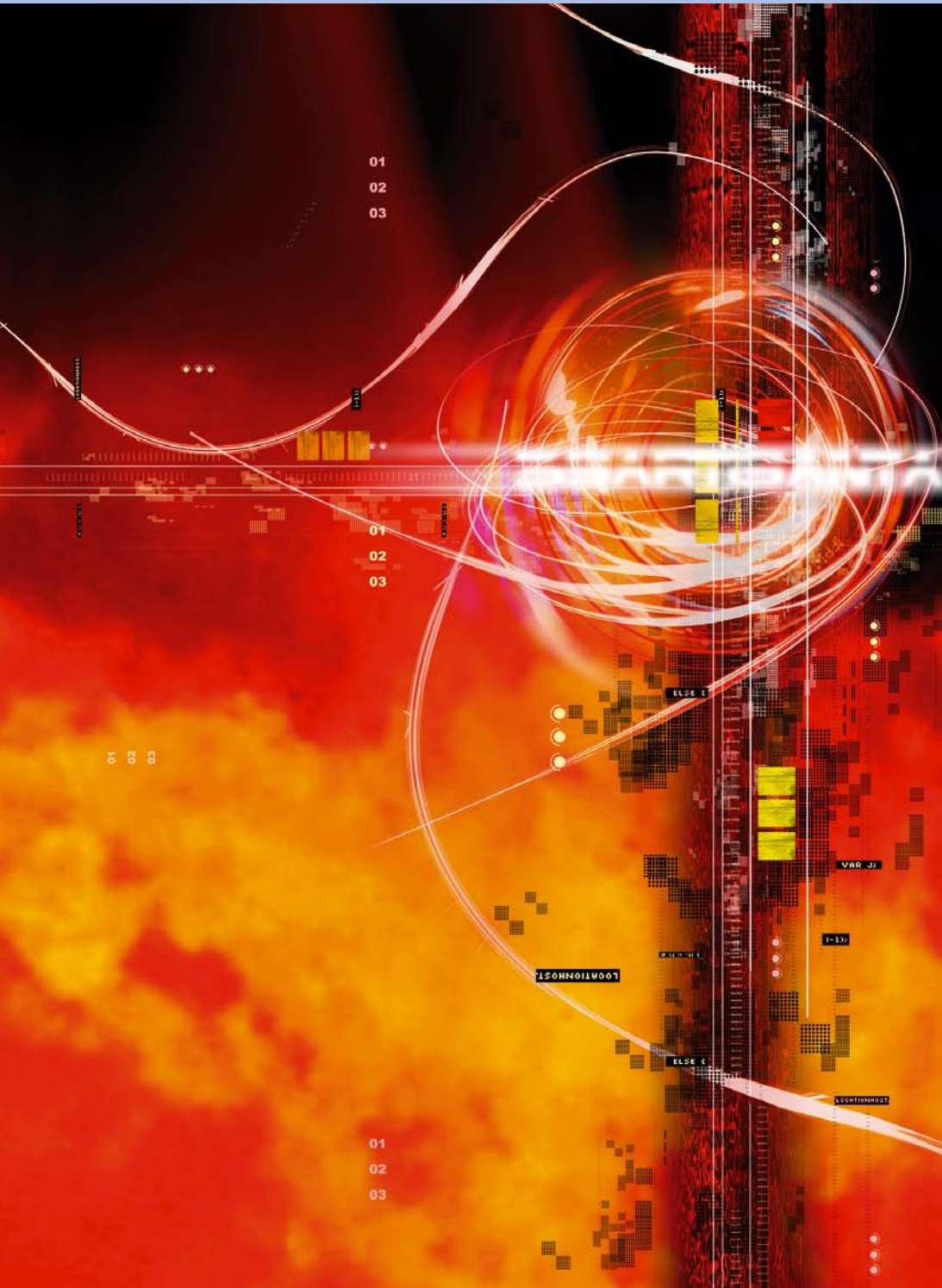


Section 6:

Vigilon Loop Devices

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6: VIGILON LOOP DEVICES

Introduction to S-Quad

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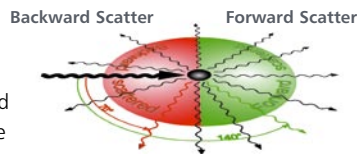
S-Quad Extra Sensory Detection

Gent's new S-Quad sensor range for Vigilon is the UK's most innovative solution to the detection and signalling of fires. Patented dual angle optical scatter smoke detection improves both the speed and integrity of fire detection. This advanced sensing technology is coupled with an integral sounder with speech capability and strobe in the same intelligent device, making S-Quad a truly unique fire detection and alarm sensor.

The S-Quad sensors inherit all the advantages of Vigilon's 34000 range combined with extra features, making Vigilon and S-Quad an industry leading combination for fire detection and alarm signalling.

