
Honeywell
GENT
Fire System
Innovators
Visual Alarms
Design and application
guide

Introduction

This guide offers an overview of the new regulations for the selection and design of visual alarms devices (also known as VADs) in fire detection and alarm systems.

To achieve the right VAD design, a number of simple steps need to be followed.

This guide leads you through the steps in a sequence that will deliver effective and efficient designs.

Regulations for Visual Alarms

The recent changes
Regulations and Standards

BS 5839-1:2017 supported by LPCB CoP 0001 → BS EN 54-23 ← CPR, Building Regs.

The regulations for application of visual alarms have been overhauled and their use is now governed by a combination of codes of practice and product standards.

- **BS EN 54 Part 23:2010** BS EN 54 is a collection of product standards that controls the design and manufacture of the components of a fire detection and alarm system. BS EN 54 Part 23:2010 is the section that refers to VADs. It provides a means of ensuring VADs from any manufacturer meet consistent minimum standards of performance allowing systems to be designed and installed as intended
- **BS 5839 Part 1:2017** Code of Practice for design and installation of fire detection and alarm systems. This recommends that any Visual Alarm complies with BS EN 54 Part 23
- **LPCB Code of Practice CoP0001** Issued by LPCB, this provides guidance in achieving the necessary coverage with VADs taking into account factors such as ambient lighting
- **CPR – Construction Products Regulation** EU regulation that ensures building products are safe and are compatible with other systems in the building. From Jan 2014 this requires that VADs are certified to BS EN 54 Part 23 and covered by a declaration of performance (DoP) issued by the manufacturer

In response to these changes, Honeywell Gent has redeveloped its range of S-Quad and S-Cubed strobe devices to provide a range that meets all of the requirements of the standard whilst continuing to be the most cost effective solution for visual alarms in fire detection and alarm systems.

What are VADs?

VADs are used within a fire detection and alarm system to give a warning to building occupants.

The latest products use high brightness LED technology which is reliable and highly power efficient.

Typically VADs are available either as standalone, conventionally powered devices or as intelligent loop powered devices. They may be integrated with sounders or multi-function sensor-sounders which offer a very cost effective solution with a high degree of integration.

Applications

Our VAD technology has been developed to be a primary means of notifying occupants without relying on an audible signal.

Typical environments where VADs are critical in providing a warning to occupants:

- Factories
- Hotels
- Public buildings
- Universities
- Theatres
- Offices
- Schools
- Warehouses

When are VADs used?

The method of signaling alarms is always defined by the Fire Risk Assessment.

Audible Signals

Bells, electronic sounders and more recently voice alarm messages are widely accepted means of alerting a building's occupants.

Visual Alarms

These are used when audible alarms are not always suitable. Visual alarms are an obvious alternative and the BS 5839-1:2017 lists examples of when VADs might be considered.

- Areas of high background noise where people might be wearing ear defenders
  - » Factories
  - » Baggage Halls
  - » Warehouses
- Areas where people might not hear an audible alarm
  - » Offices where people are listening to personal music players
  - » Gymnasium
  - » Call centres / Telesales
- Areas with managed evacuation
  - » Cinemas
- Areas where critical processes may have to continue even in a fire emergency
  - » Hospital operating theatres
  - » TV studios

Perhaps the most common purpose for choosing VADs as alarm devices is to indicate the emergency to all occupants, including those who are hearing impaired. Meeting the legislative requirements of the Equality Act 2010 ensures that all occupants are warned of an emergency situation. Our BS EN 54-23 VADs can be incorporated without the need for extra installation.

What has changed with the introduction of BS EN 54 Part 23?

Prior to BS EN 54-23 there were no commonly accepted ways of measuring the effective light output of strobes and beacons. With the onset of new technologies it is more important than ever to understand how products from different manufacturers using different technologies will perform.

BS EN 54-23:2010 defines a standardised method to test and measure the performance of each device. It also specifies the way in which this performance data is represented on the device and on all supporting documentation.

Standard Categories of VAD

The basic requirement of BS EN 54-23 is for a VAD to provide an effective illuminance of 0.4 lux throughout a given volume of room space to attract the attention of people in a room.

To assist in the application of VADs there are three categories defining the mounting position and performance of the device.

Category "C" – Ceiling Mounted

Ceiling mounted VADs are suited to both small rooms and large open areas where wall mounted devices might not cover the whole room space. They are also used to possibly reduce installation and equipment costs when combined with automatic fire detectors.

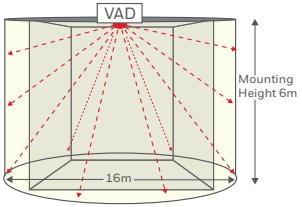
If the spacing of VADs match the sensor spacing, a single integrated device can be installed.

A ceiling category VAD is required to provide an effective illuminance of at least 0.4 lux in the shape of a cylinder.

The coverage volume is defined in the performance category "**C-X-Y**" where: **C** = Ceiling Category, **X** = Mounting Height ,**Y** = Diameter of circular area covered. Example:

C-X-Y	X – Cylinder Height	Y – Cylinder Diameter
C-6-16	6m	16m

S-Quad ceiling VADs are designed to optimise the spacing option to match smoke and heat detector spacing.



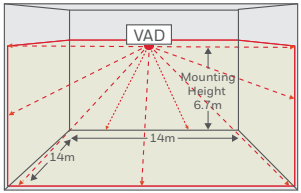
Cylindrical shape with illumination of at least 0.4lux

Category W – Wall Mounted

Where ceiling VADs are not suitable, combined wall mounted VADs can be used. This would be typical in buildings with high ceilings. Ideally the coverage of light output will match the sounder spacing so a single integrated S-Cubed device can be installed.

