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evolution

EVC-H CONVENTIONAL HEAT DETECTOR
INSTRUCTION MANUAL

CE

BFPSA
British Fire Protection Systems Association

LPCB LOSS PREVENTION CERTIFICATION BOARD
UKAS QUALITY MANAGEMENT 007

Quality System Certificate No. 041
Assessed to BS EN ISO 9001:2002

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*The **EVC-H** Heat Detector forms part of a brand new range of fire detectors from Nittan (UK) Ltd called* **evolution.**

*The **EVC-H** is an elegantly designed, low profile detector which is aesthetically pleasing, thus enabling it to blend unobtrusively into modern working environments.*

*The **EVC-H** is compatible with other existing conventional fire detection systems.*

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Section 1 - INTRODUCTION

The EVC-H is an attractively styled, fast response, low profile heat detector.

It has been designed to replace any previous Nittan heat detector.

EVC-H features:

****Low profile, stylish appearance***

****Different response grades available***

****Non-polarised terminals***

****Unauthorised head removal signal facility***

**** Low monitoring current***

**** Patented OMNIVIEW™ 360° LED alarm indicator***

**** Remote indicator output***

**** Compatible with STB-4, STB-4SD and STB-4SE bases***

Section 2 - OPERATION

The EVC-H range of heat detectors are non mechanical and use a thermistor of low thermal mass as the sensing element giving a fast response. Although these detectors operate on a fixed temperature threshold only, their fast response makes them generally suitable for use where rate-of-rise detectors would be used.

Fig. 1. Block Diagram of **EVC-H** Detector Circuit

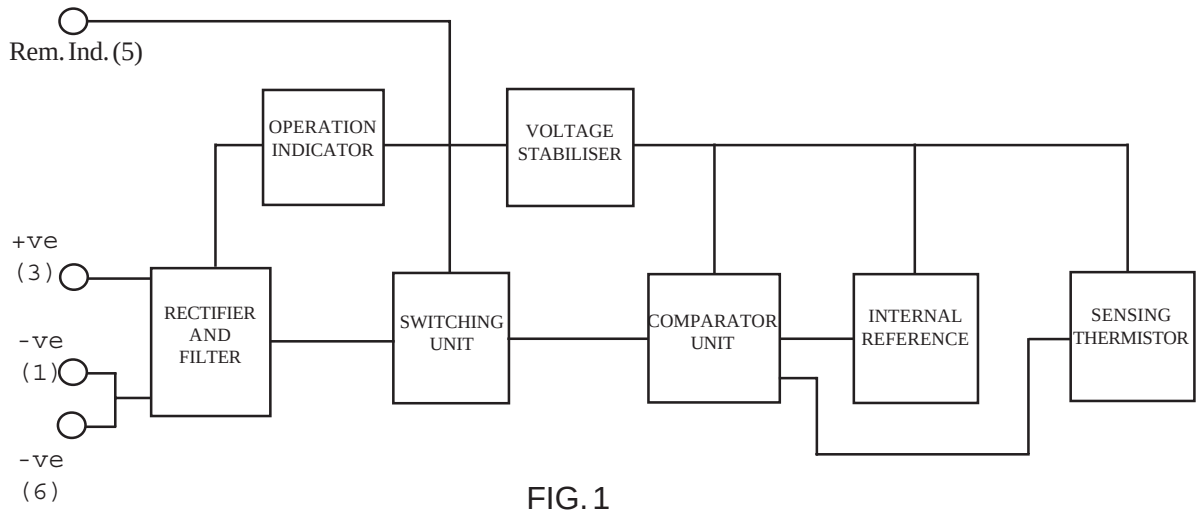


FIG. 1

Section 3 - DETECTOR MODELS:

The EVC-H range of heat detectors are currently available in two versions. Others can be made available upon demand

i) *EVC-H-A2*

ii) *EVC-H-C*

These versions have three terminals for connection onto the two wire zone circuit. The remaining terminal (5) provides a switched current sink function which operates when the detector goes into alarm condition, suitable for the operation of auxiliary function such as a remote indicator.