Dual Angle Optical Scatter Technology

- Light beam is deflected by the particles in the chambers and results in beams scattered in many directions. The ratio of forward and backward scatter indicates the type of particles present



Dual Angle Optical Heat and Carbon Monoxide 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.

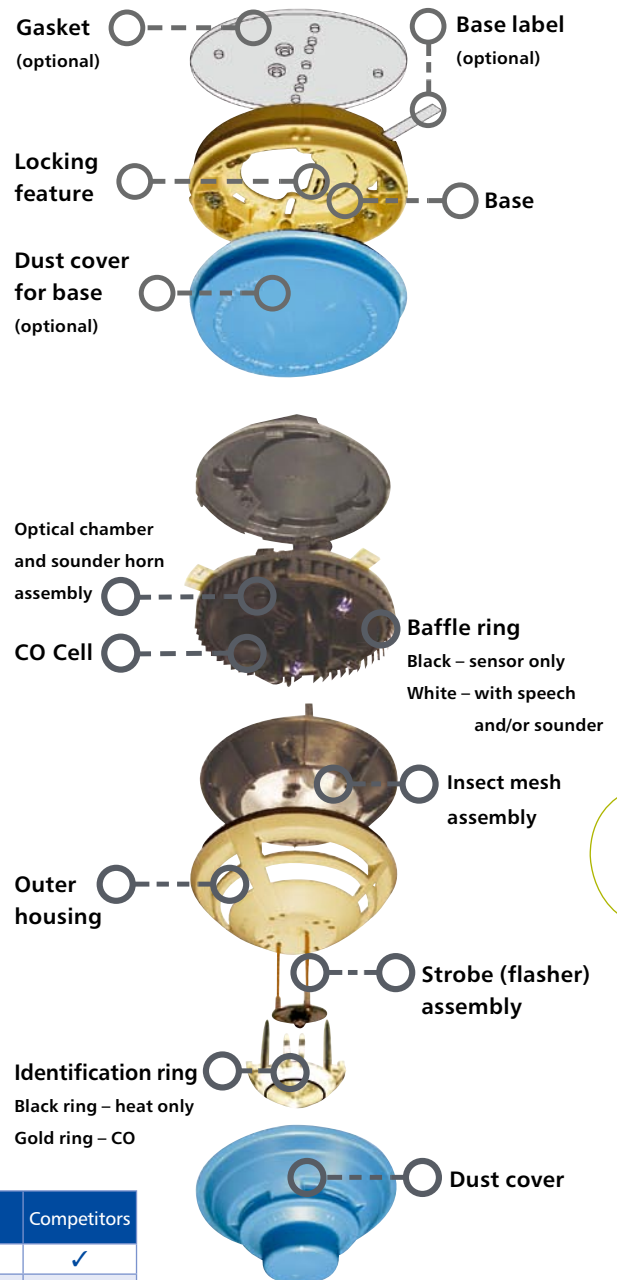
Many combinations of the different sensors are used in the multisensor to enable fast and above all, reliable fire detection. The following 2 cases are an example of this.

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.

S-Quad features



6

KEY:	✓ S-Quad as standard	✓ Offered by a few manufacturers	Gent S-Quad	Competitors
Multi-criteria sensors: combined optical/heat with CO gas detection capability	✓	✓	✓	✓
Enhanced voice sounder with integral speech messaging and bell tone	✓		✓	
DDA compliant for audible and visual alarm signal			✓	✓
Dual Angle Chamber using forward/backward analysis for advanced smoke sensing	✓		✓	✓
Puts an end to false alarms through clear distinction between smoke, steam and dust	✓		✓	✓
Early detection using 4 sensors in 1 device each with individual sensitivity settings	✓		✓	
Design flexibility offers programmable states to suit site specific applications	✓		✓	✓
In built input/output capabilities allowing remote LED or signalling of non-fire events	✓		✓	
Built in isolators in every device maintaining loop integrity			✓	
Reduced installation and ongoing maintenance costs			✓	✓
SAFE addressing – Soft Addressed Firmware Encoded as standard			✓	
Aesthetically pleasing low profile sensor with optional semi-flushing kit			✓	✓

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6: VIGILON LOOP DEVICES

10 Reasons to specify S-Quad



6

1

Advanced Sensing Technology coupled with integral sounder, speech capability and strobe in one intelligent device provides the UK's most innovative solution to the detection and signaling of fires.

2

Rapid Fire Detection 4 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.

3

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.

4

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.

5

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

6

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

7

Compliance with DDA (Disability Discrimination Act 1995) Legislation Built-in high intensity flashing strobe warns those with hearing difficulties of a potential fire hazard – now a legal requirement in all public buildings.