A wall mounted VAD provides minimum luminance of 0.4 lux in a cube. The coverage is defined by the category in the form of "**W-X-Y**" where: **W** = Wall Category, **X** = Mounting Height ,**Y** = Width of a square area covered. Example:

W-X-Y	X – Mounting Height	Y – Mounting Diameter
W-6.7-14	6.7m	14m x 14m



Cuboid shape with illumination of at least 0.4lux

Category "O" – Open Category

O-category may be certified where the coverage of a VAD does not match or exceeds the coverage defined by the standard categories. O-category VADs must be supported by manufacturing data including:

1. The recommended mounting position.
2. The orientation for mounting the device.
3. Any restrictions on the minimum and maximum allowable mounted height.
4. The shape of coverage volume in which the required illumination of 0.4 lux is achieved.
5. S-Quad has an open rating at medium power of O-5-14. This exceeds the nearest C-category rating of C-3-14 and allows the S-Quad at medium power to be installed at spacings and heights that could not be achieved without using full power.

How do I design a system with VADs?

As a designer, the key understanding is to know how many VADs are needed to provide full coverage within a particular room. You need to be able to answer the following questions to design compliant systems using BS EN 54-23 VADs.

- Do all occupants have a direct view of the VADs?
- What is the ambient light level of the room?
- What is the size of the room (width, length and height)
- Are the VADs to be wall or ceiling mounted?
- What is the coverage rating of the devices?

There are three approaches to designing a Visual Alarm system.

1 – BS 5839 Part 1 2017 Design Requirements

BS 5839 Part 1 2017 and the LPCB Code of Practice (CoP 0001) provides guidance on the use and siting of visual alarm devices conforming to BS EN 54-23. This permits two alternative approaches: an engineered, application specific solution for relatively complex situations and a "predetermined approach" for rooms of simple geometry, specified size and frequently encountered levels of ambient illumination.

Information required

- Mounting position (ceiling or wall)
- Viewing angle (direct or indirect)

This defines the table to be used

- Size of the room
- Ceiling or Mounting Height
- Ambient Light level

This defines the minimum category of device to be used

2 – Correction Factors

CoP 0001 provides a table that allows the designer to calculate the coverage of a particular device for different ambient light conditions.

Information required

- Mounting position
- Viewing angle
- Ambient Light

This defines a correction factor for the coverage of the VAD

- Certified Coverage data for the device

This defines the actual coverage the device will provide

3 – Manufacturers' Tools

This method ensures the design may be optimised for the selected product while ensuring the design will work alongside the detection and alarm devices.

Information Required

- Colour of VAD (Red or White)
- Viewing angle or line of sight
- Ambient Light level
- Room dimensions or spacing of fire detectors

This allows the tool to show best device and setting for the application

TIP

Ideally ceiling devices are distributed at the same spacing as point fire detectors and wall mounted devices optimised to match sounder spacings.

Honeywell Gent provides a range of tools to support the VAD design using its Vigilon System

VAD App for iPad

Ideal for assessing a provisional VAD design that matches the requirements on site.

PC based VAD design Tool

A tool that matches the parameters of the Vigilon Loop powered VADs with the room conditions and recommends the best solution for the application.

Look-up Tables for VADs

If the tool or App is not available the tables in this guide may be used to confirm the best fit for Gent VADs in different applications.

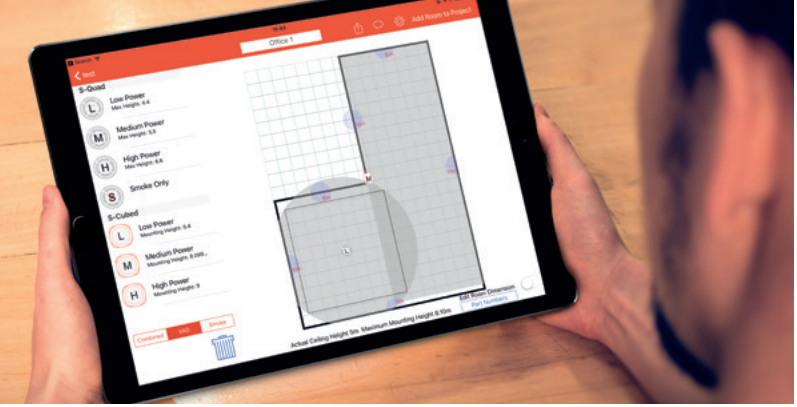
TIPS

Ambient Light

An accurate light reading may not be easy to get especially for a new build project. Typical light levels for a wide range of room applications are provided on pages 22 and 23 of this guide.

Field of View

A VAD design should take account of whether all persons in a room have VADs in their direct line of sight. If this is not known it is safer to assume they will not.



Five steps to designing with VADs

All VAD designs must be done in accordance with the requirements of BS 5839 Part 1 and Code of Practice issued by LPCB – CoP 0001.

Simply follow the steps set out in this guide to arrive at the optimum solution for visual alarms with Gent systems.

Step 1 Colour of VAD

As well as identifying the need for VADs, the risk assessment will identify the colour that needs to be used.

Gent's VADs are available in either red or white, making them ideal for new installations and retro-fitting to installed systems.

Step 2 Line of Sight

If the VAD is in direct line of sight of the occupants, the effective coverage it provides will be greater than if it's obscured and relies on reflections. If the room layout is not known the safest way is to assume that there will be people that do not have a direct line of sight.

Step 3 Ambient Light

The performance of VADs depends on the background light levels. In well lit areas the coverage will be less than in rooms that have a low ambient light level.

Step 4 Sensor or Sounder Spacing

For ease of installation and aesthetics, the spacing for the VAD should be the same as for the smoke/heat detectors or wall sounders.

Gent's VAD range are integrated devices that comply at detector spacing, so you can design as you've always done.

Step 5 Mounting Height

VADs are rated for a certain mounting height. To ensure the correct device is selected the mounting height of the VAD should be established. For ceiling VADs this will be ceiling height for wall devices this is independent of the ceiling height.