Section 4 - BASE MODELS

A variety of bases are available for use with the EVC-H detectors. It is important to use the correct base for each application. The available base models are:

i) STB-4 base: *for standard use with EVC-H series heat detector when auxiliary output not used.*

ii) STB-4SD base: *This is identical to the standard STB-4 base, but also includes a schottky diode for head removal fault monitoring. The schottky diode is used in some fire systems to ensure power is maintained, in the event of an unauthorised detector head removal, to other detectors further on the zone.*

iii) STB-4SE base: *Similar to STB-4 base, except deeper.*

iv) STB-4SE-24VR base: *Relay contact base.*

Section 5 - INSTALLATION

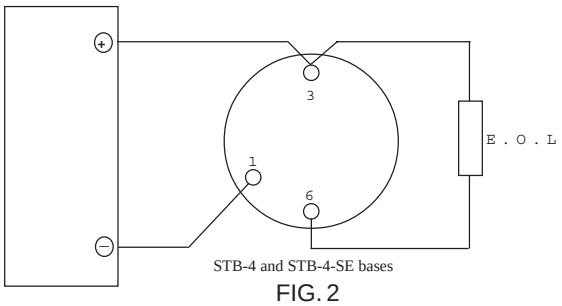
In normal use, the EVC-H detector will be installed at ceiling level. Pass field wiring through cable hole in centre of base from rear of base. Offer up and affix base to the ceiling or conduit fitting with screws via the base mounting holes. Connect field wiring to base terminals as detailed in below section 'Connections', making sure that wiring will not obstruct fitting of detector head. Fit detector head by inserting into base and turning clockwise until notch in detector rim aligns with base locking screw. The OMNIVIEW™ indicator permits visibility from any angle.

Fit the plastic dust cover supplied over the sensor to keep out dust etc, until the system is commissioned. If the dust cover is not fitted and the environment is slightly dusty, such as when building work is being completed, for example, problems of false alarms are likely to occur after commissioning unless cleaning of the sensor is undertaken. At commissioning, the dust cover should be removed and discarded.

NOTE: THE PLASTIC DUST COVER MUST BE REMOVED FROM THE SENSOR IN ORDER FOR THE SENSOR TO FUNCTION CORRECTLY.

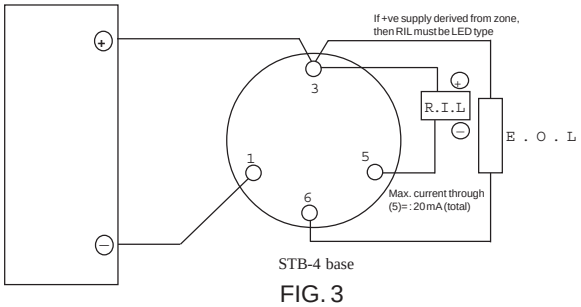
Section 6 - CONNECTIONS

Connections are made to the detector base. The connections used depend on the type of base and the functions required. See Section 4 'Base Models', to identify the required type of base and functions supported. See below Figures 2, 3 & 4 for wiring to the detector's base:-



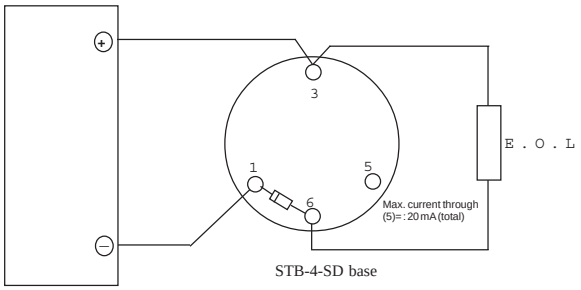
STB-4 and STB-4-SE bases

FIG. 2



STB-4 base

FIG. 3



STB-4-SD base

FIG. 4

Section 7 - MAINTENANCE AND CLEANING

Maintenance:

The EVC-H detector is a high quality product engineered for reliability. In order to obtain optimum performance, periodic maintenance is required. If proper preventative maintenance is not carried out, there is a likelihood of malfunction, including false alarms.

Servicing:

Servicing of the system should be carried out in accordance with the requirements of BS 5839 Part 1, Fire Detection and Alarm Systems for Buildings: Code of Practice for System Design, Installation and Servicing.

The maintenance procedures described below, should be conducted with the following frequency:

One month after installation:	*Routine Inspection and every 3 months thereafter.*
Every 6 months:	*Operational Test.*
Every 12 months:	*Functional Test and Cleaning.*

All above frequencies of maintenance are dependent on ambient conditions.