8

The Power of Vigilon Supports the largest number of Fire Detection and Alarm products on the same 2 cables with soft or SAFE (Soft Addressed Firmware Encoded) addressing options.

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.

6: VIGILON LOOP DEVICES

S-Quad Sensors

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S-Quad

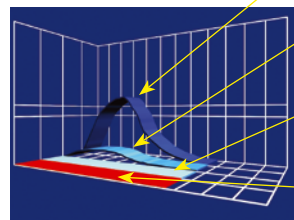
Why a Dual Optical Heat CO Multi-sensor?

Combining the CO technology into the O₂H sensor radically reduces false alarms and allows fast detection of fires.

Many combinations of the different sensors are used in the multi-sensor to enable fast and above all, reliable fire detection.

O₂HCO Performance Examples

Steam



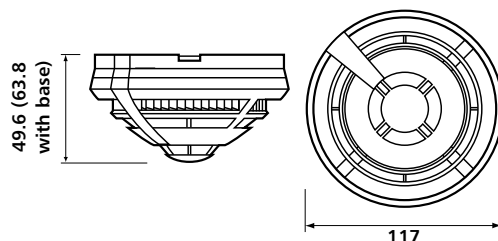
Forward Scatter
• High Signal
= Alarm

Backwards Scatter
• Low Signal
= No Alarm

Heat & CO
• No Signal
= No Alarm

Result
No Alarm

Dimensions (mm)



TECHNICAL SPECIFICATION					
Type	Optical	Optical Heat	Heat	Dual Optical Heat	Dual Optical Heat CO
Device Load Factor	1	1	1	1	1
Ingress Protection	IP30				
Approx Weight	0.11 Kg (0.17 Kg with base)				
Operating Temperature	-10°C to +50°C				
Relevant Standards	EN54-7	EN54-7 +5	EN54-5	EN54-7 +5	EN54-7 +5
Approvals	LPCB pending			LBCB	

A new concept in fire detection – a truly intelligent analogue sensor combining 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 multi-sensor combines heat (H), carbon monoxide (CO), optical forward scatter (OFS) and optical backward scatter (OBS)
- 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 (CO) within the chamber monitors the concentration of carbon monoxide, a product of incomplete combustion in some fire types, and potentially life threatening. The CO sensor allows rapid fire detection, with smouldering fires, in areas where smoke detectors could register false alarms
- 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
- Repeat fire LED output as standard (if monitored input not used)
- Operational LED blink 'On/Off' option
- Monitored Input - which can be Fire, Fault or Supervisory

ORDER CODES

Sensor Base	S4-700
Heat Sensor	S4-720
S-Quad Optical Heat	S4-710
Optical*	S4-715
Dual Optical Heat Sensor	S4-711
Dual Optical Heat Sensor CO	S4-911

(*only for use with Vigilon Compact)

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6: VIGILON LOOP DEVICES

S-Quad Sensor Sounder

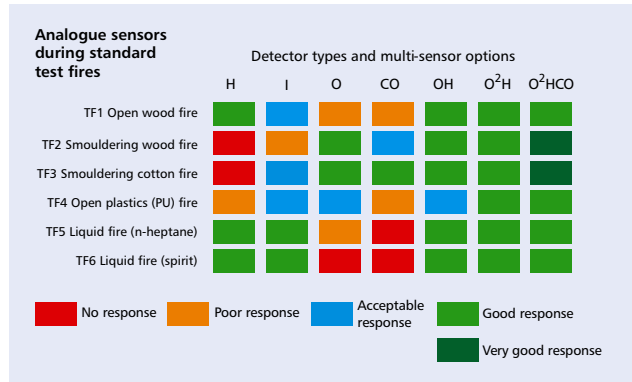
Combined sensor sounder technology provides a cost effective solution for alarm signalling saving on installation costs as there is no need for additional power supplies. Synchronised messages are transmitted through the same sensor that detects the fire.

- Attention tones can be programmed either as a bell (on speech variants) or a choice of 12 standard tones
- 'Soft' start option
- Uniform sound distribution
- Low current consumption
- Fully synchronised sound patterns via the control panel
- Selectable speech messages available to suit most requirements –switched on/off by the Vigilon control panel
- Rich harmonic sound output using patented technique
- Options for sound output:
 - Standard mode = 90 dB(A) @1m (typical)
 - Up to 98 dB(A) possible if required (turbo mode)



S-Quad

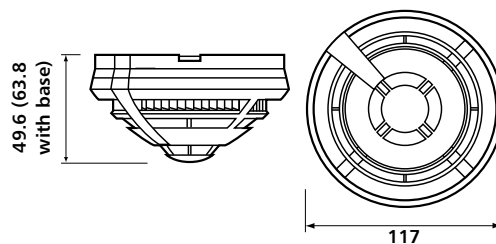
Effectiveness of Sensors to detect test fires