To optimise the VAD coverage and spacing, S-Quad VADs are also listed under the open category in order to match the smoke detector spacing and the ceiling height.

TIPS

The spacing of smoke and heat sensors and VADs should match

S-Quad Sensor Sounder VADs can be sited at normal detector spacings for most typical room environments.

Intensity Settings

VADs with adjustable power intensity settings deliver more efficient designs ensuring the maximum number of devices are supported.

The following pages provide some examples of VAD designs for a variety of environments using the VAD Look Up Table.

S-Quad VAD Design Example

Commercial Office – Open Area

Gather the details of the room using the five steps in order to select the best VAD solution from the Look Up Table on the right.

Step 1 Colour of VAD
WHITE

Step 2 Line of sight
INDIRECT

Step 3 Ambient light
380 LUX

Step 4 Sensor spacing
DETAILS OF THE ROOM

An open area 7m x 25m with automatic smoke sensor

Require 3 sensors for smoke detection at 8.5m

Step 5 Ceiling height
3m

Select the best VAD

Step 1 — Step 2 — Step 3

Indirect Line of Sight

WHITE

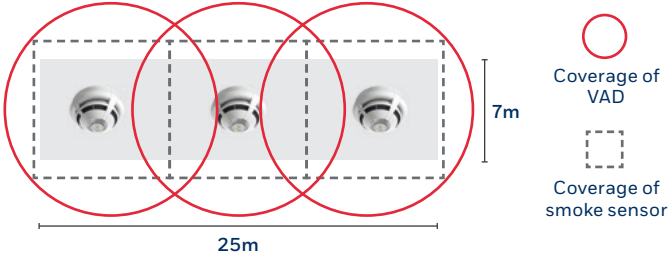
Ambient Light (Lux)	Corr. Factor	High Performance: High Intensity C - 6.0 - 16.0		High Performance: Medium Intensity C - 5.0 - 14.0		High Performance: Low Intensity C - 4.0 - 10.8		Standard: Standard C - 3.0 - 10.0	
		Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
< 100	1.3	C - 7.8 - 20.8	14.7m	C - 6.5 - 18.2	12.9m	C - 5.2 - 14.04	9.9m	C - 3.9 - 13	9.2m
101 to 200	1.2	C - 7.2 - 19.2	13.6m	C - 6 - 16.8	11.9m	C - 4.8 - 12.96	9.2m	C - 3.6 - 12	8.5m
201 to 300	1	C - 6 - 16	11.3m	C - 5 - 14	9.9m	C - 4 - 10.8	7.6m	C - 3 - 10	7.1m
301 to 400	0.8	C - 4.8 - 12.8	9.1m	C - 4 - 11.2	7.9m	C - 3.2 - 8.64	6.1m	C - 2.4 - 8	5.7m
401 to 500	0.6	C - 3.6 - 9.6	6.8m	C - 3 - 8.4	5.9m	C - 2.4 - 6.48	4.6m	C - 1.8 - 6	4.2m
501 to 600	0.5	C - 3 - 8	5.7m	C - 2.5 - 7	5.0m	C - 2 - 5.4	3.8m	C - 1.5 - 5	3.5m
601 to 700	0.4								

Ambient Light (Lux)	Corr. Factor	High Intensity C - 6.0 - 16.0		Medium Intensity C - 5.0 - 14.0		Low Intensity C - 4.0 - 10.8		Standard C - 3.0 - 10.0	
		Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
301 to 400	0.8	C - 4.8 - 12.8	9.1m	C - 4 - 11.2	7.9m	C - 3.2 - 8.64	6.1m	C - 2.4 - 8	5.7m

Step 4 VADs need to be set to High Intensity

Step 5 All options meet 3m

Solution: 3 x S-Quad Sensor Sounder VADs at High Intensity (6% loop Loading)



PART NUMBERS	
S4-711-VAD-HPW	O^2H Sensor – White VAD
S4-711-V-VAD-HPW	O^2H Voice Sensor Sounder – White VAD
S4-911-V-VAD-HPW	O^2HCO Voice Sensor Sounder – White VAD
S4-720-V-VAD-HPW	HEAT Voice Sensor Sounder – White VAD

S-Quad VAD Design Example

Theatre / Lecture Hall

Gather the details of the room using the five steps in order to select the best VAD solution from the Look Up Table on the right.

Step 1 Colour of VAD
WHITE

Step 2 Line of sight
INDIRECT

Step 3 Ambient light
350 LUX

Step 4 Sensor spacing
DETAILS OF THE ROOM

An open area 18m x 18m wide with automatic smoke sensor

Requires 4 sensors for smoke detection at 9m apart

Step 5 Ceiling height
4.5m

Select the best VAD

Step 1 — Step 2 — Step 3

Indirect Line of Sight

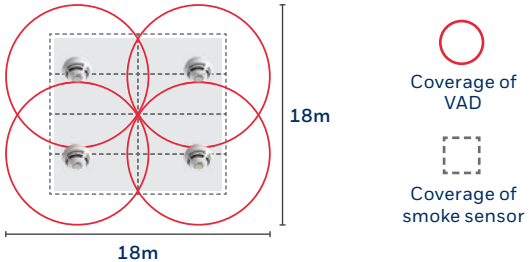
WHITE		High Performance						Standard	
Ambient Light (Lux)	Corr. Factor	High Intensity C - 6.0 - 16.0		Medium Intensity C - 5.0 - 14.0		Low Intensity C - 4.0 - 10.8		Standard C - 3.0 - 10.0	
		Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
< 100	1.3	C - 7.8 - 20.8	14.7m	C - 6.5 - 18.2	12.9m	C - 5.2 - 14.04	9.9m	C - 3.9 - 13	9.2m
101 to 200	1.2	C - 7.2 - 19.2	13.6m	C - 6 - 16.8	11.9m	C - 4.8 - 12.96	9.2m	C - 3.6 - 12	8.5m
201 to 300	1	C - 6 - 16	11.3m	C - 5 - 14	9.9m	C - 4 - 10.8	7.6m	C - 3 - 10	7.1m
301 to 400	0.8	C - 4.8 - 12.8	9.1m	C - 4 - 11.2	7.9m	C - 3.2 - 8.64	6.1m	C - 2.4 - 8	5.7m
401 to 500	0.6	C - 3.6 - 9.6	6.8m	C - 3 - 8.4	5.9m	C - 2.4 - 6.48	4.6m	C - 1.8 - 6	4.2m
501 to 600	0.5	C - 3 - 8	5.7m	C - 2.5 - 7	5.0m	C - 2 - 5.4	3.8m	C - 1.5 - 5	3.5m

