

NITTAN



EV-PH

ANALOGUE ADDRESSABLE PHOTOELECTRIC SMOKE AND HEAT DETECTOR

instruction manual



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• evolution • EV-PH • Analogue Addressable Photoelectric Smoke and Heat Detector



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Assessed to BS EN ISO 9001

NITTAN

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The **EV-PH** analogue addressable smoke sensor forms part of a range of analogue addressable fire sensors from Nittan Europe Ltd. called evolution.

The **EV-PH** together with the **EV-P**, **EV-H**, **EV-DP** and **EV-DPH** are all elegantly designed, low profile fire sensors which are aesthetically pleasing, thus enabling them to blend unobtrusively into modern working environments.

The evolution analogue addressable range all feature the very latest technological advancements such as ASIC design, increasing reliability and performance.

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CONTENTS:

Section 1

Introduction	Page 3
--------------	--------

Section 2

Sensor Models	Page 3
---------------	--------

Section 3

Base Models	Page 3
-------------	--------

Section 4

Installation	Page 4
--------------	--------

Section 5

Maintenance & Cleaning	Page 4-6
------------------------	----------

Section 6

Specification	Page 7
---------------	--------

Section 7

Environmental Parameters	Page 7
--------------------------	--------

Section 8

EMC	Page 7
-----	--------

Section 9

Address Setting	Page 8
-----------------	--------

Section 10

Connections	Page 9
-------------	--------

Section 11

Dimensions	Page 9
------------	--------

Section 12

Heat Response Graph	Page 10
---------------------	---------

Section 12

Disposal	Page 11
----------	---------

Section 13

ROHS Compliance Statement	Page 11
---------------------------	---------

Section 1 - INTRODUCTION

The **EV-PH** is an attractively-styled, low profile photoelectric smoke and heat detector for use in conventional fire detection systems.

The **EV-PH** has a chemically etched, stainless steel insect screen therefore reducing the ingress of insects and airborne contaminants.

EV-PH features:

- Optical detector, detecting visible particles of combustion
- Heat sensor, detecting rate of rise of temperature
- Room temperature information can be taken separately
- Low profile, stylish appearance
- Supplied with protective dust cover (remove during commissioning)
- Non-polarised terminals
- EEPROM addressable (hand held programmer)
- Low monitoring current
- OMNIVIEW™ 360° LED fire alarm indicator
- Remote indicator output
- Compatible with UB-6-EV, EV-B-SCI and STB-4SE-EV bases

Section 2 - SENSOR MODELS

The **EV-PH** Photoelectric smoke and heat sensor has two Terminals 1 & 6 for connection onto the Addressable loop, +ve In/Out & -ve In/Out, respectively. Terminal 3 provides a switched current sink function which operates when the detector goes into Alarm (under CIE control). This is suitable for the operation of an auxiliary function such as a remote Indicator and is limited to 2mA. Terminal 2 provides an additional switched current sink auxiliary output, which can be used to activate a Relay Base.

Section 3 - BASE MODELS

A variety of bases are available for use with the **EV-PH** sensor. It is important to use the correct base for each application. The available base models are:

i) **UB-6-EV base:** For standard use with EV-PH sensor.

ii) **EV-B-SCI base:** Base with Integral Isolator (-ve).

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



Section 4 - INSTALLATION

In normal use, the **EV-PH** sensor will be installed at ceiling level. Pass the field wiring through the cable hole in the centre and from the rear of the base. Offer up and affix the base to the ceiling or conduit fitting with screws via the base mounting holes. Connect the field wiring to the base terminals, as detailed on page 9 making sure the wiring does not obstruct fitting of the detector head. Fit the sensor head by inserting it into the base and turning clockwise until the notch in the detector rim aligns with base locking screw. The OMNIVIEW™ 360° alarm indicator permits visibility from any angle.

Note: The address must be set before the sensor is fitted into place

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 5 - MAINTENANCE AND CLEANING

Maintenance:

The **EV-PH** sensor is a high quality product engineered for reliability. 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.

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

One month after installation:	Routine Inspection and every 3 months after.
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Every 6 months:	Operational Test.
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Every 12 months:	Functional Test and Clean.
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All above frequencies of maintenance are dependent on ambient conditions.

Routine Inspection

- i) Ensure the sensor head is secure and undamaged.
- ii) Check the smoke entry apertures are in no way obstructed.
- iii) Ensure the surface of the sensor's outer cover is clean.
If there are deposits due to the presence of oil vapour, dust etc, then the sensor 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 the future.
- iv) Ensure no equipment which may generate combustion products 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 Fire 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 sensor's correct operation in response to a smoke condition.