TECHNICAL SPECIFICATION			
Type	Heat Sensor Sounder	Optical Heat Sounder	Dual Optical Heat Sensor Sounder
Device Load Factor*	8-16**	8-16**	8-16**
Ingress Protection	IP30		
Approx Weight	0.11Kg (0.17Kg with base)		
Operating Temperature	-10°C to +50°C		
Relevant Standards	EN54-3&5	CEA 4021 EN54-3&7 +5	CEA 4021 EN54-3&7 +5
Sound Output at 1m	Typically 90 dB(A)		
Approvals	LPCB	LPCB pending	LPCB

* Load factors for guide purposes only.
 ** Higher value for 'turbo' mode or bell.

Dimensions (mm)



ORDER CODES	
Sensor Base	S4-700
Heat Sensor Sounder	S4-780
Dual Optical Heat Sensor Sounder	S4-771
Optical Heat Sounder	S4-770

6: VIGILON LOOP DEVICES

S-Quad Strobe and Speech

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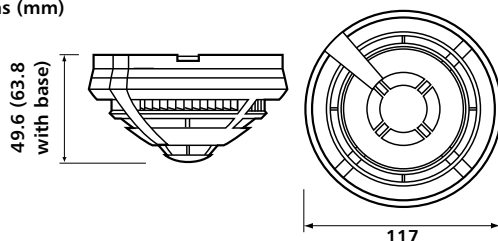
Another 'first' – a voice chip capable of delivering synchronised messages throughout the building via the sensor.

- Programmable voice messaging ensures quicker and safer evacuation in the event of a fire or an emergency
- Complements the S-Cubed sounder with messages and complex sound signals such as the bell tone
- 'Soft-start' and programmable volumes
- Programmable message period 10-20 seconds
- Programmable silences and tones
- Low current consumption

TECHNICAL SPECIFICATION					
Type	Dual Optical Heat Sensor Strobe	Dual Optical Heat Sensor Speech Strobe	Dual Optical Heat Sensor CO Speech Strobe	Dual Optical Heat with Speech	Dual Optical Heat with Speech
Device Load Factor*	10	18-26**	18-26**	18-26**	18-26**
Ingress Protection	IP30				
Approx Weight	0.11Kg (0.17Kg with base)				
Operating Temperature	-10°C to +50°C				
Relevant Standards	EN54-7&5	EN54-7&5 EN54-3 CEA 4021 Multisensor	EN54-7&5 EN54-3 CEA 4021 Multisensor	EN54-5&7 EN54-3	EN54-5&7 EN54-3
Sound Output at 1m	N/A	Typically 90 dB(A)			
Approvals	LPCB				

* Load factors for guide purposes only.
**Higher value for 'turbo' mode or bell

Dimensions (mm)



Voice Messages

- 1 Alert Message (female voice)
"An incident has been reported in the building, please await further instructions."
- 2 Alarm Message 1 (female voice)
"Attention please, this is an emergency. Please leave the building by the nearest available exit."
- 3 Alarm Message 2 (male voice)
"This is a fire alarm! Please leave the building immediately by the nearest available exit."
- 4 Test Message (female voice)
"This is a test message, no action is required."

A strobe option warns those with hearing difficulties of a potential fire hazard, now a legal requirement in all public buildings through DDA Legislation.

- Built-in high intensity flashing strobe helps alert occupants in noisy environments as well as the hearing impaired
- Complies with the latest requirements of the DDA (Disability Discrimination Act 1995)
- Compatible with S-Cubed wall mounted strobe
- Low power consumption and high output LED technology ensures strobes are cost efficient and more reliable in use than other high powered strobes
- Wide viewing angle
- Synchronised across the loop
- Strobe can operate independently of the sounder if required
- Strobe LED – flashes at different rate to Red indicating LED

Visual Indicators

- Red LED – indicates Fire as well as reassures device is operating correctly
- Blue LED – indicates CO present
- Gold ring to indicate CO version
- Black ring indicates Heat detector only version