Ambient Light (Lux)	Corr. Factor	High Intensity C - 6.0 - 16.0		Medium Intensity C - 5.0 - 14.0		Low Intensity C - 4.0 - 10.8		Standard C - 3.0 - 10.0	
		Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
301 to 400	0.8	C - 4.8 - 12.8	9.1m	C - 4 - 11.2	7.9m	C - 3.2 - 8.64	6.1m	C - 2.4 - 8	5.7m

Step 5 Option meets 4.5m

Step 4 VADs need to be set to High Intensity

Solution: 4 x S-Quad Sensor Sounder VADs at High Intensity (9% loop Loading)



PART NUMBERS	
S4-711-VAD-HPW	O^2H Sensor – White VAD
S4-711-V-VAD-HPW	O^2H Voice Sensor Sounder – White VAD
S4-911-V-VAD-HPW	O^2HCO Voice Sensor Sounder – White VAD
S4-720-V-VAD-HPW	HEAT Voice Sensor Sounder – White VAD

S-Quad VAD Design Example

Study Bedroom – Student Accommodation

Gather the details of the room using the five steps in order to select the best VAD solution from the Look Up Table on the right.

Step 1 Colour of VAD
RED

Step 2 Line of sight
INDIRECT

Step 3 Ambient light
350 LUX

Step 4 Sensor spacing
DETAILS OF THE ROOM

An open area 3m x 3.5m wide with automatic smoke sensor

Requires 1 sensor for smoke detection

Step 5 Ceiling height
2.4m

Select the best VAD

Step 1 — Step 2 — Step 3

Indirect Line of Sight

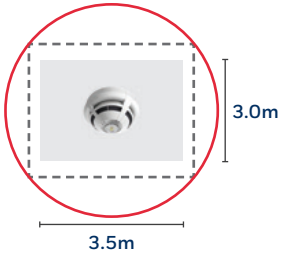
RED		High Performance						Standard	
Ambient Light (Lux)	Corr. Factor	High Intensity C - 4.5 - 14.0		Medium Intensity C - 4.0 - 13.0		Low Intensity C - 3.0 - 10.0		Standard C - 3.0 - 10.0	
		Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
< 100	1.3	C - 5.85 - 18.2	12.9m	C - 5.2 - 16.9	12.0m	C - 3.9 - 13	9.2m	C - 3.9 - 13	9.2m
101 to 200	1.2	C - 5.4 - 16.8	11.9m	C - 4.8 - 15.6	11.0m	C - 3.6 - 12	8.5m	C - 3.6 - 12	8.5m
201 to 300	1	C - 4.5 - 14	9.9m	C - 4 - 13	9.2m	C - 3 - 10	7.1m	C - 3 - 10	7.1m
301 to 400	0.8	C - 3.6 - 11.2	7.9m	C - 3.2 - 10.4	7.4m	C - 2.4 - 8	5.7m	C - 2.4 - 8	5.7m
401 to 500	0.6	C - 2.7 - 8.4	5.9m	C - 2.4 - 7.8	5.5m	C - 1.8 - 6	4.2m	C - 1.8 - 6	4.2m
501 to 600	0.5	C - 2.25 - 7	5.0m	C - 2 - 6.5	4.6m	C - 1.5 - 5	3.5m	C - 1.5 - 5	3.5m

Ambient Light (Lux)	Corr. Factor	High Intensity C - 4.5 - 14.0		Medium Intensity C - 4.0 - 13.0		Low Intensity C - 3.0 - 10.0		Standard C - 3.0 - 10.0	
		Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
301 to 400	0.8	C - 3.6 - 11.2	7.9m	C - 3.2 - 10.4	7.4m	C - 2.4 - 8	5.7m	C - 2.4 - 8	5.7m

Step 5 All options meet 2.4m

Step 4 VADs could be set to Low Intensity

Solution: 1 x S-Quad Sensor Sounder VAD at Low Intensity (1% loop Loading)



PART NUMBERS	
S4-711-VAD-HPR	O^2H Sensor – Red VAD
S4-711-V-VAD-HPR	O^2H Voice Sensor Sounder – Red VAD
S4-911-V-VAD-HPR	O^2HCO Voice Sensor Sounder – Red VAD
S4-720-V-VAD-HPR	HEAT Voice Sensor Sounder – Red VAD

S-Quad VAD Design Example

Hotel – Corridor

Gather the details of the room using the five steps in order to select the best VAD solution from the Look Up Table on the right.