Note: When carrying out site testing of Analogue Addressable Evolution detectors, the CIE shall be set to test mode prior to beginning the tests.

- 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) Introduce a discrete amount of smoke into the detector head, e.g. using a 'No Climb -Solo' smoke test head. Check that the detector gives an alarm condition within 15 seconds. Check the LED indicator on the **EV-PH** detector illuminates and any remote indicator LED fitted also illuminates.



- iii) Test the heat sensor using 'Detector Testers – Solo' heat sensor tester, alternatively, 'Detector Testers – Testifire' equipment may be used. Check that the sensor gives an alarm condition within 15 seconds. Check the LED indicator on the **EV-PH** sensor illuminates and any remote indicator fitted also illuminates.

Note: Hot air blowers sold for stripping paint etc. generate sufficient heat to damage the detector and should not be used.

- iv) After the detector has given the alarm condition, reset the detector from the control panel. It may be necessary to allow a short time to elapse before resetting the detector, to allow any residual smoke from the test to disperse.
- v) Before proceeding to the next detector, ensure that the detector just tested does not re-operate due to the presence of residual smoke.

Functional Test:

The detector may be returned to Nittan Europe Ltd. for functional testing.

Cleaning:

Note: The detector head should NOT be disassembled.

- i) Carefully remove the detector head from its base.
- ii) Use a soft, lint-free cloth, moistened with alcohol for sticky deposits, to clean the plastic casing.
- iii) Using a soft bristle brush (e.g. an artist's paint- brush) carefully brush between the vanes in a linear motion away from the smoke entry apertures.
- iv) It is permissible to blow dust from the chamber, without removing the cover, using a clean air line.
- v) If the unit needs further cleaning, or is damaged or corroded, please return the complete detector to Nittan Europe Ltd. for service.

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Section 6 - SPECIFICATIONS

Model Reference:	-	EV-PH
Computer Reference:	-	F20-82400
Detector Type:	-	Thermistor of low thermal mass Photoelectric smoke detector
Sensitivity:	-	3 levels can be selectable for smoke and A1 rate of rise for heat
Operating Current:	-	200µA fire alarm (LED on) 5.2mA
Charging Time:	-	20 seconds
Ambient Temperature Range:	-	-10°C to +55°C
Standard:	-	EN 54-5: 2017 + A1: 2018 EN 54-7: 2018
CPR Certificate:	-	2831-CPR-F0414 2831-CPR-F2427
UKCA Certificate:	-	0832-UKCA CPR-F0028 0832-UKCA CPR-F0037
Declaration of Performance:	-	F0414/F2427
Mass:	-	118g (excluding base)
IP Rating:	-	41

Section 7 - ENVIRONMENTAL PARAMETERS

Temperature Considerations:

Over the range from -10°C to +55°C.

Humidity:

Relative Humidity of up to 95%, measured at 50°C,
non condensing.

Section 8 - 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):

In 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, care then 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 9 - ADDRESS SETTING (EV-AD2-EXT)

1 Stand by mode

EV-AD2-EXT will switch to STAND-BY MODE to save battery power if there is no key operation for more than one minute after finishing changing device addresses. During the STAND-BY MODE, 7 segment LED is blank. Power LED is lit.

To return EV-AD2-EXT from STAND-BY MODE press any key.

2 Instruction

1. EV-AD2-EXT requires two 9v PP3 batteries.
 - a) Before inserting the batteries, confirm the EV-AD2-EXT is switched off and check polarity of battery, or damage could result.
2. Turn the power switch ON.
 - a) For one second, all LED's are lit and the buzzer sounds.
3. Plug the device onto the base.
4. Press the [Search] Key
 - a) Buzzer sounds, then the EV-AD2-EXT starts transmitting to the detector.
 - b) Do not remove the detector when transmitting, or damage could result.
5. The 7 segment LED reads [Customer code], [Type of detector], [Address] in turn.
 - a) The buzzer sounds, ERROR LED lights and the 7 segment LED displays an ERROR CODE when an unsupported or defective device is connected.

