

EN54-23 - An Introduction



Visual Alarm Devices (VADs) are an essential component to most fire alarm systems. They provide a visual indication of an alarm condition to those people who wouldn't normally be alerted to a fire by standard audible-only devices such as sounders and bells.

The Disability Discrimination Act of 1995 made the inclusion of VADs mandatory in all public buildings, specifically in areas where people with impaired hearing work in isolation. But VADs are also required in noisy environments where staff might be wearing ear defenders such as factories, foundries etc.

A new product standard, BS EN 54-23:2010 (Fire detection and fire alarms systems. Part 23: Fire alarm devices - Visual alarm devices), has been introduced primarily to standardise the requirements, test methods and performance of VADs and ensure their light output is measured in a uniform manner. This standard will be mandatory throughout Europe from 31st December 2013 and all manufactures of VADs will be affected.

Hochiki's range of VADS which will be fully EN54-23 compliant will be available Q1 2014.

Calculating Coverage Volume

The needs for VADs will be identified as part of the risk assessment. As with other fire alarm system components, there are a number of challenges that must be considered in the layout design and installation of VADs.

One challenge is the illumination of the entire volume of the open space where the alarm must be visible. VADs must produce sufficiently intense light, so that an individual located anywhere in the space, looking either towards or away from the VAD, would be alerted in the event of an emergency.

The performance of VADs under the new standard is now assessed against a minimum required illumination of 0.4 lux on surfaces perpendicular to the direction of the light emitted from the device.

VADs will now be classified into three categories based on their application:

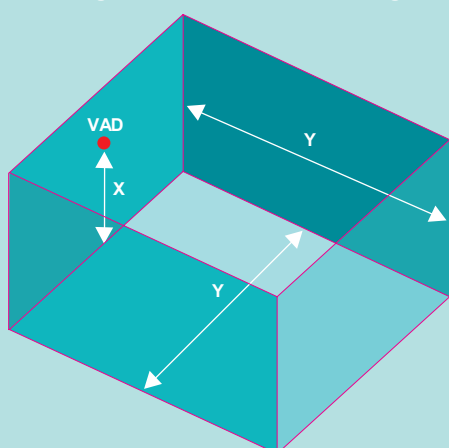
- W - Wall-mounted
- C - Ceiling-mounted
- O - Open Category

W and C mounting categories are specified at specific installation heights and particular patterns of coverage - see below for more information. Within these two categories, the shape of the volume covered is fixed by the standard. The dimensions of this coverage volume are specified by the manufacturer. For all categories, the volume covered can be used to determine VAD spacing within the building.

W Category (Wall-mounted) Coverage Volume

Wall mounted VADs cover a cuboid volume with a square floor area. The coverage volume is presented as a code in the form of W - X - Y, where W = Wall-mounted category. X is the maximum mounting height (m) and Y is the width and length (m) of the coverage floor area - see diagram. The minimum mounting height allowable by the standard is 2.4m.

For example Hochiki's wall-mounting VAD has a classification of W-2.4-5. This means it should be mounted at 2.4m from the floor and will cover an area of up to 5m by 5m

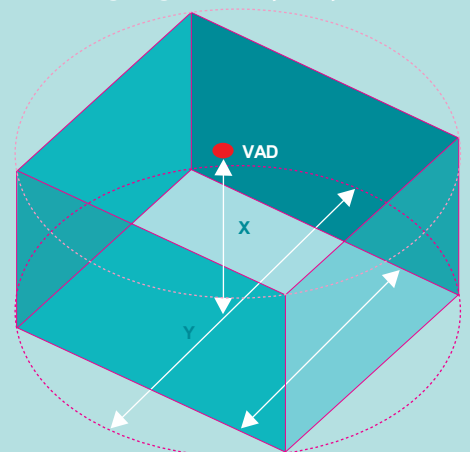


C Category (Ceiling-Mounted) Coverage Volume

Ceiling-mounted VADs cover a cylindrical area. The coverage volume is presented as a code in the form C - X - Y, where C = Ceiling-mounted category. X is the maximum mounting height (m) and Y is the diameter (m) of the coverage volume's floor area - see diagram. The maximum mounting height can only be specified as 3, 6 or 9m.

For example Hochiki's ceiling-mounting VAD has a classification of C-3-15. This means it can be mounted up to 3m from the floor and will cover a cylindrical area of 15m diameter.

The width of the room is $Y/1.414$



CHQ-CB

An Addressable Loop-Powered Beacon, with a high intensity LED and a custom designed free-form optic which produces a highly visible flash. Coverage diameters include 5m, 7.5m, 10m and 15m diameter*. The unit is designed to fit the YBN-R/3, YBN-R/3(SCI), YBO-BS or the YBO-R/(SCI), and is available in Red or White LEDs.

- Loop Powered
- Single loop address via TCH-B100
- High Intensity LED technology
- 0.5/1 Hz flash frequency
- Addressable via TCH-B100
- Choice of 2 LED colours (red and white)
- Approved to EN54-23:2010 - Category 'C'
- High efficiency
- Selectable light output
- Operating voltage 17-41 vdc

Product Model Information			
Type	Base Models	LED Colour	Product Colour
Ceiling Beacons	CHQ-CB/WL	White	Ivory
	CHQ-CB(WHT)/WL	White	White
	CHQ-CB(RED)/WL	White	Red
	CHQ-CB/WL-15	White	Ivory
	CHQ-CB(WHT)/WL-15	White	White
	CHQ-CB(RED)/WL-15	White	Red
	CHQ-CB/RL	Red	Ivory
	CHQ-CB(WHT)/RL	Red	White
	CHQ-CB(RED)/RL	Red	Red

*0.5Hz flash frequency white LED

YBO-BSB2

An Addressable Loop-Powered Base Sounder Beacon, providing 13 volume levels and 51 tones with a maximum output of up to 98 dB(A) (± 2 dB(A)) with low current consumption. The unit is designed to fit either the YBN-R/3, YBO-R/SCI Bases.

- Loop Powered
- Single Loop Address, addressed by either Control Panel or TCH-B100
- 50 ~ 98 dB(A) (± 2 dB(A)) output at 1m
- Fits Hochiki Standard or Isolator Bases and supports ESP Sensors and Remote Indicator
- 51 User-Selectable Tones (all tones EN54-3 compatible)
- Beacon and Sounder can be controlled independently**
- Approved to EN54-23: 2010 - Category 'O'
- Operating voltage 17-41 vdc

Base Sounder Beacons	YBO-BSB2/WL	White	Ivory
	YBO-BSB2(WHT)/WL	White	White
	YBO-BSB/RL	Red	Ivory
	YBO-BSB2(WHT)/RL	Red	White

**Panel compatibility dependent

CHQ-WSB2

An Addressable Loop-Powered Wall Sounder Beacon, as per the CHQ-WS2 but additionally featuring an integral beacon within the horn which utilises high intensity LED technology. Special bases available: YBO-R/3(RED), YBO-R/SCI(RED), YBO-R/3(WHT) and YBO-R/SCI(WHT-SNDR).

- As per CHQ-WS2 plus:
- Variable flash frequency
 - High Intensity LED technology
 - Independent control of Sounder and Beacon
 - Auto-shutdown Mode available - can be set independently for sounder or beacon**
 - Approved to EN54-23: 2010 - Category 'O'
 - Operating voltage 17-41 vdc

Wall Sounder Beacons	CHQ-WSB2/WL	White	Red
	CHQ-WSB2(WHT)/WL	White	White
	CHQ-WSB2/RL	Red	Red
	CHQ-WSB2(WHT)/RL	Red	White

**Panel compatibility dependent