Step 1 Colour of VAD

WHITE

Step 2 Line of sight

DIRECT

Step 3 Ambient light

280 LUX

Step 4 Sensor spacing

DETAILS OF THE ROOM

A Corridor 15m x 1.5m wide with automatic smoke sensor

Require 2 sensors for smoke detection at 15m apart

Step 5 Ceiling height

2.5m

Select the best VAD

Step 1

Step 2

Direct Line of Sight

Step 3

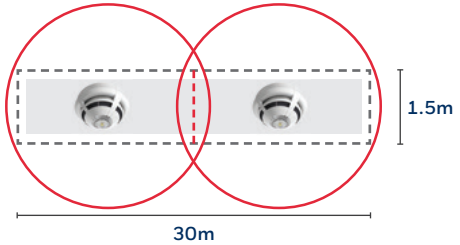
WHITE		High Performance						Standard	
Ambient Light (Lux)	Corr. Factor	High Intensity C - 6.0 - 16.0		Medium Intensity C - 5.0 - 14.0		Low Intensity C - 4.0 - 10.8		Standard C - 3.0 - 10.0	
		Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
< 100	2.8	C - 16.8 - 44.8	31.7m	C - 14 - 39.2	27.7m	C - 11.2 - 30.24	21.4m	C - 8.4 - 28	19.8m
101 to 200	2.4	C - 14.4 - 38.4	27.2m	C - 12 - 33.6	23.8m	C - 9.6 - 25.92	18.3m	C - 7.2 - 24	17.0m
201 to 300	1.9	C - 11.4 - 30.4	21.5m	C - 9.5 - 26.6	18.8m	C - 7.6 - 20.52	14.5m	C - 5.7 - 19	13.4m
301 to 400	1.4	C - 8.4 - 22.4	15.8m	C - 7 - 19.6	13.9m	C - 5.6 - 15.12	10.7m	C - 4.2 - 14	9.9m
401 to 500	1.1	C - 6.6 - 17.6	12.4m	C - 5.5 - 15.4	10.9m	C - 4.4 - 11.88	8.4m	C - 3.3 - 11	7.8m
501 to 600	0.9	C - 5.4 - 14.4	10.2m	C - 4.5 - 12.6	8.9m	C - 3.6 - 9.72	6.9m	C - 2.7 - 9	6.4m
601 to 700	0.7								

Ambient Light (Lux)	Corr. Factor	High Intensity C - 6.0 - 16.0		Medium Intensity C - 5.0 - 14.0		Low Intensity C - 4.0 - 10.8		Standard C - 3.0 - 10.0	
		Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
201 to 300	1.9	C - 11.4 - 30.4	21.5m	C - 9.5 - 26.6	18.8m	C - 7.6 - 20.52	14.5m	C - 5.7 - 19	13.4m

Step 5 All options meet 2.4m

Step 4 VADs could be set to Low Intensity

Solution: 2 x S-Quad Sensor Sounder VADs at Medium Intensity (5% loop Loading)



PART NUMBERS	
S4-711-VAD-HPW	O^2H Sensor – White VAD
S4-711-V-VAD-HPW	O^2H Voice Sensor Sounder – White VAD
S4-911-V-VAD-HPW	O^2HCO Voice Sensor Sounder – White VAD
S4-720-V-VAD-HPW	HEAT Voice Sensor Sounder – White VAD

S-Cubed VAD Design Example

Theatre / Lecture Hall

Step 1 Colour of VAD
RED This is defined by the strategy for the whole building

Step 2 Line of sight
DIRECT Check the position of sounders - are they directly visible for everyone

Step 3 Ambient light
Assess the ambient light levels in the room

Step 4 Sensor spacing
CONFIRM THE DISTANCE BETWEEN SOUNDERS AND MAXIMUM DISTANCE FOR TRANSMISSION OF LIGHT AND SOUND

Room Dimensions

20m(L) x 8m(W) x 8m(H)

Step 5 Ceiling height
4.5m

Select the best VAD

Step 1 — Wall — Direct Line of Sight — Step 2

RED

Ambient Light (Lux)	High Intensity W - 6.7 - 14.0		Medium Intensity W - 6.5 - 12.5		Low Intensity W - 5.0 - 9.5		Standard W - 3.0 - 8.5	
	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
< 100	3.4m	7.2m	3.3m	6.5m	2.6m	4.9m	1.5m	3.2m
101 to 200	2.9m	6.1m	2.8m	5.5m	2.2m	4.1m	1.3m	2.7m
201 to 300	2.4m	5.1m	2.3m	4.6m	1.8m	3.4m	1.0m	2.2m
301 to 400	1.5m	3.2m	1.5m	2.8m	1.1m	2.1m	0.6m	1.3m
401 to 500	1.2m	2.5m	1.1m	2.2m	0.9m	1.7m	0.5m	1.0m

Step 3

Step 4 VADs may be set to Medium Intensity

Step 5 All options meet 4.5m

Solution: 1 x S-Cubed Sounder VAD at Medium Intensity

Coverage of VAD

Note - attention needs to be paid to sound levels and additional sounders may be needed.

WALL OR CEILING?	
	
Auditorium style seating = direct view for wall mounted VADs	8m Ceiling Height = too high for VADs

PART NUMBERS	
S3-V-VAD-HPR-R	S3 Voice Sndr/ HP Red VAD/ Red body
S3-VAD-HPR-R	S3 High Performance Red VAD/Red body
S3-S-VAD-HPR-W	S3 Sndr/High Perf Red VAD/ White body
S3-S-VAD-HPR-R	S3 Sndr/High Perf Red VAD/ Red body

Lighting Levels Guidance

The CIBSE (Chartered Institute of Building Services Engineers) produces a Code for Interior Lighting which gives lighting requirements for areas. This is also replicated in BS EN 12464-1:2011 Light and lighting – Lighting of work places – Part 1: Indoor work places.