ORDER CODES

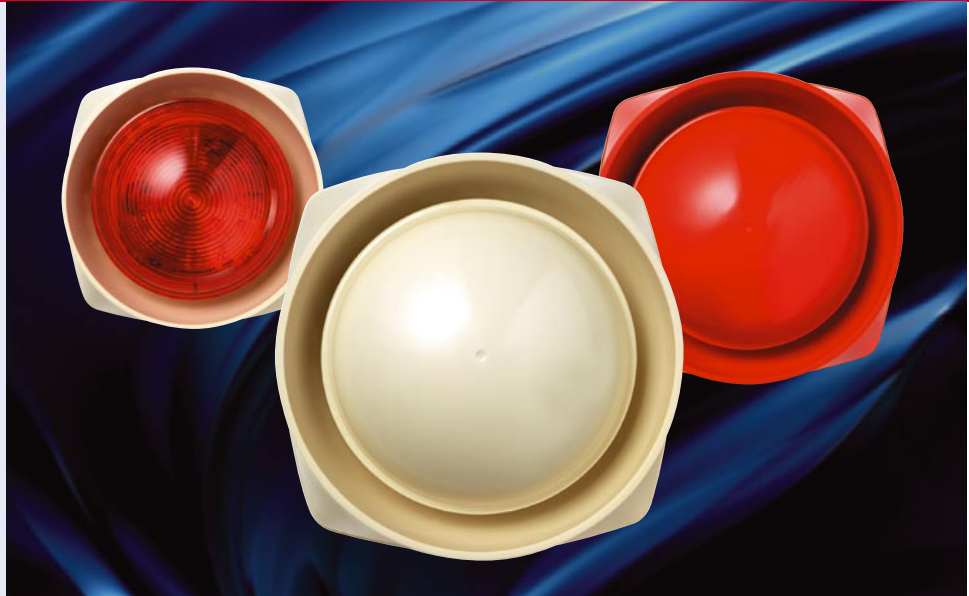
Sensor Base	S4-700
Dual Optical Heat Sensor Strobe	S4-711-ST
Dual Optical Heat Sensor Speech Strobe	S4-711-ST-VO
Dual Optical Heat Sensor CO Speech Strobe	S4-911-ST-VO
Dual Optical Heat with Speech	S4-711-VO
Heat Sounder Speech Strobe	S4-720-ST-VO

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6: VIGILON LOOP DEVICES

S-Cubed Alarm Devices

- Very low power consumption means more sounders per loop e.g. 200 system sounders per loop compared to 40
- The strobe option is equivalent to a standard 3w xenon strobe and uses 1/20th of the power
- The strobe element of the sounders is fully monitored for circuit failures
- The sounder tones are programmed in exactly the same way as the existing Vigilon sounders
- Loop powered voice enhanced sounders are available in the range
- 4 voice phrases and a bell sound are available as standard
- By using the bell sound in the voice sounder it is possible to have a loop powered bell
- The sound producing element in the voice sounders is monitored every hour using a VLF tone
- Voice and Tone mode can be freely mixed within the same sounder
- All messages and strobe signals are synchronised across loops in the same control panel
- Complements the S-Quad sensor with voice messages and complex sound signals
- A backwards compatible version of the system sounder is available for replacement or expansion to existing systems, avoiding the need to upgrade panel software
- The HandiLink remote control makes it much easier to adjust the sounders in situ
- Products incorporate innovative design features for which multiple patents are pending
- High intensity flashing strobe conforms to the Disability Discrimination Act (DDA) 1995 legislation



The S-Cubed range of alarm sounders incorporate sound speech and strobe effects all in one range of alarm devices. The range offers all variants in the choice of 2 colours red or white with either a shallow base version sealed to IP31 or a deep base version sealed to IP55. All the low profile sounders have the option of an integral strobe which is completely loop powered.

With the introduction of voice enhanced sounders into the Vigilon range we now have the option of having an S-Cubed loop powered bell sound for the first time as well as standard speech messages.

As an aid to commissioning there is the option to use the HandiLink Infrared remote control to turn on individual sounders and adjust the volume remotely. This means physical access is not required to make this adjustment and is only active during the commissioning process. Password access at the control panel is required to enable this feature so it is not possible to make this adjustment accidentally or maliciously.

TECHNICAL SPECIFICATION – 1.0 TONE AND VOICE SOUNDERS

Type	System Sounder			Low Profile		
	Standard Tone	Voice Enhanced	Inc Bell Sound	Standard Tone	Voice Enhanced	Inc Bell Sound
Max Quantity per Loop	200	125	70	200	125	70
Device Load Factor	5	8	13	5	8	13
Ingress Protection	IP55C with Deep Base			IP31C with Shallow Base		
Approx Weight	0.3Kg					
Operating Temperature	-10°C to +50°C					
Relevant Standards (Sounder only)	EN54-3					
Sound Output at 1m	103 dB(A) ± 2dB(A)		100 dB(A) ± 2dB(A)			
IR Control Operating Distance	3m					
Approvals	EN54 part 3 (except voice sounders) (applied for)					

6: VIGILON LOOP DEVICES

S-Cubed Alarm Devices

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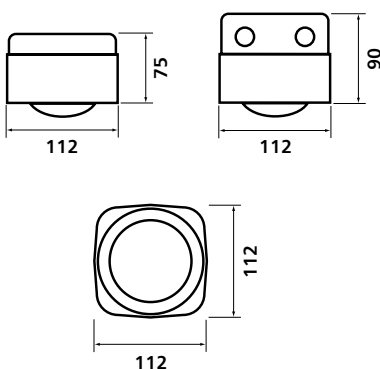
With the remote control individual sounders can be turned on and the sounder volume adjusted remotely from up to 3m away. To maintain system security this feature is password protected at the control panel.