0.01 12.3 003.
 Customer Code Type of detector Address
 (Note - Dot position)

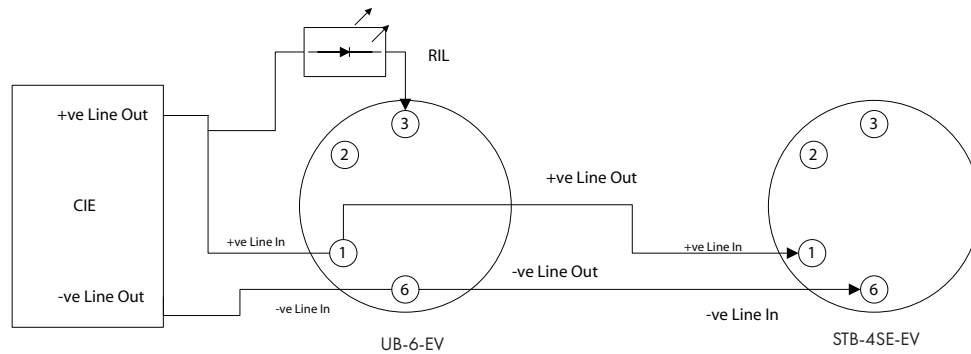
The 7 segment LED distinguishes the Customer Code, Type and Address by the dot position in the LED.

The information displayed by the 7 segment LED cycles every second and stops whilst displaying the [address] at the end of the second cycle. Pressing any key at any time during the information collection cycle, forces the EV-AD2-EXT to display the address, and await new address selection.

6. +100, +10, +1 keys are used to select the new address.
7. Press the [Set] key
 - a) The buzzer sounds, and all LED's are turned off. The EV-AD2-EXT then starts transmitting to the detector.
 - b) Do not remove the detector.
8. The 7 segment LED shows the new address and "complete" LED lights. If an unsupported or defective device is connected the buzzer sounds, ERROR LED is lit and the 7 segment LED reads ERROR CODE.
9. To continue changing the address for another detector, change the detector and then repeat from step 3. To finish changing addresses, turn the POWER SW off.

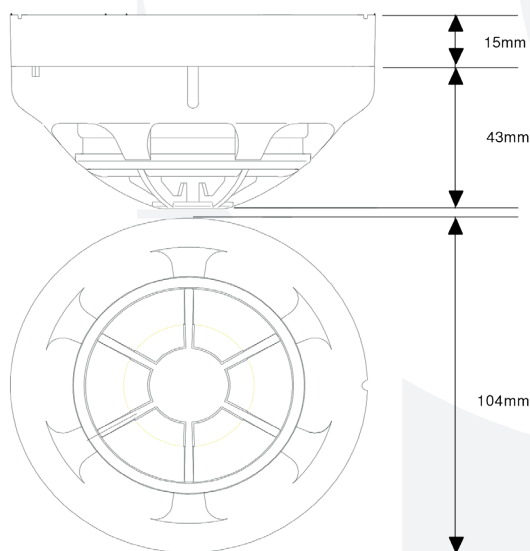


Section 10 - CONNECTIONS

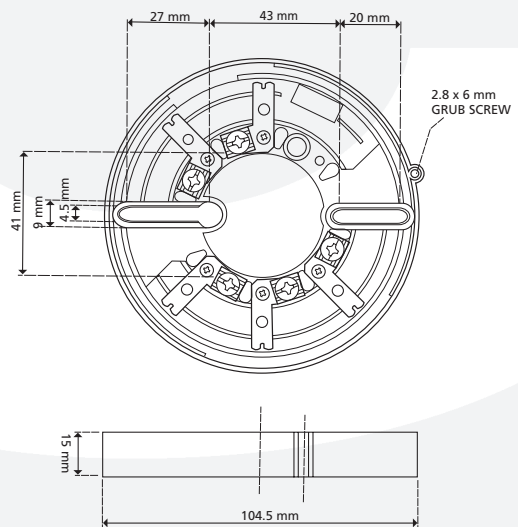


Auxiliary terminal RIL current limited to 3mA. Base control is not current limited as the auxiliary equipment provides the limiting. If the +ve supply for the auxiliary equipment is taken from the EV loop, care must be taken to not cause corruption of the EV protocol by excessive current draw.