Extracts from CIBSE Code for Lighting Part 2 (2011)

Educational

AREA	ILLUMINANCE (LUX)	LIMITING GLARE RATING	MIN. COLOUR RENDERING (R_a)
Classrooms	300	19	80
Technical drawing room	750	16	80
Computer practice rooms	300	19	80

Healthcare – Wards

AREA	ILLUMINANCE (LUX)	LIMITING GLARE RATING	MIN. COLOUR RENDERING (R_a)
General lighting	100	19	80
Reading lighting	300	19	80
Simple examinations	300	19	80
Examination and treatment	1000	19	80

Hotels and Restaurants

AREA	ILLUMINANCE (LUX)	LIMITING GLARE RATING	MIN. COLOUR RENDERING (R_a)
Kitchen	500	22	80
Restaurant, dining room, function room	-	-	80
Self service restaurant	200	22	80
Conference rooms	500	19	80

Offices

AREA	ILLUMINANCE (LUX)	LIMITING GLARE RATING	MIN. COLOUR RENDERING (R_a)
Filing, copying etc.	300	19	80
Writing, typing, reading, data processing	500	19	80
Technical drawing	750	16	80
CAD work stations	500	19	80
Conference and meeting rooms	500	19	80
Reception desk	300	22	80
Archives	200	25	80

Residential – Flats /Bedsits

AREA	ILLUMINANCE (LUX)	LIMITING GLARE RATING	MIN. COLOUR RENDERING (R_a)
Lounge	100 - 300	19	80
Kitchens	150 - 300	-	80
Bathrooms	150	-	80
Toilets	100	-	80

Retail Premises

AREA	ILLUMINANCE (LUX)	LIMITING GLARE RATING	MIN. COLOUR RENDERING (R_a)
Sales area	300	22	80
Till area	500	19	80
Wrapper table	500	19	80

Theatres, Concert Halls and Cinemas

AREA	ILLUMINANCE (LUX)	LIMITING GLARE RATING	MIN. COLOUR RENDERING (R_a)
Practice rooms, dressing rooms	300	22	80
Foyers	200	-	-
Auditoria	100	-	-

S-Quad VAD Look Up Tables

The S-Quad VAD Look Up Tables demonstrate the coverage of the S-Quad VADs and their coverage at different light levels.

Indirect Line of Sight

RED		High Performance						Standard	
Ambient Light (Lux)	Corr. Factor	High Intensity C - 4.5 - 14.0		Medium Intensity C - 4.0 - 13.0		Low Intensity C - 3.0 - 10.0		Standard C - 3.0 - 10.0	
< 100	1.3	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 5.85 - 18.2	12.9m	C - 5.2 - 16.9	12.0m	C - 3.9 - 13	9.2m	C - 3.9 - 13	9.2m
101 to 200	1.2	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 5.4 - 16.8	11.9m	C - 4.8 - 15.6	11.0m	C - 3.6 - 12	8.5m	C - 3.6 - 12	8.5m
201 to 300	1	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 4.5 - 14	9.9m	C - 4 - 13	9.2m	C - 3 - 10	7.1m	C - 3 - 10	7.1m
301 to 400	0.8	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 3.6 - 11.2	7.9m	C - 3.2 - 10.4	7.4m	C - 2.4 - 8	5.7m	C - 2.4 - 8	5.7m
401 to 500	0.6	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 2.7 - 8.4	5.9m	C - 2.4 - 7.8	5.5m	C - 1.8 - 6	4.2m	C - 1.8 - 6	4.2m
501 to 600	0.5	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 2.25 - 7	5.0m	C - 2 - 6.5	4.6m	C - 1.5 - 5	3.5m	C - 1.5 - 5	3.5m
601 to 700	0.4	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 1.8 - 5.6	4.0m	C - 1.6 - 5.2	3.7m	C - 1.2 - 4	2.8m	C - 1.2 - 4	2.8m
701 to 800	0.3	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 1.35 - 4.2	3.0m	C - 1.2 - 3.9	2.8m	C - 0.9 - 3	2.1m	C - 0.9 - 3	2.1m

Direct Line of Sight

RED		High Performance						Standard	
Ambient Light (Lux)	Corr. Factor	High Intensity C - 4.5 - 14.0		Medium Intensity C - 4.0 - 13.0		Low Intensity C - 3.0 - 10.0		Standard C - 3.0 - 10.0	
< 100	2.8	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 12.6 - 39.2	27.7m	C - 11.2 - 36.4	25.7m	C - 8.4 - 28	19.8m	C - 8.4 - 28	19.8m
101 to 200	2.4	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 10.8 - 33.6	23.8m	C - 9.6 - 31.2	22.1m	C - 7.2 - 24	17.0m	C - 7.2 - 24	17.0m
201 to 300	1.9	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 8.55 - 26.6	18.8m	C - 7.6 - 24.7	17.5m	C - 5.7 - 19	13.4m	C - 5.7 - 19	13.4m
301 to 400	1.4	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 6.3 - 19.6	13.9m	C - 5.6 - 18.2	12.9m	C - 4.2 - 14	9.9m	C - 4.2 - 14	9.9m
401 to 500	1.1	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 4.95 - 15.4	10.9m	C - 4.4 - 14.3	10.1m	C - 3.3 - 11	7.8m	C - 3.3 - 11	7.8m
501 to 600	0.9	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 4.05 - 12.6	8.9m	C - 3.6 - 11.7	8.3m	C - 2.7 - 9	6.4m	C - 2.7 - 9	6.4m
601 to 700	0.7	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 3.15 - 9.8	6.9m	C - 2.8 - 9.1	6.4m	C - 2.1 - 7	5.0m	C - 2.1 - 7	5.0m
701 to 800	0.5	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 2.25 - 7	5.0m	C - 2 - 6.5	4.6m	C - 1.5 - 5	3.5m	C - 1.5 - 5	3.5m