TECHNICAL SPECIFICATION – 1.1 TONE AND VOICE SOUNDERS WITH STROBE							
Type	Sounder/Strobe Strobe Colour		Voice Enhanced Sounder/Strobe Strobe Colour			Strobe Only Strobe Colour	
	Red or Amber	White	Red or Amber	Red or Amber Inc Bell Tone	White with & without bell tone	Red or Amber	White
Max Quantity per Loop	60	30	60	40	30	100	40
Device Load Factor	15	28	16	23	33	10	23
Ingress Protection	IP55C with Deep Base		IP31C with Shallow Base				
Approx Weight	0.3Kg						
Operating Temperature	-10°C to +50°C						
Relevant Standards (Sounder only)	EN54-3						
Sound Output at 1m	100 dB(A) ± 2 dB(A)						
Strobe Light Output	Equivalent to a 3w Xenon						
Strobe Flash Rate	Signal 1 0.5Hz Signal 2 & 3 1.0Hz						
IR Control Operating Distance	3m						
Approvals	LPCB approved to EN54-3 (Except Voice Sounders)						

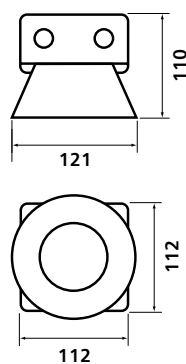
- When using the bell sound with voice enhanced sounders refer to the "Inc Bell Tone" column for the loop loading data.
- To use the new range of Sounders the panel software (main & repeat) may need to be upgraded.

Dimensions (mm)

Low profile sounder



System sounder



Standard Voice Messages

- Alert Message (female voice)
"An incident has been reported in the building, please await further instructions."
- Alarm Message 1 (female voice)
"Attention please, this is an emergency. Please leave the building by the nearest available exit."
- Alarm Message 2 (male voice)
"This is a fire alarm! Please leave the building immediately by the nearest available exit."
- Test Message (female voice)
"This is a test message, no action is required."

ORDER CODES

IP55 System Sounders

Sounder Red	S2IP-SN-R
Sounder White	S2IP-SN-W
Backwards compatible Sounder White	S2IP-SN-W3
Backwards compatible Sounder Red	S2IP-SN-R3
Voice Sounder Red	S2IP-VP-R
Voice Sounder White	S2IP-VP-W

IP31 Low Profile Sounders

Sounder/Strobe Red	S3-SN-ST-RR
Sounder/Strobe White	S3-SN-ST-WR
Sounder Red	S3-SN-R
Sounder White	S3-SN-W
Voice Sounder/Strobe Red	S3-VP-ST-RR
Voice Sounder/Strobe White	S3-VP-ST-WR
Voice Sounder Red	S3-VP-R
Voice Sounder White	S3-VP-W

IP55 Low Profile Sounders

Sounder/Strobe Red	S3IP-SN-ST-RR
Sounder/Strobe White	S3IP-SN-ST-WR
Sounder/Strobe Red body White lens	S3IP-SN-ST-RW
Sounder/Strobe White body Amber lens	S3IP-SN-ST-WA
Sounder Red	S3IP-SN-R
Sounder White	S3IP-SN-W
Voice Sounder/ Strobe Red	S3IP-VP-ST-RR

Voice Sounder/ Strobe White	S3IP-VP-ST-WR
Voice Sounder Red	S3IP-VP-R
Voice Sounder White	S3IP-VP-W

IP55 Loop Powered Strobes

Strobe Red body/Red lens	S2IP-ST-RR
Strobe White body/Red lens	S2IP-ST-WR
Strobe White body/ Amber lens	S2IP-ST-WA
Strobe Red body/White lens	S2IP-ST-RW