Section 11 - DIMENSIONS



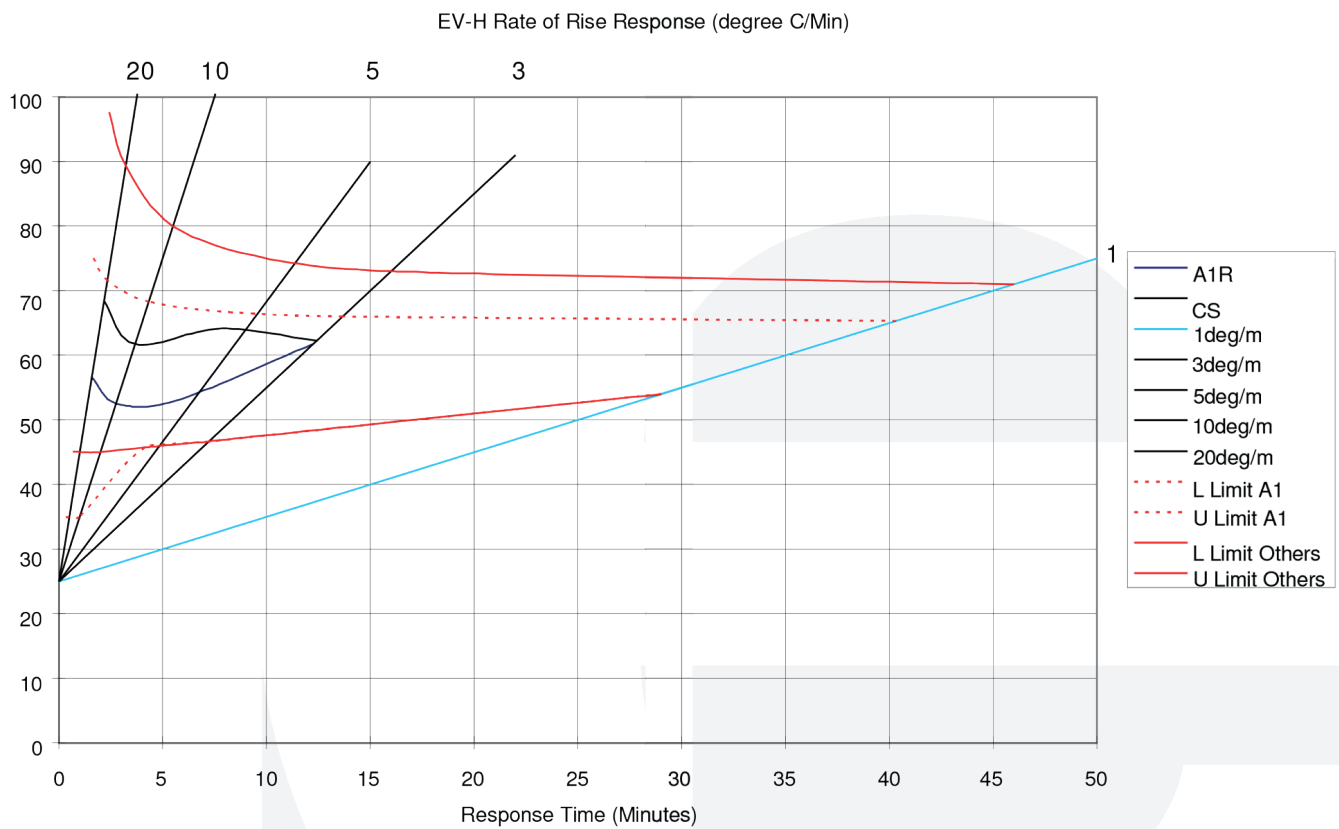
EV-PH + BASE



UB-6-EV



Section 12 - HEAT RESPONSE GRAPH





Section 13 - DISPOSAL

This symbol on the **EV-PH** indicates that this product must not be disposed of with household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office or your household waste disposal service.

Section 14 - ROHS COMPLIANCE STATEMENT

(RoHS compliant and lead-free)

This product complies with the European Union RoHS (Restriction of Hazardous Substances) directive (EU) 2015/ 863 which restricts the use of the following ten hazardous materials in the manufacture of electronic and electrical equipment.

- Cadmium (Cd): < 100 ppm
- Lead (Pb): < 1000 ppm
- Mercury (Hg): < 1000 ppm
- Hexavalent Chromium (Cr VI): < 1000 ppm
- Polybrominated Biphenyls (PBB): < 1000 ppm
- Polybrominated Diphenyl Ethers (PBDE): < 1000 ppm
- Bis(2-Ethylhexyl) phthalate (DEHP): < 1000 ppm
- Benzyl butyl phthalate (BBP): < 1000 ppm
- Dibutyl phthalate (DBP): < 1000 ppm
- Diisobutyl phthalate (DIBP): < 1000 ppm



RoHS

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