Indirect Line of Sight

WHITE		High Performance						Standard	
Ambient Light (Lux)	Corr. Factor	High Intensity C - 6.0 - 16.0		Medium Intensity C - 5.0 - 14.0		Low Intensity C - 4.0 - 10.8		Standard C - 3.0 - 10.0	
< 100	1.3	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 7.8 - 20.8	14.7m	C - 6.5 - 18.2	12.9m	C - 5.2 - 14.04	9.9m	C - 3.9 - 13	9.2m
101 to 200	1.2	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 7.2 - 19.2	13.6m	C - 6 - 16.8	11.9m	C - 4.8 - 12.96	9.2m	C - 3.6 - 12	8.5m
201 to 300	1	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 6 - 16	11.3m	C - 5 - 14	9.9m	C - 4 - 10.8	7.6m	C - 3 - 10	7.1m
301 to 400	0.8	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 4.8 - 12.8	9.1m	C - 4 - 11.2	7.9m	C - 3.2 - 8.64	6.1m	C - 2.4 - 8	5.7m
401 to 500	0.6	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 3.6 - 9.6	6.8m	C - 3 - 8.4	5.9m	C - 2.4 - 6.48	4.6m	C - 1.8 - 6	4.2m
501 to 600	0.5	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 3 - 8	5.7m	C - 2.5 - 7	5.0m	C - 2 - 5.4	3.8m	C - 1.5 - 5	3.5m
601 to 700	0.4	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 2.4 - 6.4	4.5m	C - 2 - 5.6	4.0m	C - 1.6 - 4.32	3.1m	C - 1.2 - 4	2.8m
701 to 800	0.3	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 1.8 - 4.8	3.4m	C - 1.5 - 4.2	3.0m	C - 1.2 - 3.24	2.3m	C - 0.9 - 3	2.1m

Direct Line of Sight

WHITE		High Performance						Standard	
Ambient Light (Lux)	Corr. Factor	High Intensity C - 6.0 - 16.0		Medium Intensity C - 5.0 - 14.0		Low Intensity C - 4.0 - 10.8		Standard C - 3.0 - 10.0	
< 100	2.8	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 16.8 - 44.8	31.7m	C - 14 - 39.2	27.7m	C - 11.2 - 30.24	21.4m	C - 8.4 - 28	19.8m
101 to 200	2.4	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 14.4 - 38.4	27.2m	C - 12 - 33.6	23.8m	C - 9.6 - 25.92	18.3m	C - 7.2 - 24	17.0m
201 to 300	1.9	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 11.4 - 30.4	21.5m	C - 9.5 - 26.6	18.8m	C - 7.6 - 20.52	14.5m	C - 5.7 - 19	13.4m
301 to 400	1.4	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 8.4 - 22.4	15.8m	C - 7 - 19.6	13.9m	C - 5.6 - 15.12	10.7m	C - 4.2 - 14	9.9m
401 to 500	1.1	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 6.6 - 17.6	12.4m	C - 5.5 - 15.4	10.9m	C - 4.4 - 11.88	8.4m	C - 3.3 - 11	7.8m
501 to 600	0.9	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 5.4 - 14.4	10.2m	C - 4.5 - 12.6	8.9m	C - 3.6 - 9.72	6.9m	C - 2.7 - 9	6.4m
601 to 700	0.7	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 4.2 - 11.2	7.9m	C - 3.5 - 9.8	6.9m	C - 2.8 - 7.56	5.3m	C - 2.1 - 7	5.0m
701 to 800	0.5	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing	Corr. Rating	Spacing
		C - 3 - 8	5.7m	C - 2.5 - 7	5.0m	C - 2 - 5.4	3.8m	C - 1.5 - 5	3.5m

S-Cubed VAD Look Up Tables

The S-Cubed VAD Look Up Tables demonstrate the coverage of the S-Cubed VADs and their coverage at different light levels.

Wall — Indirect Line of Sight

RED

Ambient Light (Lux)	High Intensity W - 6.7 - 14.0		Medium Intensity W - 6.5 - 12.5		Low Intensity W - 5.0 - 9.5		Standard W - 3.0 - 8.5	
	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
< 100	12.1m	25.2m	11.7m	22.5m	9.0m	17.1m	5.4m	15.3m
101 to 200	11.4m	23.8m	11.1m	21.3m	8.5m	16.2m	5.1m	14.5m
201 to 300	9.4m	19.6m	9.1m	17.5m	7.0m	13.3m	4.2m	11.9m
301 to 400	8.0m	16.8m	7.8m	15.0m	6.0m	11.4m	3.6m	10.2m
401 to 500	6.7m	14.0m	6.5m	12.5m	5.0m	9.5m	3.0m	8.5m
501 to 600	6.0m	12.6m	5.9m	11.3m	4.5m	8.6m	2.7m	7.7m
601 to 700	4.7m	9.8m	4.6m	8.8m	3.5m	6.7m	2.1m	6.0m
701 to 800	4.0m	8.4m	3.9m	7.5m	3.0m	5.7m	1.8m	5.1m

Wall — Indirect Line of Sight

WHITE

Ambient Light (Lux)	High Intensity W - 5.0 - 12.5		Medium Intensity W - 4.5 - 11.3		Low Intensity W - 3.0 - 8.5		Standard W - 3.0 - 8.5	
	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
< 100	7.8m	14.7m	8.1m	20.3m	5.4m	15.3m	5.4m	15.3m
101 to 200	8.5m	21.3m	7.7m	19.2m	5.1m	14.5m	5.1m	14.5m
201 to 300	7.0m	17.5m	6.3m	15.8m	4.2m	11.9m	4.2m	11.9m
301 to 400	6.0m	15.0m	5.4m	13.6m	3.6m	10.2m	3.6m	10.2m
401 to 500	5.0m	12.5m	4.5m	11.3m	3.0m	8.5m	3.0m	8.5m
501 to 600	4.5m	11.3m	4.1m	10.2m	2.7m	7.7m	2.7m	7.7m
601 to 700	3.5m	8.8m	3.2m	7.9m	2.1m	6.0m	2.1m	6.0m
701 to 800	3.0m	7.5m	2.7m	6.8m	1.8m	5.1m	1.8m	5.1m

S-Cubed VAD Look Up Tables

The S-Cubed VAD Look Up Tables demonstrate the coverage of the S-Cubed VADs and their coverage at different light levels.