Remote Control

HandiLink IR Remote Control	S3-CONTROL
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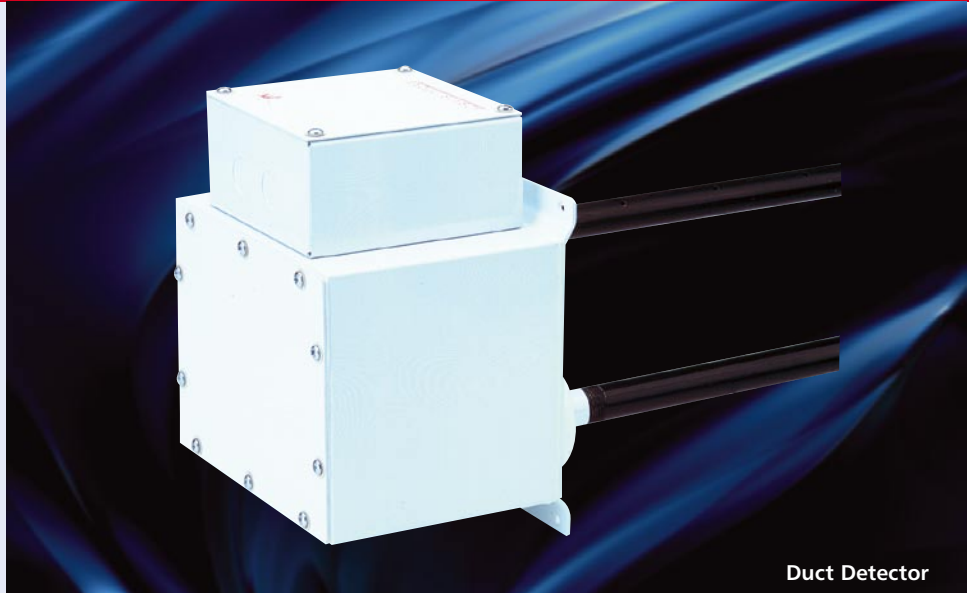
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6: VIGILON LOOP DEVICES

Duct Smoke Sensors

An optical smoke sensor specifically designed for use in ventilation ducting. Two 20mm probes sample the air in the duct for smoke. Detector housing is mounted externally to the duct. This device can trigger the shut-down of an air-conditioning or ventilation plant to prevent the spread of smoke.

A slave LED is included with the device.

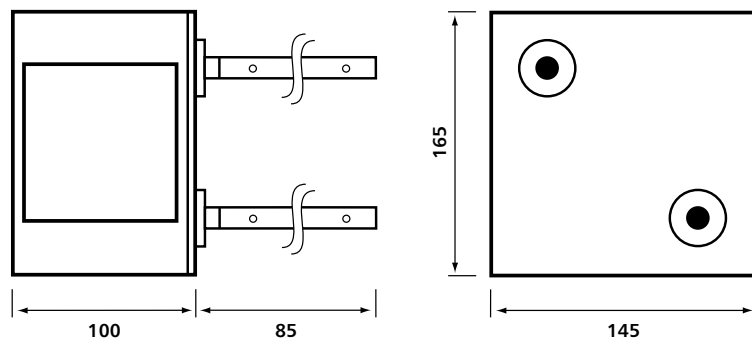


Duct Detector

TECHNICAL SPECIFICATION	
Type	Duct smoke detector
Max Quantity per Loop	200 (50 if slave LEDs used)
Approx Weight	4.6 Kg
Operating Temperature	0°C to 50°C
Ingress Protection	IP55
Relevant Standard	N/A
Duct Air Velocity	1 to 10 m/sc
Device Load Factor	2 (1 for slave LEDs)

6

Dimensions (mm)



ORDER CODES

Duct Detector c/w slave LED 34760

6: VIGILON LOOP DEVICES

Beam Sensors

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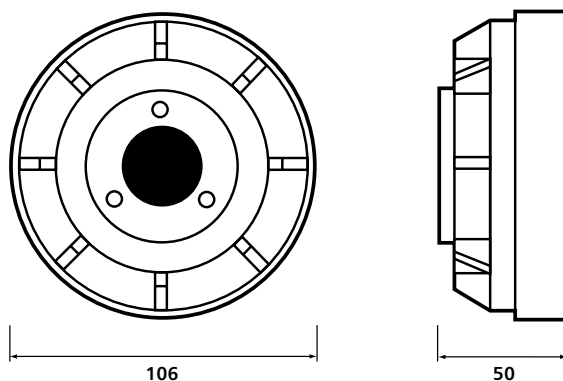
Beam Sensor (Pair)

Beam sensors are suitable for large open areas where installation of single point detectors may be difficult or uneconomical. These detectors come in pairs, one of which emits an infra-red beam, detected by the other unit. If the beam is broken by smoke, the sensor is triggered.

This model employs 'True' analogue detection techniques whereby other interruptions, caused by people or shadows, will be discounted.

TECHNICAL SPECIFICATION	
Max. Quantity per Loop	16 pairs
Approx Weight	0.6Kg per pair
Ingress Protection	IP42
Operating Temperature	0°C to 50°C
Relevant Standards	BS 5839- 5
Beam Length	2 - 100m
Mounting Height	25 - 40m
Device Load Factor	2

Dimensions (mm)



ORDER CODES

Beam Sensor (Pair)	34740
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Brackets required (2 per pair)

Angle bracket	34741-01
Angle bracket IP55	34741-90
Parallel bracket	34741-03

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6: VIGILON LOOP DEVICES

Manual Call Points

An addressable call point with a response time less than 1 second.