Routine Inspection:

i) *Ensure that the detector head is secure and undamaged.*

ii) *Check that the heat entry apertures are in no way obstructed.*

iii) *Ensure that the surface of the detector's outer cover is clean. If there are deposits due to the presence of oil vapour, dust etc, then the detector should be cleaned in accordance with the cleaning instructions detailed later in this manual. It may be advisable to ensure that such cleaning is conducted regularly in future.*

iv) *Ensure that no equipment which may generate excessive heat has been installed in the vicinity of the detector since the last routine inspection. If such equipment has been installed, then you should notify the Safety Officer or other competent authority that its presence may cause false alarms.*

Operational Test

The purpose of the Operational Test is to confirm the detector's correct operation in response to a heat condition.

i) *Take any necessary precautions at the control panel to limit the sounding of the alarm sounders/bells and any fire service summoning device.*

ii) *Test the detector with heat from a warm air gun designed for heat detector testing (e.g. 'No Climb - Solo' heat sensor tester). Check that the detector gives an alarm condition within 10-20 seconds depending upon the detector grade and the applied air temperature. Check that the LED indicator on the detector illuminates.*

N.B. Hot air blowers sold for paint stripping, soldering pipes etc, generate sufficient heat to damage the detector and should not be used for testing heat detectors.

iii) *After the detector has given the alarm condition, reset the detector from the control. It may be necessary to allow some short time to elapse before resetting the detector, to allow any residual heat from the test to disperse.*

iv) *Before proceeding to the next detector, ensure that the detector just tested does not re-operate due to the presence of residual heat.*

Functional Test:

The Functional Test checks the detectors operation. These detectors may be returned to our factory for Functional Testing.

Cleaning:

Note: The sensor head should NOT be disassembled.

i) *Carefuly remove the heat detector from its base.*

ii) *Use a soft, lint-free cloth, moistened with alcohol for sticky deposits, to clean the plastic cover.*

iii) *Using a soft bristle brush (e.g. an artists paintbrush) carefully brush between the vanes and thermistor in a linear motion away from the apertures on the plastic case.*

iv) *Ensure that no debris is left on or around the thermistor once cleaning is complete.*

v) *If the unit needs further cleaning or is damaged or corroded, please return the complete detector to Nittan (UK) Ltd. for service.*

Section 8 - SPECIFICATIONS

Model References:	*EVC-H-A2, EVC-H-C*
Computer References:	*EVC-H-A2 - F04N82501* *EVC-H-C - F04N82503*
Sensing Element & Principle:	*Thermistor of low thermal mass.*
Supply Voltage:	*24V dc nominal (range 16 to 32V)*
Voltage Ripple:	*20% maximum*
Alarm Voltage:	*6V d.c. in series with 375R between +(terminal 3) and -(terminals 1,6) at 25°C*
Monitoring Current:	*30 µA maximum at 24Vd.c.*
Alarm Current:	*50 mA maximum at 25 deg. C*
Charging Time:	*20 seconds*
Ambient Temperature Range:	*EVC-H-A2 -10 °C to +55 °C* *EVC-H-C -10 °C to +80 °C*
IP Rating:	*41*

Section 9 - EMC

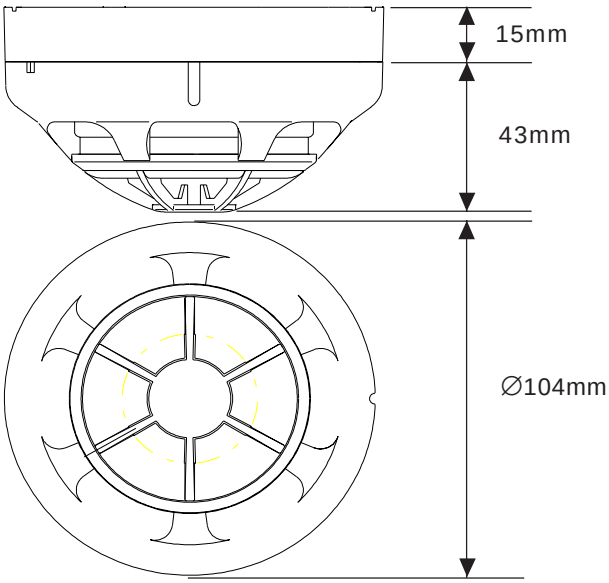
Installation

The installation shall be in accordance with the regulations either of the approval body for an approved system, or otherwise, to the national code of practice/ regulations for the installation of the fire alarm system, e.g. BS 5839 part 1.

Electromagnetic Compatibility (EMC)

On a site where there is an unusually high level of potential electrical interference, e.g. where heavy currents are being switched or where high levels of R.F. are prevalent, then care must be taken in the type and routing of cables. Particular care should be given to the separation of zone wiring from the cable carrying the interference.

Section 10 - DIMENSIONS



Section 11 - RESPONSE CHARACTERISTIC GRAPHS