Wall — Direct Line of Sight

RED

Ambient Light (Lux)	High Intensity W - 6.7 - 14.0		Medium Intensity W - 6.5 - 12.5		Low Intensity W - 5.0 - 9.5		Standard W - 3.0 - 8.5	
< 100	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
	34.8m	72.8m	33.8m	65.0m	26.0m	49.4m	15.6m	44.2m
101 to 200	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
	29.5m	61.6m	28.6m	55.0m	22.0m	41.8m	13.2m	37.4m
201 to 300	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
	21.4m	44.8m	20.8m	40.0m	16.0m	30.4m	9.6m	27.2m
301 to 400	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
	15.4m	32.2m	15.0m	28.8m	11.5m	21.9m	6.9m	19.6m
401 to 500	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
	12.1m	25.2m	11.7m	22.5m	9.0m	17.1m	5.4m	15.3m
501 to 600	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
	8.7m	18.2m	8.5m	16.3m	6.5m	12.4m	3.9m	11.1m
601 to 700	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
	6.7m	14.0m	6.5m	12.5m	5.0m	9.5m	3.0m	8.5m
701 to 800	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
	4.7m	9.8m	4.6m	8.8m	3.5m	6.7m	2.1m	6.0m

Wall — Direct Line of Sight

WHITE

Ambient Light (Lux)	High Intensity W - 5.0 - 12.5		Medium Intensity W - 4.5 - 11.3		Low Intensity W - 3.0 - 8.5		Standard W - 3.0 - 8.5	
< 100	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
	26.0m	65.0m	23.4m	58.8m	15.6m	44.2m	15.6m	44.2m
101 to 200	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
	22.0m	55.0m	19.8m	49.7m	13.2m	37.4m	13.2m	37.4m
201 to 300	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
	16.0m	40.0m	14.4m	36.2m	9.6m	27.2m	9.6m	27.2m
301 to 400	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
	11.5m	28.8m	10.4m	26.0m	6.9m	19.6m	6.9m	19.6m
401 to 500	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
	9.0m	22.5m	8.1m	20.3m	5.4m	15.3m	5.4m	15.3m
501 to 600	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
	6.5m	16.3m	5.9m	14.7m	3.9m	11.1m	3.9m	11.1m
601 to 700	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
	5.0m	12.5m	4.5m	11.3m	3.0m	8.5m	3.0m	8.5m
701 to 800	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing	Mount Height	Max Spacing
	3.0m	7.5m	3.2m	7.9m	2.1m	6.0m	2.1m	6.0m

VAD Order Codes

S-QUAD VADS			
	HIGH INTENSITY		
Configurable Intensity Setting	Sensor with VADs	S4-711-VAD-HPW	S-Quad Dual Optical Heat Sensor High Power White VAD
		S4-711-VAD-HPR	S-Quad Dual Optical Heat Sensor High Power Red VAD
	Sensor sounder VAD	S4-711-V-VAD-HPW	S-Quad Dual Optical Heat Sensor Voice Sounder High Power White VAD
		S4-711-V-VAD-HPR S4BK-711-V-VAD-HPR	S-Quad Dual Optical Heat Sensor Voice Sounder High Power Red VAD O^2H Voice Sensor Sounder – Red VAD (Black Body)
		S4-911-V-VAD-HPW	S-Quad CO Dual Optical Heat Sensor Voice Sounder High Power White VAD
		S4-911-V-VAD-HPR	S-Quad CO Dual Optical Heat Sensor Voice Sounder High Power Red VAD
	LOW INTENSITY		
Fixed Intensity setting	Sensor sounder VAD	S4-711-V-VAD-LPW	S-Quad Dual Optical Heat Sensor Voice Sounder Standard Power White VAD
		S4-711-V-VAD-LPR	S-Quad Dual Optical Heat Sensor Voice Sounder Standard Power Red VAD
S-CUBED VADS			
	HIGH INTENSITY		
Configurable Intensity Setting	VAD	S3-VAD-HPW-R	S-Cubed White VAD Red Body
		S3-VAD-HPR-R	S-Cubed Red VAD Red Body
	Sounder VAD	S3-S-VAD-HPW-R	S-Cubed Sounder with White VAD Red Body
		S3-S-VAD-HPW-W	S-Cubed Sounder White with White VAD White Body
		S3-S-VAD-HPR-W	S-Cubed Sounder with Red VAD White Body
		S3-S-VAD-HPR-R	S-Cubed Sounder with Red VAD Red Body
	Voice Sounder and VAD	S3-V-VAD-HPW-R	S-Cubed Voice Sounder with White VAD Red Body
		S3-V-VAD-HPR-R	S-Cubed Voice Sounder with Red VAD Red Body
	LOW INTENSITY		
Fixed Intensity setting	Sounder VAD	S3-S-VAD-LPW-R	S-Cubed Sounder with White VAD (Standard Performance) Red Body
		S3-S-VAD-LPR-R	S-Cubed Sounder with Red VAD (Standard Performance) Red Body

A Summary of recommendations for BS EN 54-23 System Design and Installation

When designing systems with BS EN 54-23 compliant VADs, we recommend that you consider the following questions prior to installing:

- Are the VADs to be wall or ceiling mounted?
- What is the level of ambient light?
- Will the occupants mainly be facing the direction of the VAD, or are they more likely to be reliant on reflected light during an alarm?
- Are there any obstructions blocking the field of view that could potentially affect the VAD coverage?
- Are enough VADs installed and positioned to meet the specification of local, regional or national regulations?

For comprehensive guidance on designing systems using VAD please refer to CoP0001, a publication jointly prepared by the LPCB and the Fire Industry Association (FIA).

For more information

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Find out more about Honeywell Gent VADs

Available on the App Store

Download the Honeywell Gent VAD Tool

Content subject to change without notice.

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