Versions available include:

- Resettable or break glass
- Lift up covers
- Keyswitch
- IP55 rated – when fitted with cover and surface box



Call Point

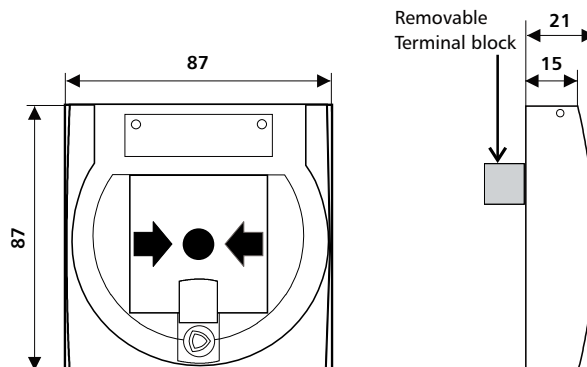
TECHNICAL SPECIFICATION	
Max Quantity per Loop	200
Operating Temperature	-25°C to 70°C
Ingress Protection	Standard IP43, Special IP55 (with cover and backbox)
Relevant Standard	EN54 Part 11
Approx Weight	0.11Kg
Device Load Factor	1

6

ORDER CODES

Manual Call Point (Glass)	S4-34800
Manual Call Point (Glass) with Protective cover	S4-34842
Resettable Element for MCP (Pack of 10)	S4-34890
Glass for MCP (Pack of 10)	S4-34891
Protective cover for MCP (Pack of 10)	S4-34892
Surface Back Box for MCP (Red Plastic) (Pack of 10)	S4-34895
MCP with Key Switch	34807

Dimensions (mm)



6: VIGILON LOOP DEVICES

Sensor Ancillaries

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T-Breaker

T - Breaker

Used to provide a spur from the addressable loop.

Slave Relay

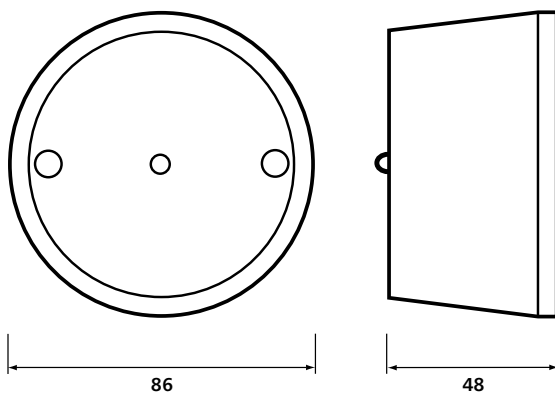
Located on the addressable loop, it will operate when the sensor it is connected to detects a fire condition.

Remote LED driver output exists from every S-Quad detector.

Alternatively, indicators can be connected on the loop to mimic the next device on the loop.

TECHNICAL SPECIFICATION			
Type	T-Breaker	Remote LED	Slave Relay
Max Quantity per Loop	200	100	100
Approx Weight	0.35Kg	0.34Kg	0.36Kg
Operating Temperature	-10°C to +50°C		
Ingress Protection	IP40		
Device Load Factor	1		

Dimensions (mm)

**ORDER CODES**

T-Breaker	34701
Remote LED	13449-01
Slave Relay	34703
Remote LED (with S-Quad)	13449-01

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6: VIGILON LOOP DEVICES

Interfaces

Interfaces are used to link the fire alarm system to other plant management devices such as sprinklers and security systems. They can also be used to link to a zone of conventional detectors or non Gent manufactured devices.

Interfaces are either powered from the loop or require a separate mains supply. The mains power version has its own battery backup.



Mains & Loop Powered Interfaces

TECHNICAL SPECIFICATION				
Type	Mains	Loop	Zone Module	Single Channel
Max Quantity per Loop	8	30	100	100
Approx Weight	8.6 Kg	2.4 Kg	0.7 Kg	0.7 Kg
Operating Temperature	0°C to +45°C			
Ingress Protection	IP44	IP40	IP40	IP40
Voltage	230V ac	Loop powered	Loop powered	Loop powered
Device Load factor	3	2	10	10
No. Channels	4	4	1	1
Input Channels	Fire Fault MCP fire OEM detectors	Fire Fault Non-fire event	2 wire for conventional zone circuits	Fire Fault Non-fire event
Approvals	LPCB			

Note: Loop powered interfaces require line modules for each single channel input or output.

Dimensions (mm)

	A	B	C
Mains	305	504	98
Loop	261	270	60
Zone Module	125	204	50
Single Channel	125	204	50

ORDER CODES

Mains Powered Interface	34440
Loop Powered Interface	34450
Loop Powered Zone Module	34410
Single Channel Interface	34415
Line Modules	19245-05